

DRAFT

Decree of the Ministry of the Environment

on improving the energy performance of buildings in connection with renovation and alteration work to transform them into zero-emission buildings

In accordance with the decision of the Ministry of the Environment, pursuant to section 37, subsection 4 and section 61, subsection 4 of the Construction Act (751/2023), such as section 61, subsection 4 stands in Act 897/2024, the following is enacted:

Section 1

Scope

This Decree applies to the design and construction of buildings consisting of a roofed structure with walls that use energy to maintain the indoor environment, when such buildings undergo renovation or alteration work, or when their intended use is changed.

Section 2

Design of energy efficiency improvements

The energy calculations, the selection of calculation tools and the presentation of results in connection with building renovation or alteration works or change of use shall be governed by the Decree of the Ministry of the Environment on the Energy Performance of New Zero-Emission Buildings (xx/yy).

Provided that the intended use of the building remains unchanged, the calculation of the room temperature during summer may be omitted if it can otherwise be ascertained that the building's performance will not be compromised as a result of the renovation or alteration.

The party undertaking a renovation or alteration project shall present, in conjunction with the design required for a construction permit, the measures intended to improve the energy performance of the building by building elements, by systems or in the entire building, based on the scope of the project and the manner chosen by said party.

If the properties of a building are improved in accordance with its intended use, the energy consumption of the building may increase by the calculated amount resulting from the improvement of the properties.

Section 3

Calculation principles

The partial or complete omission of measures to improve the energy performance of a building with respect to building elements or technical systems may be compensated for by implementing the other measures to be taken to a level that exceeds the requirements.

The renewable self-generated energy produced and consumed jointly by several neighbouring buildings may be credited on a pro-rata basis of consumption, to the extent that it is used in the buildings participating in the energy production.

The main heating system of a building shall be dimensioned for at least the full heating capacity and temperature level required based on calculation.

Measures to prevent overheating during summer may be credited when planning improvements to the energy performance of a building.

Section 4

Requirements specific to building elements

If the planning and implementation of the improvement of the energy performance of a building is carried by building elements, the following requirements shall be complied with:

1) External wall: The original U-value x 0.45, but not more than 0.17 W/(m² K). In connection with changing the intended use of the building: the original U-value x 0.45, but at least 0.54 W/(m² K).

2) Roof structure: The original U-value x 0.45, but not more than 0.09 W/(m² K). In connection with changing the intended use of the building: the original U-value x 0.45, but at least 0.54 W/(m² K).

3) Ground floor structure: The original U-value x 0.45, but not more than 0.17 W/(m² K). In connection with changing in the intended use of the building: the original U-value x 0.45, but at least 0.35 W/(m² K).

4) New windows and closed exterior doors: The U-value shall be at least 0.8 W/(m² K). External doors with glass panels: The U-value shall be at least 1.0 W/(m² K). When repairing old windows and external doors, thermal insulation should be improved wherever possible.

Section 5

Requirements for technical systems

When the technical systems of a building are renovated, modernised or replaced, the following requirements shall be complied with:

1) The annual heat recovery efficiency of the mechanical ventilation of the building shall be at least 55 per cent.

2) The specific fan power of a mechanical supply and exhaust air system shall not exceed 1.8 kW/(m³/s).

3) The specific fan power of a mechanical exhaust air system shall not exceed 0.9 kW/(m³/s).

4) The specific fan power of an air-conditioning system shall not exceed 1.8 kW/(m³/s).

5) The efficiency of heating systems shall be improved in respect of the components being replaced in connection with the replacement of equipment and systems. After the replacement, the ratio between the efficiencies of the building's main heat production system and the main heat distribution system of the premises shall be at least 0.8. The ratio shall be calculated as the quotient of the annual efficiencies of the main heat production system and the main heat distribution system of the premises. The annual efficiency of either the main heat production system or the main heat distribution system shall be at least 0.73. Where the replaced main heat production system of a building is a heat pump, the ratio between the heat pump's SCOP_{cold} value and the annual efficiency of the main heat distribution system of the premises shall be at least 2.4. The ratio shall be calculated as the quotient of the heat pump's SCOP_{cold} value and the annual efficiency of the main heat distribution system of the premises. The specific electricity consumption of the auxiliary equipment for the replaced main heat distribution system of the premises shall not exceed 2.5 kWh per reference floor area square metre (per square metre of heated useful floor area).

6) The provisions on new construction shall apply to the replacement of water supply and/or sewerage systems, insofar as this is technically, economically and functionally feasible.

Section 6

Ventilation, frost protection and insulation

When additional insulation is applied to the roof structure, adequate ventilation of the roof cavity shall be ensured.

When additional insulation is applied to the ground floor structure, the adequacy of frost insulation and the ventilation of any crawl space shall also be ensured.

When liquid-circulation systems are replaced or new systems are installed, they shall be insulated to at least a cost-effective level.

When the ventilation and air-conditioning systems of a building are replaced or new systems are installed, they shall be insulated to at least a cost-effective level and shall be balanced. When the ventilation and air-conditioning system of a use category 2 building is replaced or a new system is installed, it shall be insulated to at least the cost-effective level applicable to cooled supply air insulation.

When the domestic hot water network and backboilers are replaced or new systems are installed, they shall be insulated to at least a cost-effective level.

Section 7

E-value requirements by building category

Where the planning and implementation of improvements to the energy performance of a building is carried out by reducing the calculated energy performance reference value based on the standardised use of the building (E-value, $\text{kWh}_E/(\text{m}^2 \text{ a})$), the E-value characteristic to the building, in accordance with its building category, shall be calculated using the following formulas:

- 1) Detached, terraced and linked houses: required E-value $\leq 0.8 \times$ calculated E-value;
- 2) Residential building blocks: required E-value $\leq 0.85 \times$ calculated E-value;
- 3) Office buildings: required E-value $\leq 0.75 \times$ calculated E-value;
- 4) Educational buildings: required E-value $\leq 0.8 \times$ calculated E-value;
- 5) Day-care centres: required E-value $\leq 0.8 \times$ calculated E-value;
- 6) Commercial buildings: required E-value $\leq 0.7 \times$ calculated E-value;
- 7) Accommodation buildings: required E-value $\leq 0.7 \times$ calculated E-value;
- 8) Sports halls other than ice rinks or swimming pools: required E-value $\leq 0.8 \times$ calculated E-value;
- 9) Hospitals: required E-value $\leq 0.8 \times$ calculated E-value.

The requirement level for the E-value shall be no greater than that for a zero-emission new building.

The calculation shall apply the same calculation rules and energy coefficients as for a new zero-emission building at all stages of the calculation.

The calculated E-value shall be calculated using the original design values of the building or the design values applicable to the most recent change of use. Where a change of use is being planned, the design values corresponding to the intended new use shall be applied.

Section 8

Alternative methods for improving energy performance

The party undertaking a construction project shall select one of the following options for improving the energy performance of building elements or the building as a whole:

- 1) The building meets the element-specific requirements laid down in section 4 regarding building elements to be renovated, modernised or replaced, as well as new building elements;
- 2) The calculated energy performance reference value of the building does not exceed the requirements laid down in section 7.

The requirements of section 5 shall apply to the renovation, modernisation and replacement of the technical systems of a building, irrespective of which of the options referred to in subsection 1 has been selected with regard to the building element or building.

Section 9

Improving energy performance through the combined effect of multiple renovations

When planning renovations that improve the energy performance of a building through their combined effect, the party undertaking a construction project shall present the overall impact of the energy performance improvement measures and submit a plan to that effect to the building supervision authority.

Where a renovation passport has been drawn up for a building, it may be used as the plan and followed in connection with phased renovations as well.

Where the owner of a building improves the energy performance of the building in connection with planned maintenance, repair or upkeep that does not require a permit, the effect of such measures may be taken into account when applying for a construction permit for a subsequently implemented project.

Section 10

Building envelope and technical systems

In connection with measures to improve the energy performance of the building envelope, the party undertaking a construction project shall ensure that the building envelope, as well as the junctions between windows and external doors and the surrounding structures, are sealed in such a way that the thermal insulation layers are protected against effects of air movement that may impair the insulation.

When planning and implementing the repair or replacement of a building's envelope and technical systems, the measures shall be selected in such a way as to ensure the correct thermal, acoustic, moisture and fire-technical performance of the structures.

Section 11

Ventilation

The design of ventilation systems shall be governed by the Decree of the Ministry of the Environment on the Indoor Climate and Ventilation of New Buildings (1009/2017).

Where necessary, the party undertaking a construction project shall set out in the plans for energy performance improvement measures how the correct functioning of the ventilation system is to be ensured, and how an adequate supply of intake air is to be provided in cases in which the building is equipped with mechanical exhaust ventilation or gravity ventilation.

Where the energy performance of a building is improved by installing apartment-specific mechanical supply and exhaust air systems equipped with heat recovery, these shall be designed and implemented in such a way that the intake or discharge of air through the external wall does not cause a health hazard to other apartments. In all other respects, section 10 of this Decree shall apply.

Section 12

Ensuring the functioning of technical systems

Following the application of additional thermal insulation to the building envelope or a significant part thereof, improvements to airtightness, the replacement of windows or improvements to their energy performance, or following the replacement or changeover of the heating system or measures to improve ventilation, the party undertaking a construction project shall verifiably ensure the correct and energy-efficient functioning of the heating and ventilation systems and shall, to the extent necessary, carry out the balancing and adjustment of the building services systems.

Verification of the measures carried out shall be presented to the building supervision authority at the final inspection of work subject to a permit. The responsible person for the construction phase shall make a note in the construction work inspection document.

Section 13

Demonstration of energy performance improvements

In the case of windows, exterior doors and parts of the building envelope, the improvement in energy performance may be demonstrated by a heat transmission coefficient equal to or lower than that specified in section 4. In the case of technical systems, the improvement in energy performance may be demonstrated by an implementation that meets or exceeds the energy performance requirements laid down in section 5.

By means of a plan addressing the overall effect of the alteration measures, it shall be demonstrated that the totality of energy performance improvement measures carried out in connection with the alterations and renovations improves the energy performance of the building based on standardised use to at least the level required under section 7.

Where the party undertaking a construction project wishes the measures previously implemented by them under section 9, which improve the energy performance of the building based on standardised use and do not require a permit, to be credited, the necessary documentation shall be submitted to the building control authority when applying for a construction permit.

Section 14

Entry into force

This Decree enters into force on [day] [month] 2026.

Helsinki xx xx 20xx

Minister of ... First name Last name

Title First name Last name