

EPBD implementation in Finland

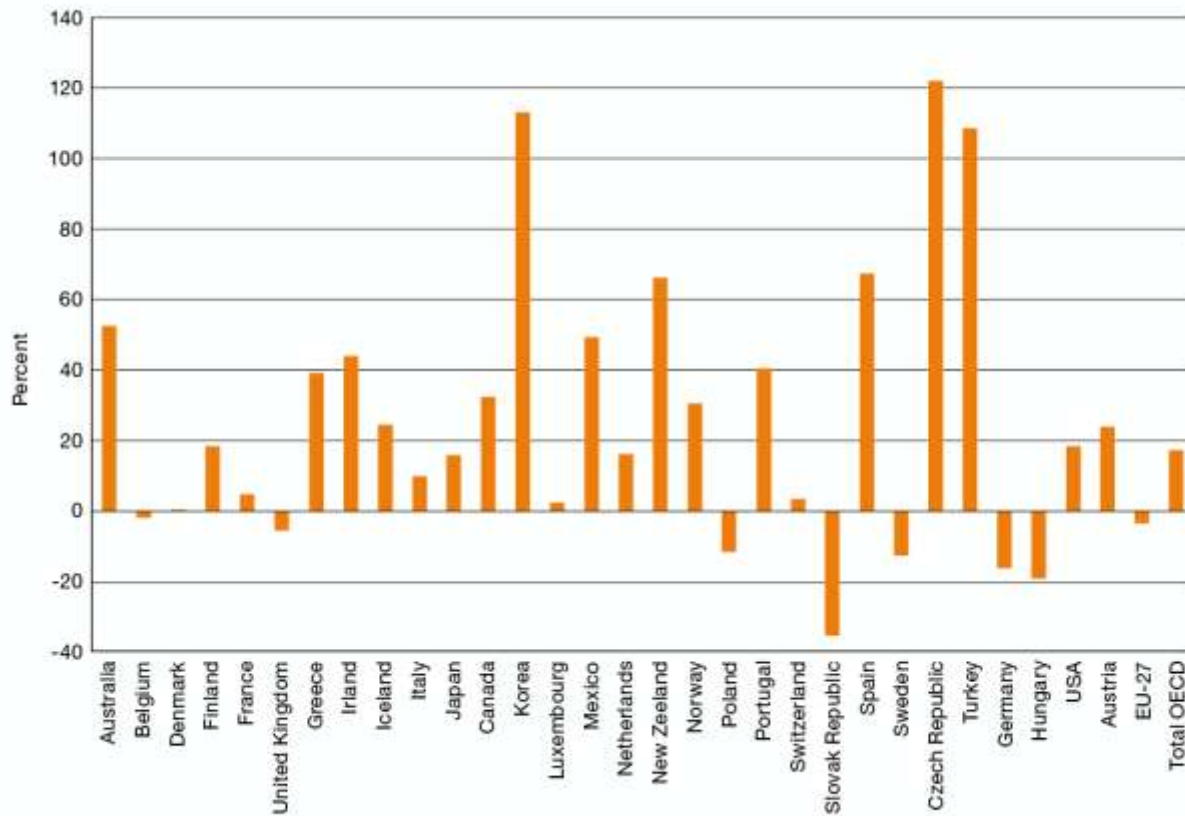
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Finland before EPBD

- Building Act (1958)
- The Finnish Building Code (regulations)
 - Thermal insulation (C3, 1978)
 - Energy economy (D3, 1978)
- Building Act (1985)
- Land use and Building Act (1999)

CO₂ päästöt OECD-maissa

Figure 1 Changes in carbon dioxide emissions in EU and OECD states, 1990–2007



Source: OECD in figures, 2009 edition.

EPBD 2002 in Finland

- Only new constructions were included
- Some changes in the land use and building act
- Energy certificates act 2007
 - New buildings and renovated over 1000 m²
- Additions to the Finnish Building Code:
 - Thermal insulation (C3, 2003)
 - Interior climate and ventilation (D2, 2003)
 - Energy performance (D3, 2007)

EPBD 2010 in Finland

- New constructions and major renovations
- Changes in the land use and building act
- A new energy certificates act 2013
- Additions to the Finnish Building Code:
 - Interior climate and ventilation (D2, 2010, 2012)
 - Energy performance (D3, 2010, 2012)

The land use and building act

- Energy performance in new constructions
- Energy performance in renovations
- Energy performance and building control
- Addition of the CE-label

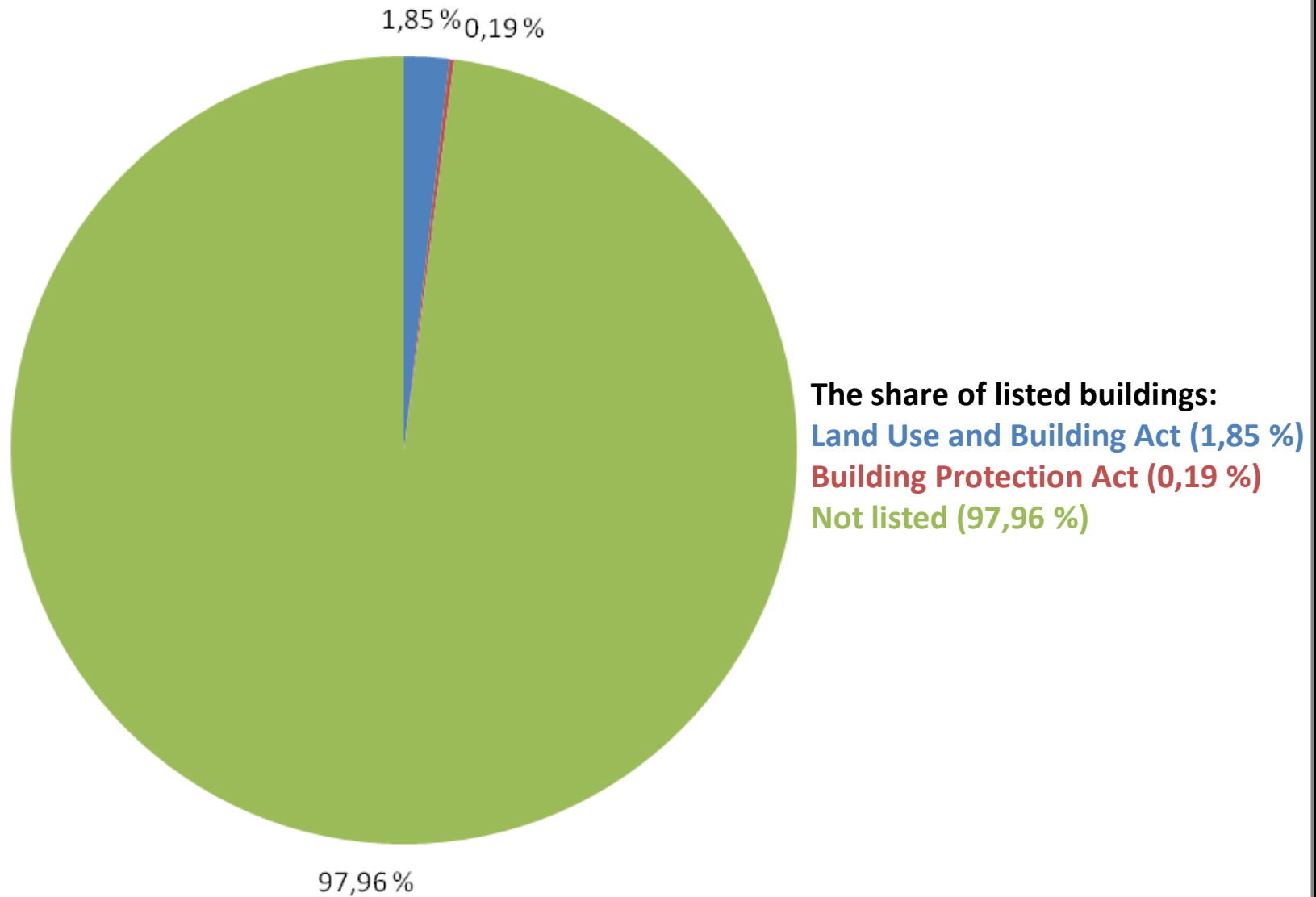
A degree on energy performance in renovations of existing buildings

- Based on the land use and building act
- Given by the ministry of environment
- Statements June 2012 (63)
- Maximum:
 - U-value for repaired building part -or-
 - Total energy consumption (kWh/m²/a) -or-
 - E-value (with weighted energy source coefficients)
- has to be met after the alteration

A degree on energy performance in renovations of existing buildings

- Problems that came up in the statements:
 - Cost efficiency not very clear (0 profit)
 - Exemptions (protected buildings are few)
 - Additional insulation and moisture
 - Stricter than in other EU countries
 - Evaluation of different measures
 - U-values are confusing
 - Encourages replacement, not repair of building parts
 - Does not necessarily lead to energy conservation

The Finnish Building Stock (m²)



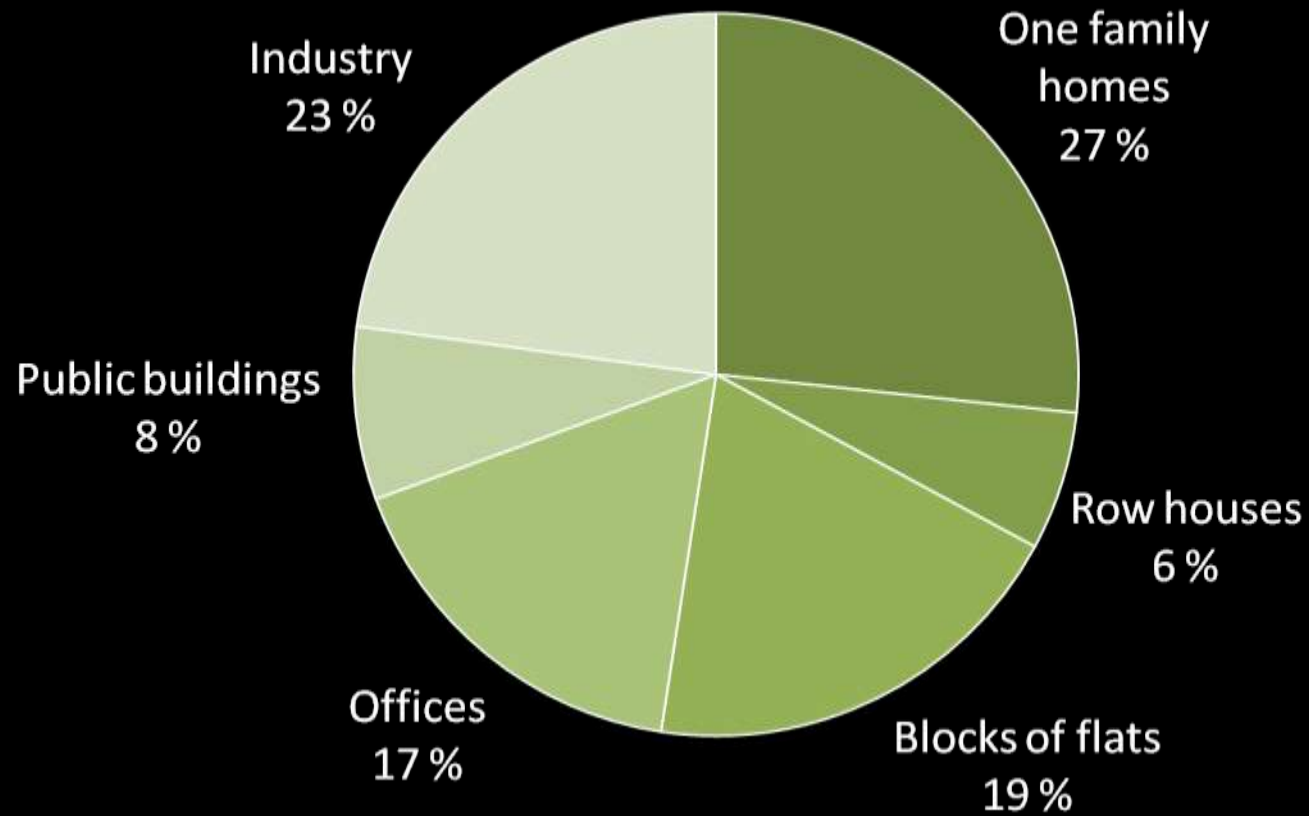
Energy certificates act 2013

- The energy certificate has been in use since 2008 in new buildings and big (over 1000 m²) existing buildings
- The ministry presumes that the certificate has improved energy efficiency especially in one family homes
- The certificate has been voluntary for buildings built before 2008
- There are many different forms, ways of filling them in, auditors and expiration dates

Energy certificates act 2013

- The state demands energy certificates in new constructions and when an existing building is sold or rented
- The energy declaration has to be visible in certain building types
- Energy class (A–G) visible when selling or renting an existing building

Energy consumption



Energy certificates act 2013

- Clear and reliable
 - One form, one single way of determining energy performance, demand of skilled auditors
- The certificate expires in 10 years
- Energy performance classes are based on the E-value (same as in the building code D3)
- Recommended energy saving measures are always included in the certificate

Energy certificates act 2013

- Visibility in all public spaces over 500 m²
- No demand for certificates in summer cottages, buildings under 50 m², short term rentals or special buildings
- Implementation in stages 2013–2016
 - A three year transition period for single family homes built before 1960
 - Some other transition periods for other types of buildings
- Old certificates apply according to their original expiration date
- Old law competencies apply until 2017 (maximum)

ENERGIATODISTUS

Todistustunnus: A12345 Valmistumisvuosi: 1977
Rakennustunnus: 427403217 D 001

Rakennuksen käyttötarkoitus: Yhden asunnon talo

Rakennuksen nimi ja osoite:
oma koti
Mallikatu 1, 12345 Malliainen

Vähän kuluttava	E-luokka
A	
B	
C Uudisrakennus 2012	
D	
E	E
F	
G	
Paljon kuluttava	

E-luku on 325 kWh/m²
Luokitteluasteikko: Luokka 1 Erilliset pientalot
E-luku perustuu rakennuksen laskennalliseen energiankulukseen eri energiamuodoilla painotettuna. Toteutunut energiankulutus riippuu esimerkiksi käyttäjien lukumäärästä ja käyttötottumuksista.

Todistuksen laatija: Eero Energiakonsultti
Yritys: Eeron Energiakonsultit Oy

Allekirjoitus:

Todistuksen laatimispäivä: 15.4.2012
Viimeinen voimassaolopäivä: 15.4.2022

The front page
of the new
certificate

Control

- Control authorities:
 - Ministry of the Environment
 - The Housing Finance and Development Centre of Finland (ARA)
- Control of using and making certificates
 - New constructions: part of building permit documents
 - Selling and renting existing buildings: energy certificate made publicly available, given to the buyer or renter
 - Public buildings have to have the certificate publicly visible
- Control of quality
 - Random checks
- Control of auditors
 - Competence test
 - Register of auditors

Sanctions

- An administrative penalty system is used
 - Exhortations, warnings
 - E.g. a building owner is strongly advised to get an energy declaration in a certain time limit, if one is missing
 - After that a warning and a new deadline is introduced to fix the situation
 - Edicts, prohibitions – threat penalty, threat of commitment or threat of abortion to increase the effect

Estimated costs

- The price of the certificate is reasonable
 - The price of a certificate for a single family home is 500–700 €
 - The price of a certificate for a block of flats is approximately 1000–1500 €
- The compilation of the energy certificate is worth while combining e.g. with a condition examination, a condition survey, a condition inspection or an energy audit

Conclusions

- The amendments to the land use and building act are partly due to the new constitution and partly due to implementation of the EPBD
- There is very little or no flexibility in the new suggested regulations for energy performance in renovations (only calculation alternatives)
- The number of renovations (with energy measures) may be smaller than before after the new regulations
- The number of renovations could increase with more flexibility in the implementation

CEN/TC 346/WG8

- Energy efficiency of historic buildings
 - The European stock of existing buildings represent great cultural and material resources. As the political and economic pressure for energy efficiency is increasing, a challenge for the future is to achieve this objective without unacceptable effects on cultural, historical or architectural values. To improve energy efficiency in these buildings special methods and standards are needed.
- Guidelines for improving energy efficiency of architecturally, culturally or historically valuable buildings

CEN/TC 346/WG8

- Energy efficiency of a building can be associated with ‘energy performance of a building’, which is defined as “the calculated or measured amount of energy needed to meet the energy demand associated with a typical use of the building, which includes, inter alia, energy used for heating, cooling, ventilation, hot water and lighting;”. In our context to improve energy efficiency of a building is to reduce the “carbon-dioxide producing” energy consumption of a building.

Proposed scope for a European standard (EN)

- The scope for the standard is to provide guidelines for improving energy efficiency of architecturally, culturally or historically valuable buildings, including a normative working procedure for assessment and measures of energy efficiency for these buildings. The guidelines will be able to apply to a wide range of existing buildings.
- The target group are the building owners, professionals, facility managers and authorities.

Relevant research consulted

- Efficient Energy for EU Cultural Heritage (3ENCULT)
Research area: EeB.ENV.2010.3.2.4-1 Compatible solutions for improving the energy efficiency of historic buildings in urban areas
- CO₂OL Bricks – Climate Change, Cultural Heritage & Energy Efficient Monuments
- Energy Efficiency in Historic Buildings, a national research and development programme, funded by The Swedish Energy Agency
- Climate for Culture



THANK YOU!

