European building renovation legislation & opportunities ahead

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90% of our time is spent indoors

97% of EU buildings is not future proof
European household energy consumption by end use

- Space Heating: 67%
- Water Heating: 13%
- Electrical Appliances: 11%
- Cooking: 6%
- Lighting: 2%
- Cooling: 1%

The chart shows the energy consumption in kWh/m².a for different European countries, categorized by end use.
Highly efficient and decarbonised building stock by 2050

Renovation is the main challenge!

80% of the current building stock will remain in use in 2050
EU legislation is a complex interaction of initiatives

- Energy Efficiency Directive
- Renewable Energy Directive
- Electricity Directive & Regulation
Clean energy package – is the EPBD 2018 a game changer?

- Strengthened renovation strategies
- Building renovation passport
- Data from EPCs to be made available
- Smartness indicator
- Technical building systems
- Electric mobility
Revised article on Long-term Renovations Strategies

Highly energy efficient and decarbonised building stock by 2050

Progress indicators & milestones in 2030 and 2040

Actions to contribute to the alleviation of energy poverty

Address the multiple benefits of renovation

National Renovations Strategies – the central tool for Member States to achieve impact
Reality check of national renovation strategies

Figure 3 - Has action been taken since 2014 to remove barriers to renovation?

Average score: 2.50
Why do Europeans renovate?

- 62% comfort
- 51% Energy costs
- 49% Attractiveness
- 41% Functionality of rooms
- 28% Indoor Air Quality
- 27% Amount of daylight
- 25% Size

Source: Velux
Factors that primarily affect thermal comfort:

- Air temperature
- Relative humidity
- Mean radiant temperature
- Metabolic rate
- Clothing insulation
- Air velocity
Elements and impact of Indoor Environmental Quality

- Comfort
- Wellbeing
- Health
- Productivity

IEQ

Indoor air quality
Acoustics
Thermal comfort
Lighting
Creating real value for building users

THE INNER VALUE OF A BUILDING

Residential
- 1 in 6 Europeans live in buildings that make them sick

Offices
- 6%–9% decreased productivity in poor indoor air quality

Schools
- 7-26% learning progress improvement in better IEQ

Hospitals
- Hospitalization decreased 16-41% in highly daylight rooms
Achieving deep energy renovation

Holistic one step deep renovation

Planned staged deep renovation

Source: Energiesprong

Source: ifeu
ON-SITE AND OFF-SITE
• General Information & Administration
• Building construction information
• Energy performance (e.g. EPC)
• Building operation
• Smart information

PROCESSING

BUILDING RENOVATION PASSPORT
• Renovation steps in a sensible order
• Comprehensive audit
• Long-term perspective
• Tailored to individual context

DATA GATHERING

BUILDING LOGBOOK
• Inventory of building-related information
• Manage and monitor real-time energy consumption
• Functionalities to users
• Linking building owners (users) and third parties
Driving transformational change in the renovation sector

Unleashing the potential through innovation & industrialisation
Energiesprong – nZEB renovation in one week
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The BetterHome business model – driven by the industry
Opportunities ahead?

Recommendations for national policies

- Ambitious and real implemented national renovation strategies
- Energy performance requirements for renovations demanding high insulation levels

Develop pilot cases

- Use available EU funding and financing
- Disseminate experience
- Develop handbooks, guidelines, training etc.
- Join forces with other industries (e.g. BetterHome)

Focus on the end-user

- Focus on comfort, health and wellbeing
- Provide service and system solutions, not construction materials
- Develop business models, including financial services
Thank you...

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