

Expert report on the most urgent regulatory barriers to a more integrated Nordic housing and construction market – a pilot action

By Dr. Kjell Nilsson, Nilsson Landscape Inc.
on behalf of the Svinesund Committee, 2026



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The border between Norway and Sweden runs through the police station in Morokulien. The building is designed to meet both countries' building codes. The most important cost-increasing factor, according to the project manager, was increased consulting costs for adapting different technical solutions to each other and the different documentation requirements. (Photo: Lars Hedelin)

This expert report has been prepared on behalf of the Svinesund Committee within the framework of its participation in the b-solutions initiative, which is implemented by the Association of European Border Regions (AEBR) and funded by the European Commission.

The Svinesund Committee was awarded funding for the implementation of a pilot action and commissioned the expert report as one of its key outputs. The report aims to identify the most urgent regulatory barriers to a more integrated Nordic housing and construction market and to outline possible pathways towards greater Nordic coordination.

Summary¹

The report examines how differences in national building regulations create barriers to a more integrated Nordic housing and construction market. Despite shared ambitions among the Nordic countries to become the world's most sustainable and integrated region by 2030, significant regulatory differences continue to hinder cross-border business, increase construction costs, and reduce productivity. Historically, Nordic countries cooperated through the Nordic Committee for Building Regulations, which successfully harmonized several technical requirements. However, this cooperation weakened after the 1990s, leading to increasing divergence in national regulations.

The report argues that greater harmonization would improve competition, facilitate industrialized construction methods, and reduce housing costs. Research cited in the report suggests that an integrated Nordic construction market could increase productivity and generate substantial economic benefits. Differences in regulations force companies to adapt building systems, products, and documentation to each country, resulting in higher costs, reduced economies of scale, and longer project lead times.

Based on interviews with Nordic construction companies, the most urgent areas for harmonization are fire safety, energy and insulation requirements, national interpretations of Eurocodes, accessibility and universal design, and methods for calculating life-cycle carbon emissions. Additional priority areas include dimensioning requirements, wet-room regulations, noise standards, and daylight requirements.

The report concludes that current trends toward simplified, performance-based regulations, digitalization, and green transition create better conditions for harmonization than in previous decades. It proposes that the Nordic Council of Ministers establish permanent Nordic task forces involving authorities, researchers, and industry representatives to coordinate regulations and identify areas where common standards would create the greatest value. The report also recommends expanding the principle of mutual recognition to standardized building systems and highlights Åland as an example of how different Nordic regulatory traditions can be successfully combined. Overall, the report emphasizes that stronger political commitment is necessary to achieve a truly integrated Nordic construction market.

¹ AI-generated

1 Background

The mission of the pilot action

In its effort to encourage small and medium-sized enterprises along the Swedish Norwegian border to operate on both sides of the border, The Svinesund Committee which is one out of twelve cross-border cooperation committees supported by the Nordic Council of Ministers, has encountered the problem with the two countries having different building regulations.²

At first glance, the problem should be manageable. The Nordic countries have the same type of planning system, fairly similar challenges with the climate and equally high ambitions in terms of environmental requirements, energy savings and accessibility by all regardless of age, ability, or status. It is in the details that they differ. A number of examples are given by NBO Housing Nordic, an association of eight cooperative and public associations in Denmark, Finland, Iceland, Norway and Sweden, which believes that a common Nordic regulatory framework provides the conditions for a common Nordic construction market with larger production series of concept houses and thus lower construction costs.³

The Association of European Border Regions (AEBR) has supported the Svinesund Committee in its ambitions to work towards the harmonization of Nordic building regulations. An expert report from 2021 proposed a *B-solution* for harmonization through a parallel process that should encompass the entire regulatory framework.⁴

As it has proved politically unfeasible to address all regulations at once, this pilot action will focus on approximately ten priority themes, based on updated regulatory and cost comparisons and targeted interviews with actors from the construction and housing sector.

The vision of an integrated Nordic construction market

The Nordic Council of Ministers has a vision of the Nordic Region as the world's most sustainable and integrated region by 2030.⁵ The vision stems from a joint declaration by the Nordic Prime Ministers in Reykjavik on October 29, 2019 and was reiterated at a meeting in Stockholm on May 13, 2024.

"Today, we have reaffirmed our common vision that the Nordic Region will become the world's most sustainable and integrated region by 2030. This will support the economic competitiveness of our region. The Nordic countries' membership of the European Economic Area and the EU's Single Market is essential. Moreover, with all the Nordic countries together in NATO we highlight our commitment to security, peace, and stability throughout the Euro-Atlantic area."⁶

One of the means to achieve the integration goal is to eliminate border barriers. Historically, the Nordic Council of Ministers' Freedom of Movement Council has primarily prioritized free movement in the labor market, but in recent years it has been mandated to focus more on companies' border barriers. The problem of different building regulations has been identified

² Daisley, A. (2020) Perceived border barriers linked to wood construction – Sweden and Norway.

³ NBO Housing Nordic. (n.d.) Med gemensamma regler bygger vi billigare.

⁴ Nilsson, Kjell. 2021. Perceived border obstacles linked to wood construction. B-solutions, Association of European Border Regions.

⁵ <https://www.norden.org/en/declaration/our-vision-2030>

⁶ <https://www.government.se/globalassets/government/dokument/statsradsberedningen/nordic-declaration-on-competitiveness-and-security-may-13-2024.pdf>

by the Freedom of Movement Council as a priority problem in the border barrier database (border barrier no. 14-076).⁷

The Nordic housing ministers have the ambition to make the Nordic Region the most integrated construction market in the world. At a ministerial meeting in Stockholm in May 2018, a joint declaration was agreed to “promote a stronger and more integrated construction market in the Nordic Region through working towards the removal of barriers that restrict enterprises in doing business in the construction sector in other Nordic countries for the benefit of Nordic citizens as well as the real estate and the construction sector in the Nordic Region. Our vision is to create one coherent construction market in the Nordic Region, thus ensuring better and cost-effective buildings.”⁸

One of the principal measures identified is increased cooperation between the national planning and building authorities on the harmonisation of building regulations. At the following ministerial meeting in Reykjavik in October 2019, the importance of harmonising building regulations between the Nordic countries was reiterated and a steering group for common building regulations was established. The importance of green transition in the construction sector was also underlined.

The issue is far from new

The issue of harmonization of building regulations is far from new. For many years, coordination was carried out under the auspices of the Nordic Committee for Building Regulations (NKB), which had been established in 1971 but was closed down in 1996 when Finland and Sweden became members of the EU. Thanks to NKB, for example, the noise regulations in 1980 were largely identical for housing, schools, preschools, hospitals, nursing homes and hotels throughout the Nordic Region. However, towards the end of the 1980s and the beginning of the 1990s, the countries began to revise the regulations individually and without mutual coordination.

In November 2011, a Nordic cooperation group met on a Swedish initiative to gain an overview of the need for a systematic review of similarities and differences in the different parts of the building regulations. It was decided that Denmark would take care of issues related to fire safety, Iceland would deal with noise, Sweden with accessibility, Finland with energy and Eurocodes, while Norway would deal with issues related to humidity and measurements of ceiling height, railings, doors and windows. Below is a summary of the noise report from Iceland, which may illustrate some of the difficulties in agreeing on a common set of regulations.

The Nordic Committee for Building Regulations (NKB) appointed a working group in the mid-1970s with the task of coordinating the noise regulations. The group published “Guidelines for Building Regulations Concerning Sound Precautions” in 1978. All countries adopted the recommendations and by 1980 the noise regulations for homes, schools, preschools, hospitals, nursing homes and hotels in the Nordic countries were largely identical.

During the 1980s, however, the countries began to revise the regulations individually and without mutual coordination. In the early 1990s, it was clear that the regulations were no

⁷ https://www.norden.org/sv/granshinderdatabasen?search-overview=bygggregler&field_status_value=All&field_border_hinderance=All&field_ghr_priority_value=All&field_affected_countries_target_id=All

⁸ <https://www.norden.org/en/declaration/declaration-nordic-ministerial-meeting-concerning-buildings-and-construction-29th-may>

longer the same and that some countries were also planning further changes without coordinating with the other Nordic countries. It was also clear that the Nordic countries, which had had largely the same requirements since the 1950s, were starting to lag behind some other countries in Europe in terms of regulations for residential buildings.

Against this background, a new working group was formed in 1993 to coordinate the regulations again and to catch up with the countries with more ambitious noise requirements. The work resulted in a proposal for a common standard for classifying noise in homes, which was put to a vote. All but Sweden voted in favour of the proposal. Norway, Denmark, Iceland and Finland have now adopted the common rules in turn, while Sweden has a similar standard but with a different division into sound classes and a certain difference in the requirements in the building regulations.

The investigations from 2011-2012 were carried out according to plan, but then apparently not much happened until 2018 when the housing ministers met and raised the issue again. An important reason why no progress has been made is habits and tradition. The officials in each country are used to the rules of their own country and do not want to give up their privilege to design and interpret them in their own way. They are also afraid of losing some flexibility. Common Nordic rules will be more cumbersome to change and therefore risk creating more bureaucracy. Therefore, many argue that we should concentrate on new regulations because then no one will be locked in in advance. An example of such an area is the requirements for life cycle assessments of construction products, where a harmonisation initiative is underway under the leadership of the Finnish Ministry of the Environment.

However, the experience to date has not been particularly positive, the process is slow and without political pressure from above it can easily stall. For example, the Swedish National Board of Housing, Building and Planning gave up on its attempts to harmonise the rules for accessibility. Therefore, a politically binding agreement at ministerial level is necessary, otherwise the officials will easily end up in a dead end. Despite the large-scale ambitions, it is difficult to find concrete examples of harmonisation. On the contrary, the countries appear to be further apart than they have been for a very long time.

The construction sector is prioritised by the EU

Although construction and housing policy are primarily national matters, the European Commission, under the leadership of Ursula von der Leyen, has taken several initiatives that have raised the issue on the EU's agenda. New European Bauhaus (NEB), launched in 2021, is a policy and funding initiative that makes green transition in built environments and beyond enjoyable, attractive and convenient for all. The initiative promotes solutions that are not only sustainable, but also inclusive and beautiful, while respecting the diversity of places, traditions, and cultures in Europe and beyond.⁹

Another sign of the increased attention given to housing in Brussels is that the EU Commission appointed its first Housing Commissioner in 2024, former Danish Environment Minister Dan Jørgensen. His major challenge is to tackle the crisis that is causing millions of young people and families to struggle to find affordable housing throughout Europe.

”What Europe is facing is more than a housing crisis. It is a social crisis. It weakens our cohesion, and it threatens our competitiveness, by limiting labour and educational mobility, thereby exacerbating labour shortages in growth poles. Europe must act decisively to help

⁹ https://new-european-bauhaus.europa.eu/index_en

make housing more affordable for all Europeans. At the same time, efforts to improve affordability should go hand in hand with sustainability and quality. Energy-efficient, resilient homes that are built with lowest possible carbon footprint reduce maintenance and utility costs while enhancing long-term value, whereas sufficient quality is essential to deliver healthy, safe, and dignified living conditions. Integrating these objectives will ensure that Europe's housing policies deliver lasting social, economic, and environmental benefits.”¹⁰

The European Affordable Housing Plan is the EU's first comprehensive strategy to address the growing housing crisis in Europe. The plan was presented in December 2025 by the European Commission to address rising house prices, high rents, housing shortages and widening social disparities.

The EU estimates that Europe needs to build more than 2 million homes per year to meet demand, which is 650,000 more than the 1.6 million currently under construction. The plan aims to deliver more homes faster by simplifying building permits and administration, digitising planning and construction processes, using modular and modern construction methods, supporting renovations of existing homes, and improving skills and the construction workforce. It also aims to attract both public and private capital to the construction sector, regulate short-term rentals and discourage speculation, and protect particularly vulnerable groups such as low-income earners, the homeless, young people and students.

¹⁰ European Commission (2025) The European Affordable Housing Plan.

2 Economic issues

Negative productivity

If the rules were more uniform, it would be easier to establish a common Nordic construction market with increased competition and thereby putting pressure on prices as a result, which is particularly important in an industry characterized by negative productivity, that is, construction costs have increased faster than the cost price index.

There is general agreement that increased trade leads to increased productivity, mainly due to increased competition. There has been much discussion about the low or even negative productivity of the construction sector. The figure below shows a comparison between the productivity development of the construction sector and industry from 1995 to 2017. As can be seen from the figure (Fig. 1), industrial productivity has increased by two to three percent in all countries, while for the construction sector, it has remained constant in Denmark and even fallen in Sweden, Norway and Finland.

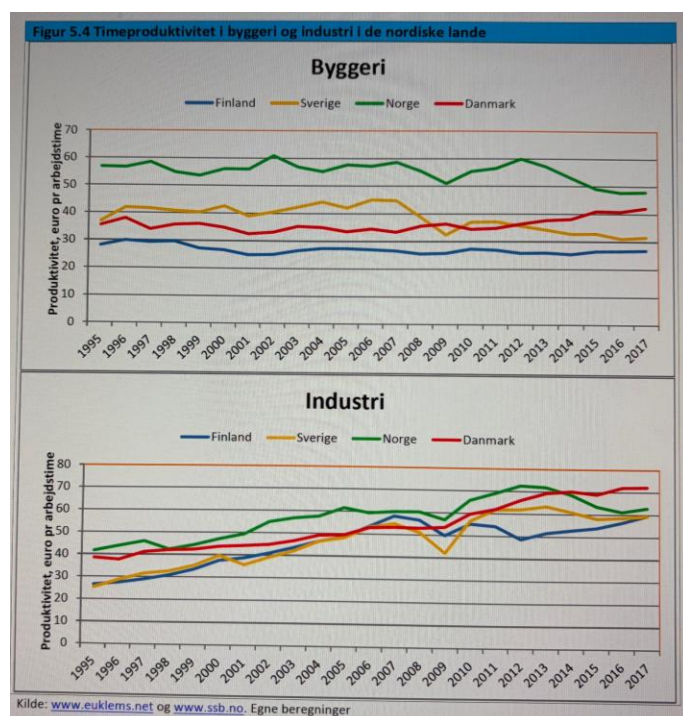


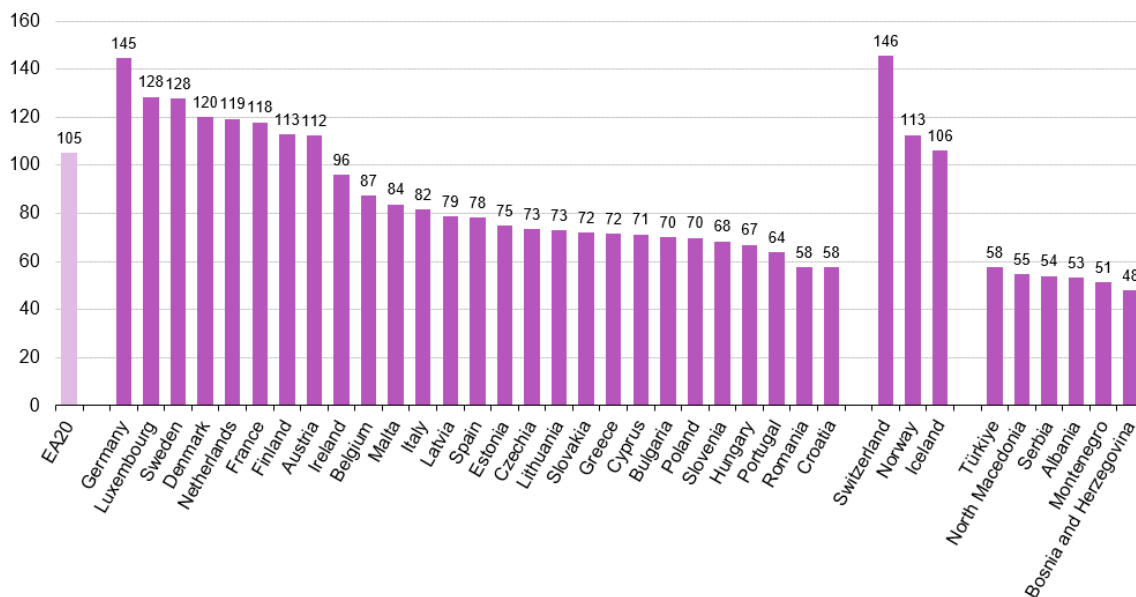
Figure 1. Hourly productivity in construction and industry in the Nordic countries¹¹

Europe's highest construction costs

According to the European Affordable Housing Plan construction costs increased by 60% in nominal terms between 2013 and 2024, considerably faster than the household incomes. Looking at recent decades, Norway, Sweden and Iceland are among the countries that, together with Switzerland, have the highest construction costs in Europe. Denmark and Finland also have construction costs that clearly exceed the European average. Figure 2 shows the price levels from Eurostat's latest compilation. According to these statistics, Sweden has the highest construction costs in the Nordic countries.

¹¹ Lauritzen Consulting & Oxford Research. 2021. Et integreret nordisk byggemarked, p. 69

Price level indices for construction, 2024, EU=100



Source: Eurostat (online data code: prc_ppp_ind_1)

eurostat

Figure 2. Price level indices for the main categories of construction expenditure (residential buildings, non-residential buildings and civil engineering works).¹²

Why have construction costs for housing increased more in Sweden than in other comparable countries? Economists Mats Bergman and Sten Nyberg ask themselves this in a chapter in the Nordic Economic Policy Review 2021¹³. They note that house prices rose sharply in Sweden, Norway and Denmark, but remained more stable in Finland and Iceland between 2000 and 2015. While construction costs have increased by just over 100 percent, land prices have increased by 300 percent in the past 20 years, but since the land price only accounts for 10 percent of the cost of a newly built home, less than 30 percent of the price increase can be attributed to rising land prices. High prices for building materials, caused by discount systems that eliminate open competition, account for at least 25 percent. Of the remaining almost 50 percent, the lack of competition on the construction side is a dominant factor, which is reflected in the fact that the number of bids is often low. According to the Swedish Competition Authority¹⁴, the number of tenders during the years 2015-2018 was only one or two in 40 percent of cases.

Distribution of costs

However, not everyone agrees that Sweden has the highest construction costs in the Nordic Region. In Norway, the finance company UNION has reacted to the sharply rising construction costs, which UNION attributes primarily to stricter requirements for universal design, fire

¹² <https://ec.europa.eu/eurostat/statistics-explained/SEPDF/cache/8801.pdf>

¹³ Bergman M.A. & Nyberg, S (2021) Housing prices, construction costs and competition in the construction sector – a Swedish perspective. In: Nordic housing markets and policies. Nordic Economic Policy Review 2021.

¹⁴ Konkursverket (2018) Bättre konkurrens i bostadsbyggandet. En uppföljning av utvecklingen 2015-2018 samt en kartläggning av fortsatt utredningsbehov

safety, acoustics, daylight, energy, documentation and independent inspection¹⁵. It has compared what an identical eight-storey apartment building of 9,000 square meters of gross floor area, of which 6,750 square meters of saleable usable area (BRA), would cost to build in Norway and Sweden, with reference to the simplified Swedish building regulations. According to UNION's calculations, the same building would cost NOK 120 million more in Norway than in Sweden: NOK 337.5 million compared with SEK 216 million. This means that Norwegian buyers would have to pay just over NOK 1 million more for a 60-square-meter apartment than their Swedish neighbours.



Figure 3. Distribution of the additional technical costs of building in Norway compared to Sweden.¹⁶

The additional cost is SEK 18,000 per m² of BRA, of which SEK 16,500 consists of additional technical costs (Fig. 3). The remaining additional cost of SEK 1,500/m² of BRA is outside the building regulations and the documentation and control requirements to comply with them, such as labor market and currency regulations.

The additional technical costs are caused to 15% (SEK 2,430/m² of BRA) by the fact that higher requirements for universal design force larger areas and higher requirements for doors and bathrooms. In addition, a further 2.5% (SEK 405/m² of BRA) is due to stricter requirements for fire classification and soundproofing of doors. Stricter fire safety regulations account for 11% of the additional cost (SEK 1,823/m² of BRA) due to extra stairs and fire sections and requirements for sprinkler systems.

Acoustic requirements, corresponding to just over 5% of the technical additional costs (878 SEK/m² BRA), lead to heavier structures, floating floor screed and extra sound insulation of

¹⁵ UNION (2025) Byggekostnadsanalyse Norge-Sverige. Sammenligning av tekniske krav, dokumentasjon og systemkostnader

¹⁶ UNION (2025) Byggekostnadsanalyse Norge-Sverige. Sammenligning av tekniske krav, dokumentasjon og systemkostnader, p. 28

ventilation and sewage pipes. The rules on daylighting entail larger windows and more complex facades, corresponding to 9% of the technical additional costs (1,478 SEK/m² BRA). In addition, stricter requirements for windows, corresponding to 6% of the additional costs (979 SEK/m BRA).

Norwegian bathrooms require larger areas due to accessibility requirements and more detailed requirements for membranes, drains, pipe-in-pipe and water traps, which correspond to 6.5% of the additional costs (1,080 SEK/m² BRA). Stricter energy requirements require thicker insulation and requirements for a balanced ventilation system with heat recovery and more extensive documentation, which corresponds to 12% of the technical additional costs (2,160 SEK/m² BRA).

Differences in the requirements for foundation, floor and load-bearing structure account for just over 12% (1,114 and 911 SEK/m² BRA respectively). Finally, stricter requirements for access to and space in elevators result in an additional cost of 5.5% (911 SEK/m² BRA).

Money to save

In a 2012 study, Anders Gustafsson calculated that 1.3% of the cost of new construction of a residential building can be attributed to differences in building regulations¹⁷. The increased costs can be attributed to increased design costs and lack of competition.

Finn Lauritzen and Oxford Research¹⁸ estimate that an integrated Nordic construction market could lead to an increase in trade of 15-20 percent, which with an elasticity between trade and productivity of 0.25 would give a productivity potential of 3.75-5 percent. Since the construction sector's share of GDP is reported to be 8-12% in the Nordic countries, this would give an overall welfare effect of 5-10 billion euros.

There is general agreement that increased trade leads to increased productivity, mainly due to increased competition. For all Nordic countries except Iceland, which has virtually no domestic production of construction products, the construction sector's import quotas are 15-20 percent lower than the country's overall import quota. This coincides with the results of the OECD's STRI analysis of the construction sector, where Iceland tops the list of countries with the highest barriers. Finland and Norway also come high on the list, while Denmark and Sweden are below the average among the countries assessed by the OECD (Fig. 4).

¹⁷ Gustafsson, A. 2012. Uppskattning av samhällskostnader på grund av skillnader i byggregler mellan de nordiska länderna. Publication 2012:06, Nordic Innovation. Oslo.

¹⁸ Lauritzen Consulting & Oxford Research. 2021. Et integreret nordisk byggemarked.

Figure A B.11. Construction services (Panel A) and architecture services (Panel B), 2025



Source: OECD STRI database (<http://oe.cd/stri-db>).

Figure 4. OECD STRI index for the construction sector, 2025.¹⁹

¹⁹ OECD (2026) OECD Services Trade Restrictiveness Index 2026: Policy Trends. OECD Publishing, Paris, p.80 <https://doi.org/10.1787/db87d74e-en>

3 Way forward

Less detailed regulations, digitalization and green transition pave the way

There are mainly two factors that make the conditions better today than in a long time. One is the tendency to make building regulations less detailed and to transfer more responsibility to the construction industry, the other is about digitalization and the green transition in the construction sector. Both tendencies make it easier to harmonize the regulations.

The intention behind transferring more responsibility to the construction industry is to create greater scope for creativity and technical innovations and more efficient solutions and thereby promote increased competition. In Sweden, the National Board of Housing, Building and Planning has carried out a revision of the National Board of Housing, Building and Planning's Building Regulations (BBR). The new regulations, which were introduced in 2025, are simpler because they only contain mandatory requirements and because the various regulations for fire protection, safety, energy, noise and indoor climate have the same structure and level of detail. A similar development is underway in Norway, where the housing shortage has prompted the Norwegian government to initiate a review and simplification of building regulations (TEK17).²⁰

Digitalization of the construction process requires machine-readable requirements, which in turn requires clear and unambiguous terminology, which can be seen as a prerequisite for harmonizing the regulations. As the second largest industrial ecosystem in the EU, employing 27 million people, the EU Industrial Strategy underlines the need for both digitalisation and green transformation of the construction industry. One of the cornerstones of this is a transition from a linear to a circular economy. However, a work led by the Finnish Ministry of the Environment to harmonise the Nordic rules for life cycle assessments of building materials ended without agreement on a common methodology.

Thanks to the development towards more functional and less detailed requirements, as well as the demands for digitalization and green transition in the construction sector, the conditions for harmonizing building regulations in the Nordic Region are better than in a very long time. A prerequisite, however, is that there is a binding requirement from the responsible ministers that national authorities work for common solutions rather than maintaining national separate regulations. Such a mandate should be formalized through a decision by the Nordic Council of Ministers and should set a clear timetable for convergence in prioritized technical areas.

Permanent task forces proposed

A central tool for this is the establishment of permanent Nordic working groups or “task forces” consisting of representatives from national building standardization bodies, regulatory authorities and leading researchers from Nordic universities and technical institutes. The working groups should primarily identify areas where national differences have no or limited merit in substance, and where a common standard would provide the greatest added value for the construction sector.

The proposal involves the reestablishment of the old NKB working groups that were closed down when Finland and Sweden became members of the EU in 1995. Although the groups never had a mandate to harmonize regulations, they managed to synchronise and achieve

²⁰ <https://byggframtid.se/arkitekturvarlden/norge-forenklar-byggreglerna-foljer-sverige/>

coordination through dialogue that made it easier to handle differences in both requirements and calculation methods.

A suitable first step is to start by standardizing requirements for prefabricated building components. Today, manufacturers are often forced to adapt their production lines to different national regulations for each individual country, even though the functional requirements are in practice similar. Through common standards, production processes can be simplified, costs reduced and the pace of innovation increased.

So far, the EU principle of Mutual Recognition Agreement has only been applied to individual construction products, but there are no formal obstacles to extending this principle to system solutions. Mutual recognition should be applicable to standardised, factory-made building systems such as modules or volume elements for apartment buildings that can be built in 2-8 floors. In this area, the Nordic countries are already well ahead in an international comparison. A Nordic model where the principle of mutual recognition so that approved building systems and solutions can be used throughout the Nordic region without national re-examination would be truly innovative.

Åland as a bridge builder

Åland can serve as a source of inspiration and a bridge builder when it comes to finding pragmatic solutions to the problem of differences in building regulations. Åland is part of the Republic of Finland but enjoys significant autonomy, allowing it to adapt legislation in certain areas, including planning and construction issues, already uses a hybrid of Finnish legislation and Swedish building regulations with its own local adaptations and regulations. This creates a specialized regulatory framework for construction while striving for increased harmonization with the other Nordic countries.

Åland has its own planning and building law that is mainly adapted to the Finnish planning and building law. In addition, Finnish building standards (Eurocodes) are used as a basis. However, the building regulations in the Åland Building Regulations Collection are largely based on the Swedish National Board of Housing, Building and Planning regulations with additions for local specificities.

Work is currently underway to revise the Åland building regulations, which aim to harmonize Finnish and Swedish noise requirements. In general, the Åland example is innovative and worth emulating, where those involved express a clear ambition to contribute to a development towards common Nordic building regulations and where Åland sees itself as an important link, primarily between Sweden and Finland, but also to the rest of the Nordic Region.

4 Prioritised issues

Evenly distributed additional costs

As shown in Figure 3, the reasons for the additional costs of building in Norway compared to Sweden are relatively evenly distributed across a number of different factors. The largest individual items causing additional costs are universal design, insulation and energy requirements, and fire safety, which account for 15, 12, and 11 percent of the additional technical costs, respectively.

In 2008, another survey was conducted of the problems that the wooden house industry experiences with different regulations by Anna Pousette and Anders Gustafsson.²¹ They found that many dimensional requirements are based on the accessibility of the home. Since the requirements are different, housing companies have different floor plans for otherwise similar houses, even though they are based on the same type of wheelchairs that are manufactured according to international requirements. The authors believe that if only the authorities review the requirements, a reconciliation should be possible, and unnecessary differences should be removed. Such an attempt was made by the Swedish National Board of Housing, Building and Planning in the 2010s, which however, as mentioned earlier, failed.

Another problem is the different requirements for step heights in stairs, which means that several different stairs must be kept in stock. Actually there are no conflicting requirements, but rather instructions and practices that differ. Other problems addressed concern water tightness in wet rooms and external walls, calculation programs for energy calculations with associated requirements for insulation thicknesses in walls and floors, and differences in the national annexes to the Eurocode for the design of buildings.

A survey was also conducted among construction companies. This showed that the most common problems, which occurred in 55% of the survey responses, concerned moisture/wet rooms/external walls, roof trusses/general joints/underlayment ceilings and values/insulation/energy calculation, followed by, occurring in 45% of the responses: accessibility and Eurocode/dimensioning/static calculations (Table 1).

²¹ Pousette, A. & Gustafsson, A. (2008) Harmonisering av de nordiska ländernas träbyggregler

Tabell 1 Resultat från frågeformulär.

Typ av hinder	Andel företag (%)	Bedömd kostnad
Brand	15	Måttlig
Fukt, våtrum, yttervägg	55	Liten
Tillgänglighet, rum, badrum, handikappanpassning	45	Liten
Räckeshöjder, steghöjder	30	Liten
Eurokod 5, dimensionering, statiska beräkningar	45	Stor
Snözoner	30	Måttlig
Takstolar c/c, beräkning, generalskarv, underlagstak	55	Måttlig eller liten
U-värden, isolering vind och vägg, energiberäkning, värmebehovsberäkning	55	Liten, måttlig eller stor
Tätning fönster/bleck, vägg	30	Måttlig
Taksäkerhet, fasadstege	15	Liten
Måttregler BOA mm, måttsättning	30	Liten
Transport fordonslängd	30	Måttlig
Typgodkännande	15	(ej angiven)
Materialegenskaper	15	(ej angiven)
Bygglov, byggprocess, arkitektens roll	30	Liten
Arbetarskydd	15	(ej angiven)

Table 1. Results of a survey of wooden house manufacturers regarding which rules or requirements cause problems and extra work/costs for the houses to be accepted by authorities or developers in another country.²²

For this Pilot Action, a supplementary survey was conducted with nine Nordic companies, all of which have experience of construction projects in at least two Nordic countries. The group of companies represents both large multinational construction companies such as Skanska and OBOS as well as smaller manufacturers of houses or building elements. The interviewees were asked to give concrete examples of how national differences in building regulations have caused problems in the form of delays or increased costs, and to indicate the areas in which they considered harmonisation most urgent. All companies can refer to concrete examples

²² Pousette, A. & Gustafsson, A. (2008) Harmonisering av de nordiska ländernas träbyggregler, p. 16

where differences in regulations have resulted in additional costs. This is most evident when trying to introduce industrial building systems, since the value of such systems lies in being able to verify them once and for all, and then use them widely.

One such initiative in standardized housing construction is BoKlok, which has been active in Sweden, Norway and Finland. Despite similar housing needs, national differences in building regulations have meant that houses have not been built identically in each country, which has led to the need to produce different variants of the same building module, adapted to each country's regulations, with increased development and production costs, less economies of scale, more complex planning and longer lead times as consequences. This was dealt with by adapting the designs country by country, but this came at the price of lost efficiency and higher costs, something that could have been avoided with more harmonized regulations.

The results of the ranking, which are shown in Table 2, form the basis for the following proposals for priority areas. Generally, all issues in the list were found relevant but five areas stand out as the most urgent, namely Fire safety, Energy and insulation, national interpretations of Eurocodes, Accessibility and universal design, and differences in the methods to calculate CO² emissions and Life Cycle Analysis. In the second group of prioritised areas are found Dimensioning requirements, Wet rooms and damp, Noise and Daylight.

Company	Firm 1	Firm 2	Firm 3	Firm 4	Firm 5	Firm 6	Firm 7	Firm 8	Firm 9	Priority
Fire safety	1	3				3	3	1		10/5=2
Energy	2			3	3	2	1		1	12/6=2
Climate, LCA	3	2			4			4	3	16/5=3.2
Eurocodes	4	1				1	4	3	2	15/6=2.5
Accessibility	5	5	1	1	1		6	2		21/7=3
Dimensioning	6	6			6		5			23/4=5.75
Wet rooms	7	7		2			8	5		29/5=5.8
Noise	8	4	2		5	4	10			33/6=5.5
Daylight	9	8			2		9			28/4=7
Safety	10						7			17/2=8.5
Ventilation		4								
Building permission		9								
Documentation			3							
Transports					7					
Timber dimensions	11						2			

Table 2. Results of a survey of Nordic construction companies regarding within which areas they consider it most urgent to achieve harmonisation.

Below is a brief summary of how the building regulations of Finland, Norway and Sweden differ within the nine most prioritized areas and, finally, a table with concrete examples of regulatory texts that also include the Åland building regulations, see Annex 1.

4.1 Fire safety

Fire protection regulations are the area that, in the companies' overall assessment, is perceived as most urgent to coordinate. Although the differences in the requirements are manageable, the variation in how they are to be verified poses major problems, which in practice means that an already technically functioning and verified product must be translated, and in some cases supplemented to comply with each individual country's regulations, which is inefficient for an industrial system. Harmonization of requirements and test methods would therefore have a very large effect.

Sweden generally sets higher requirements here, for example, requiring fire class REI60, which means that a load-bearing building component withstands fire for at least 60 minutes without collapsing or spreading the fire, in fire walls in cold spaces, while Norway and Finland accept fire class REI30. In Sweden, sprinklers are required in nursing homes and hospitals, but not in residential buildings. However, in Norway, they are required in all apartment buildings with an elevator, and in Finland, if the distance to the floor of the top floor exceeds 24 meters.

In Sweden, escape doors must have a clear width of at least 0.8 m or 1.15 m if they serve 150 people or more. In Finland, the corresponding dimensions are 0.9 m and 1.2 m respectively for a maximum of 60 people or in residential buildings with a maximum of two floors. In Norway, escape doors must have a clear width of at least 0.86 m or 1.16 m if they serve “many” people. The doors must, as a main principle, open outwards in all three countries, but can also be opening inwards if they serve fewer than 10 people in Norway and a maximum of 30 people in Sweden. Here, Denmark stands out from its Nordic neighbours by having inward-opening escape doors in apartment buildings as a main rule.

4.2 Energy/insulation

Energy performance is calculated differently in Norway and Sweden. The consequence is that the same wall can exhibit different performance depending on which country's regulations are applied, which complicates design, inhibits innovation and hinders industrialization. In Norway, requirements are set for the tightness of the building shell, requirements for energy source and heating system, while in Sweden, requirements are set for the total energy consumption and focuses less on controlling the energy system. In Norway, requirements are set for balanced ventilation with heat recovery in all buildings. In Sweden, requirements are set for ventilation and air quality, but not specifically for balanced ventilation as a solution. In addition, in Sweden, the requirements for ventilation and tightness vary between different climate zones, which provides greater flexibility in the choice of solutions. In Norway, a double batten is required behind the standing panel, which is justified in coastal climates, but since there are uniform rules throughout the country, air gaps are required also for houses inland.

Both Sweden's and Finland's requirements are based on the EU's Energy Performance of Building Directive (EPBD) but differ in how the requirements are expressed, calculated and applied. The Swedish requirements focus on actual energy use, while the Finnish requirements are based on calculated energy performance according to a standardized method. Sweden uses primary energy figures while Finland uses E-figures.

4.3 Eurocodes/CPR

The regulations are common but the national annexes differ, which creates uncertainty and limits the possibility of working with standardized solutions. The Eurocodes govern load-bearing capacity, stability and safety. Sweden applies the Eurocodes relatively strictly and systematically with stricter requirements regarding accidental loads and fire safety, while Finland and especially Norway have stricter requirements regarding climate and snow loads.

4.4 Accessibility/universal design

The accessibility requirement is more general and extensive in Norway compared to Sweden, which has more flexible rules with more room for exceptions. As a dimensioning measure for wheelchair accessibility in individual homes, Sweden and Finland require a turning circle with a minimum diameter of 1.3 m in individual homes, but with a diameter of 1.5 m in nursing homes. In Norway, the larger diameter is required in all dwellings. In addition, toilets must have free space next to the toilet seat of at least 0.9 m and 0.2 m respectively. In Finland, a corresponding free space of 0.8 m is required, but only in nursing homes.

The door dimensions differ in that the opening dimension for free passage must be at least 0.86 m and 0.85 m in Norway and Finland, but only 0.76 m in Sweden. The requirements for elevators are strictest in Sweden; in communication spaces where the level difference is greater than one meter, there must be an elevator, while in Norway and Finland, an elevator is required in residential buildings that have at least three floors.

4.5 Climate/Life Cycle Analysis

Life cycle analyses and climate calculations for buildings are rapidly becoming as important as energy calculations. Differences in calculation models make it difficult to introduce common building systems in the Nordic countries. For life cycle analyses, Sweden and Finland use European standards, EN 15978 and EN 15804. In Norway, life cycle analyses are calculated in a similar way but with a Norwegian standard, NS 3720, and Norwegian data as a basis.

Finland is the most ambitious when it comes to climate declarations for buildings. The requirements apply to virtually all buildings that require a building permit and include a calculation of the building's carbon footprint throughout its life cycle. In Sweden, buildings that require a building permit are also covered, with the exception of single-family homes built by private individuals and apply to the climate impact during the construction phase, including raw material supply, transport, manufacturing of construction products and the construction process itself. In Norway, the requirement applies to larger buildings such as apartment buildings and the calculation must account for emissions linked to material use.

4.6 Noise

There are differences in permitted noise levels and calculation methods, but these are not perceived as a decisive obstacle. The minimum permitted noise level difference between homes is 55 dB in Finland, 54 dB in Norway and 52 dB in Sweden. Finnish and Norwegian requirements for impact sound insulation are stricter than the Swedish, 53 dB and 54 dB versus 56 dB, which leads to stronger floor insulation and sealing requirements. The Swedish and Finnish rules are similar and cover both new buildings and changes to existing buildings. In the latter case, however, the Finnish requirements are stricter than the Swedish ones,

which increases the risk of conflicts with conservation aspects. Another difference is that in Finland there are no lower requirements for senior housing and student housing

4.7 Dimensioning

A concrete and often underestimated obstacle is that standard dimensions of timber differ between countries. In Norway, the standard widths of structural timber is 36 mm and 48 mm, unlike Sweden and internationally where 45 mm is used. There is no prohibition on using 45 mm timber in Norway, but since other dimensions are used in pre-accepted solutions, this creates problems that mean that production processes cannot be completely standardized and parallel system solutions must be worked with. Other examples of dimensioning problems are that the step height in stairs varies and that there are different requirements for the height of the railings to protect against falls and in the requirements for room height. In the latter two cases, Sweden stands out by not specifying exact dimensions but instead sets qualitative requirements that the risk of personal injury is limited and sufficient to avoid inconvenience to human health.

4.8 Wet rooms

Here, functional requirements are primarily set for waterproof layers in the form of membranes or surface materials and their resistance to aging. Generally speaking, in a comparison between Norway and Sweden, higher requirements are set for documentation and concrete solutions in Norway in the form of water traps in all drains, double membranes and leak detectors. In Norway, precise requirements are set for how much the floor should fall towards a drain, while the Swedish and Finnish rules only say that there should be a slope on the floor so that the water flows towards the floor drain.

4.9 Daylight/windows

In Norway and Finland, there are requirements that all rooms in homes for permanent residence must have windows, while in Sweden this is limited to spaces for socializing and eating. In addition, the calculation bases for how much daylight one should have access to vary. In Norway, there are strict requirements for the design of windows, which means heavier windows and longer installation times compared to Sweden, where there is greater freedom to use simpler solutions.

4.10 Other issues

Among less prioritised regulations safety issues and ventilation are mentioned. In the case of ventilation, it is noticed that in Norway a radon barrier is required in all building for permanent residence while in, for example in Sweden such a barrier is only required in risk areas with high levels of radon.

Administrative rules that cause problems are mentioned by many as a major border obstacle, mainly because Norway is outside the EU. An important limiting factor is the six-month rule that requires personnel to be replaced at a construction site in a neighbouring country after a certain time. Another is the customs rules that require materials brought across the border to be cleared through customs, which means increased costs for a special accounting service.

Another problem mentioned is that even if the rules are not particularly different, differences in documentation requirements lead to additional costs, especially in the form of additional consulting fees.

A third problem that specifically applies between Sweden and Norway is that the rules for road transport differ. The differences include permitted vehicle lengths and the requirements for longer and wider transports. On certain road networks, Sweden allows longer vehicle combinations than Norway, while the rules in both countries vary depending on the type of vehicle and road network.

In Sweden, wider transports are permitted without requiring an escort vehicle or police escort. In addition, the maximum standard length for a lorry with trailer is 24 metres in Sweden, compared with 19.5 metres in Norway. However, longer vehicle combinations are permitted on certain designated roads: up to 25.25 metres in Norway and up to 34.5 metres in Sweden.

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Interviewees

Olof Rundgren, Skanska

Malin Svensson, OBOS

Erik Söderholm, Inwoco

Jonas Fred Hell, Fridh & Hells Bygg AB, Bengtsfors

Helena Helsing & Göran Heikius, Heikius Hus-Talo

Bent Madsen, BL/NBO

Tom Wiggo Bjerknes, ØMF Wito

Henrik Ödeen, Moelven

Mats Lindblom & Hans Martin Andersen, Derome

Annex 1

Concrete examples of differences and similarities in regulatory texts in the building regulations of Finland, Norway, Sweden and Åland

	Norway	Finland	Åland	Sweden
Fire safety	Sprinklers are required in hospitals, nursing homes and hotels, as well as in apartment buildings with elevators.²³ Escape doors must have a clear width of at least 0.86 m or 1.16 m if the building is designed for many people.²⁴ Doors should normally open outwards but may also open inwards if they serve a maximum of 10 people.²⁵	Sprinklers are required when the distance from the floor of the top floor to the building's entrance level exceeds 24 meters.²⁶ The width of the exit must be at least 0.9 m if the number of people is 60 or less, otherwise it must be at least 1.2 m.²⁷ Doors must be opened outwards for residential properties or if the number of people is over 60.²⁸	Sprinklers are divided into three classes depending on the number of levels above ground and the ability of people to get to safety themselves.²⁹ The clear width must be at least 0.8 m if the escape door serves a maximum of 150 people, 1.15 m if it serves more.³⁰ Doors that open outwards, or inwards if a maximum of 30 people are expected to use it at the same time.³¹	Sprinklers are required in nursing homes and hospitals.³² The clear width must be at least 0.8 m if the escape door serves a maximum of 150 people, 1.15 m if it serves more.³³ Door that open outwards, or inwards if a maximum of 30 people are expected to use it at the same time.³⁴
Energy	The total energy requirement for single-family houses shall not exceed 100 kWh/m² of heated usable area per year + 1600 kWh/m² useable area, and 95 kWh/m² and year for apartment buildings. U-values for various building parts in residential buildings shall be at least 0.18 W/m²K for external walls, 0.13 W/m²K for ceilings and 0.10 W/m²K for floors.³⁵	The calculated comparative figure for annual energy consumption of purchased energy for detached houses and terraced houses of 50-150 m² is 200 kWh/m² heated area - 0.6 x area, 116 kWh/m² - 0.04 x area for houses and terraced houses of over 150 m², 105 kWh/m² for terraced houses and apartment buildings of up to two floors and 90 kWh/m² for apartment buildings of at least three floors.³⁶ Reference values for the thermal transmittance coefficient (U-value) for building envelopes are 0.17 W/m²K for external walls, 0.09 W/m²K for attics and basement floors bordering the open air, 0.17 W/m²K for basement floors bordering crawl spaces and 0.16 W/m²K for building parts facing the ground.³⁷	The maximum permitted primary energy value for single-family houses larger than 130 m² is 90 kWh/m² of heated surface area and year, 95 kWh/m² for single-family houses of 90-130 m², and 100 kWh/m² for houses of 50-90 m². For apartment buildings, the maximum permitted primary energy value is 75 kWh/m² and year.³⁸ When modifying buildings, a thermal transmittance coefficient (U-value) of 0.18 W/m²K shall be aimed for external walls, 0.13 W/m²K for ceilings and 0.15 W/m²K for floors.³⁹	The maximum permitted primary energy value for single-family houses larger than 130 m² is 90 kWh/m² of heated surface area and year, 95 kWh/m² for single-family houses of 90-130 m², and 100 kWh/m² for houses of 50-90 m². For apartment buildings, the maximum permitted primary energy value is 75 kWh/m² and year. The values are adjusted depending on geographical location by a factor that varies from 0.8 in the country's southernmost municipalities to 1.9 in the northernmost.⁴⁰ When modifying buildings, a thermal transmittance coefficient (U-value) of 0.18 W/m²K shall be aimed for external walls, 0.13 W/m²K for ceilings and 0.15 W/m²K for floors.⁴¹

²³ TEK17, chap 11, § 12

²⁴ TEK17, chap 12, § 13

²⁵ TEK17, chap 11, § 13

²⁶ Finlex 848/2017, § 43

²⁷ Finlex 848/2017, § 34

²⁸ Finlex 848/2017, § 35

²⁹ Ålands byggbestämmelsesamling, section 5:235

³⁰ Ålands byggbestämmelsesamling, section 5:738

³¹ Ålands byggbestämmelsesamling, section 5:741

³² BFS 2024:7, chap 7, § 48

³³ BFS 2024:7, chap 7, § 27

³⁴ BFS 2024:7, chap 7, § 33

³⁵ TEK17, chap 14, § 2

³⁶ Finlex 1010/2017, § 4

³⁷ Finlex 1010/2017, § 24

³⁸ Ålands byggbestämmelsesamling, section 9:2

³⁹ Ålands byggbestämmelsesamling, section 9:92

⁴⁰ BFS 2024:14, section 9:2

⁴¹ BFS 2024:14, section 9:92

Eurocodes⁴²	Very high values for snow load in mountain and coastal areas. Very high values for wind load along the Atlantic coast. Uses Norwegian climate maps and follows its own tradition in geotechnical design.	High values for snow load in northern and eastern Finland. Generally, somewhat lower values for wind load, especially inland. Temperature and climate data adapted to Finnish inland climate and own practice for frost and soil conditions.	Åland uses Finland's national annexes.	Relatively high values for snow load in northern Sweden. Wind load values are adapted to Swedish wind zones. Uses Swedish climate maps and Swedish geotechnical safety classes.
Accessibility	Accessible housing units must be sized for wheelchairs on the entrance level. The turning area for wheelchairs must be at least a circle with a diameter of 1.5 m or a rectangle of 1.3 m x 1.8 m.⁴³ There must be free floor space for a turning area for wheelchairs in front of the toilet, a minimum of 0.9 m of free floor space on one side of the toilet and a minimum of 0.2 m on the other side in at least one bathroom and toilet in the housing unit.⁴⁴	In residential buildings where, in addition to stairs, there must also be an elevator, there must be a turning space in the hallway and kitchen of a dwelling corresponding to a circle with a diameter of at least 1.3 m and at least one toilet and washroom where there is a free space corresponding to a circle with a diameter of at least 1.3 m. In service housing and supported housing for people with reduced mobility or functional capacity, there must be a turning space of 1.5 m in diameter.⁴⁵	Rooms, balconies, terraces and patios must be accessible to people with reduced mobility. In individual residential apartments, the dimensions for a manual or small electric wheelchair may be dimensional, i.e. a circle with a diameter of 1.3 m. At least one hygiene room must be accessible and usable for people with reduced mobility and be designed so that space for assistants can be easily arranged, for example so that the free distance on one side of the toilet is at least 0.9 m and that free space corresponding to the turning radius of the wheelchair is obtained in front of the toilet seat and washbasin.⁴⁶	In a multi-storey dwelling, at least the entrance floor must be accessible and there must be access to all housing functions. At least one room for personal hygiene must be accessible and usable for a person with reduced mobility.⁴⁷ In individual dwellings, the plan dimensions for a wheelchair are 0.7 x 1.2 m and the turning dimension is a circle with a diameter of 1.3 m.⁴⁸
Climate/LCA⁴⁹	Norway uses the NS 3720 standard, which is based on the European standard EN 15978 and covers the entire life cycle of the building, with great emphasis on energy use during operation and long-term emissions over a 60-year period.	The Finnish model applies the European standard EN 15978 and covers in principle the entire life cycle of the building from raw material extraction to demolition. It accounts for both the climate footprint and positive effects such as recycling and carbon sequestration.	Åland uses Finland's model.	Uses LCA according to the European standard EN 15978. The climate calculation mainly covers the construction phase, while the use and end phase are normally not included in the statutory declaration.

⁴² AI-generated comparison

⁴³ TEK17, chap 12, § 2

⁴⁴ TEK17, chap 12, § 9

⁴⁵ Finlex 241/2017, §§ 6, 9

⁴⁶ Ålands byggbestämmelsesamling, section 3:146

⁴⁷ BFS 2024:12, chap 2, § 9, 12

⁴⁸ BFS 2024:12, chap 1, § 6

⁴⁹ AI-generated comparison

Noise	Minimum airborne sound insulation between dwellings is 54 dB, between a dwelling and external parking or staircase 50 dB, and 60 dB between a dwelling and business or service premises. Maximum impact sound pressure level between dwellings is 54 dB, and in a dwelling from parking, business and service premises 48 dB.⁵⁰	The minimum permitted sound level between dwellings is 55 dB and 39 dB from the exit to the dwelling. The maximum permitted impact sound level between dwellings is 53 dB and 63 dB from the exit to the dwelling.⁵¹	The minimum permitted sound level between dwellings is 52 dB, between a dwelling and external staircase 44 dB, and 56 dB between a dwelling and parking or service facilities. The maximum permitted impact sound level between dwellings is 56 dB, 62 dB from staircases etc. and from parking and service facilities 52 dB.⁵²	The minimum permitted sound level between dwellings is 52 dB, between a dwelling and external staircase 44 dB, and 56 dB between a dwelling and parking or service facilities.⁵³ The maximum permitted impact sound level between dwellings is 56 dB, 62 dB from staircases etc. and from parking and service facilities 52 dB.⁵⁴
Dimensions	Rooms for permanent residence must have a minimum height of 2.4 m.⁵⁵ Handrails for stairs must be at least 0.9 m high. Handrails for balconies and similar areas must be at least 1.0 m up to a height of 10 m and at least 1.2 m at higher levels.⁵⁶	The room area must always be at least 7 m². The room height must be at least 2.5 m in apartments and work premises, 2.4 m in single-family homes.⁵⁷ Indoor railings must have a height of at least 0.9 if the fall height is less than three meters. Railings for balconies, etc. must be at least 1.0 m high up to a fall height of six meters, 1.2 m if the fall height is higher.⁵⁸	The room height in residential buildings must be at least 2.4 m, in attics and basements 2.3 m. In work premises normally at least 2.5 m.⁵⁹ Handrails in stairs should be at least 0.9 m high. Handrails on balconies should be at least 1.1 m high up to a fall height of six meters, 1.2 for fall heights exceeding six meters.⁶⁰	The room height must be sufficient to avoid inconvenience to human health and be adapted to the room's intended use.⁶¹ Fall protection must be designed and have a height that, taking into account the intended use of the surface and the fall height, limits the risk of personal injury resulting from falls.⁶²
Wet rooms	The floor, the transition to the wall and all wall surfaces that are defined as wet zones must be protected by waterproof layers, which must be resistant to water load, temperature variations, alkaline load and have sufficient dust tightness. The floor must have a sufficient slope to the drain, i.e. a slope of at least 1:50 in an area of at least 0.8 m from the drain or a slope of at least 1:100 on the entire floor.⁶³	Constructions behind surfaces that are exposed to running water, repeated exposure to splash water or condensation must have waterproof layers that are tight with joints, penetrations and connections. The construction must be so rigid that temperature and humidity variations do not damage the wet room's waterproof layer. The slope of the floor must be such that water can drain into the floor drain.⁶⁴	Floors and walls that will be exposed to water flushing, water spills or leaking water must have a waterproof layer that is resistant to alkalinity, water, temperature variations and movements in the substrate, and have sufficient vapor permeability resistance.⁶⁵ In spaces with floor drains, the floor and its waterproof layer must have a slope towards the drain, at least 1:150 and at most 1:50, in those parts of the space that are regularly exposed to water spray or water spillage. There must be no setback in any part of the space.⁶⁶	Indoor surfaces that can be expected to be exposed to water must have a waterproof layer that is age-resistant and where special consideration is given to tightness in joints, fastenings and penetrations and resistance to vapor penetration.⁶⁷ In spaces with floor drains, the floor must have a slope towards the drain in those parts of the space that will often be exposed to water. There must be no setback in any part of the space.⁶⁸

⁵⁰ NS 8175:2019, pp. 13-14

Daylight	All rooms for permanent residence must have at least one window that provides a satisfactory view. The living room must have at least one window where the lower edge of the glass surface is a maximum of 1.0 m above the floor.⁶⁹	Rooms must have windows with a light opening of at least 1/10 of the room area. In front of the main window there must be at least 8 m of undeveloped area.⁷⁰	Rooms or separable parts of rooms where people stay for more than a short time should have good access to direct daylight. The window glass area should be at least 10% of the floor area.⁷¹	Dwellings shall have access to daylight corresponding to a daylight factor of at least 1.0 percent for at least half of the total area where people spend more than temporarily. Spaces for socializing and meals shall have an outdoor view.⁷²
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⁵¹ Finlex 796/2017, § 4

⁵² Ålands byggbestämmelsesamling, section 7:21

⁵³ BFS 2024:10, chap 2, § 2

⁵⁴ BFS 2024:10, chap 2, § 5

⁵⁵ TEK17, chap 12, § 7

⁵⁶ TEK17, chap 12, § 15

⁵⁷ Finlex 631/2024, § 4

⁵⁸ Finlex 1007/2017, § 7

⁵⁹ Ålands byggbestämmelsesamling, section 3:3111, 3113

⁶⁰ Ålands byggbestämmelsesamling, section 8:2321

⁶¹ BFS 2024:8, chap 5, § 1

⁶² BFS 2024:9, chap 2, § 11

⁶³ TEK17, chap 13, § 15

⁶⁴ Finlex 782/2017, §§ 28-29

⁶⁵ Ålands byggbestämmelsesamling, section 6:5331

⁶⁶ Ålands byggbestämmelsesamling, section 6:5335

⁶⁷ BFS 2024:8, chap 7, §§ 7-8

⁶⁸ BFS 2024:8, chap 7, § 11

⁶⁹ TEK17, chap 13, § 8

⁷⁰ Finlex 631/2024, § 5

⁷¹ Ålands byggbestämmelsesamling, section 6:322

⁷² BFS 2024:8, chap 4, § 1