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ComActivate Workshop on Renovation Passports from iBRoad to iBRoad2EPC

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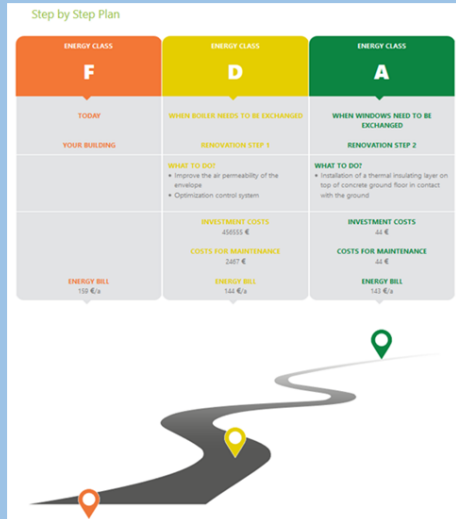


Two parts of iBRoad



Renovation Passport
iBRoad Plan

Digital building logbook
iBRoad Logbook



Start page

My buildings

Data Store
Repository
My documents & plans

Building diagnosis

Overall Performance

Envelope Performance

Equipment Performance

Comfort Performance

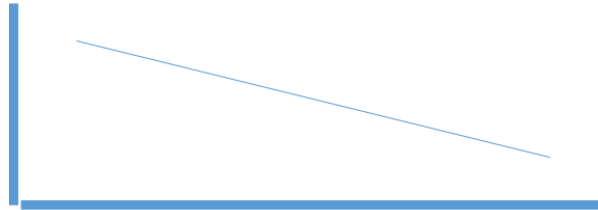
Recommendations

		2019-02-11	2021-02-13	2027-02-13	2050
Walls		●	●	●	●
Roof		●	●	●	●
Windows		●	●	●	●
Floor		●	●	●	●

Renovation Roadmap – Why?

1

Climate targets are ambitious. Yet building components have long life spans.



2

Today most renovations are stepwise. Still they need to lead to a carbon neutral building stock.

Step by Step Plan

ENERGY CLASS F	ENERGY CLASS D	ENERGY CLASS A
TODAY YOUR BUILDING	WHEN BOILER NEEDS TO BE EXCHANGED RENOVATION STEP 1	WHEN WINDOWS NEED TO BE EXCHANGED RENOVATION STEP 2
WHAT TO DO? • Improve the air permeability of the envelope • Optimization control system	WHAT TO DO? • Installation of a thermal insulating layer on top of concrete ground floor in contact with the ground	WHAT TO DO? • Installation of a thermal insulating layer on top of concrete ground floor in contact with the ground
INVESTMENT COSTS 40000 € COSTS FOR MAINTENANCE 2000 €	INVESTMENT COSTS 40000 € COSTS FOR MAINTENANCE 2000 €	INVESTMENT COSTS 40000 € COSTS FOR MAINTENANCE 2000 €
ENERGY BILL 100 €/a	ENERGY BILL 100 €/a	ENERGY BILL 100 €/a



Renovation Roadmap – Why?

3

it takes an overarching plan to combine single renovation steps to a deep renovation



4

a long-term plan can consider the occasions („trigger points“) in the homeowners' lives



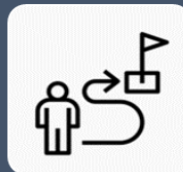
What is the Renovation Roadmap?

Step by Step Plan

ENERGY CLASS	ENERGY CLASS	ENERGY CLASS
F	D	A
TODAY	WHEN BOILER NEEDS TO BE EXCHANGED	WHEN WINDOWS NEED TO BE EXCHANGED
YOUR BUILDING	RENOVATION STEP 1	RENOVATION STEP 2
	WHAT TO DO? <ul style="list-style-type: none"> Improve the air permeability of the envelope Optimization control system 	WHAT TO DO? <ul style="list-style-type: none"> Installation of a thermal insulating layer on top of concrete ground floor in contact with the ground
	INVESTMENT COSTS 450555 €	INVESTMENT COSTS 33 €
	COSTS FOR MAINTENANCE 2487 €	COSTS FOR MAINTENANCE 33 €
ENERGY BILL 150 €/a	ENERGY BILL 141 €/a	ENERGY BILL 141 €/a



iBRoad Roadmap:
diagnosis tool on buildings performance
and individual stepwise renovation plan
for building owners



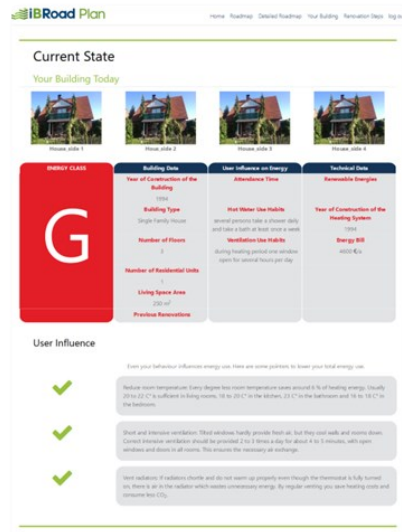
Features:

- long-term renovation strategy
- developed individually together with the owner
- targeted measures from the beginning finally lead to deep renovation

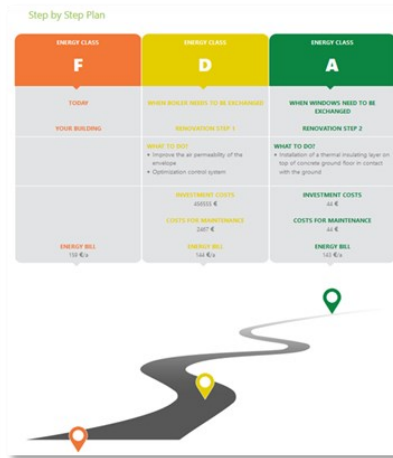


Pages of the Renovation Roadmap

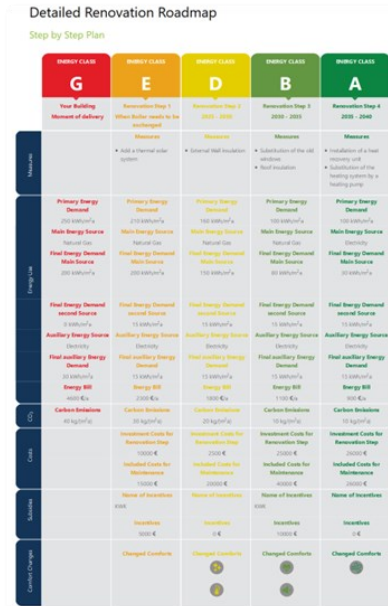
Current building state



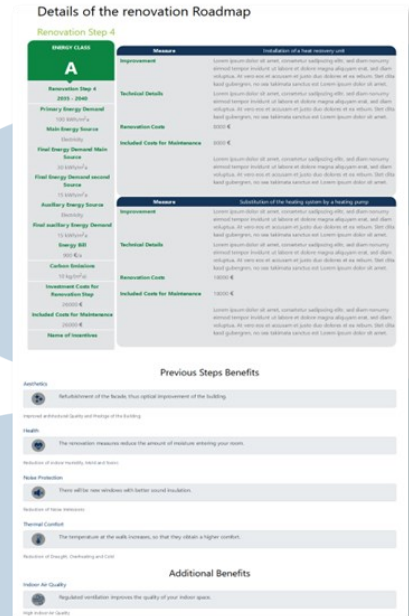
Roadmap overview



Detailed Roadmap



Detailed renovation step



Detailed Renovation Roadmap

Step by Step Plan



ComActivate
Enabling community action for energy sufficiency

ed
ap

Detailed
renovation step

ENERGY CLASS	ENERGY CLASS
B	A
Renovation Step 1 2020 - 2025	Renovation Step 2 2025 - 2030
Measures	Measures
<ul style="list-style-type: none"> Installation of a heat recovery unit Substitution of the heating system by a heating pump 	<ul style="list-style-type: none"> Installation of a heat recovery unit Substitution of the heating system by a heating pump
Primary Energy Demand 100 kWh/m ² a	Primary Energy Demand 100 kWh/m ² a
Main Energy Source Natural Gas	Main Energy Source Natural Gas
Final Energy Demand 200 kWh/m ² a	Final Energy Demand 200 kWh/m ² a
Main Source Natural Gas	Main Source Natural Gas
Final Energy Demand second Source 0 kWh/m ² a	Final Energy Demand second Source 15 kWh/m ² a
Auxiliary Energy Source Electricity	Auxiliary Energy Source Electricity
Final auxiliary Energy Demand 30 kWh/m ² a	Final auxiliary Energy Demand 15 kWh/m ² a

Details of the renovation Roadmap

Renovation Step 4

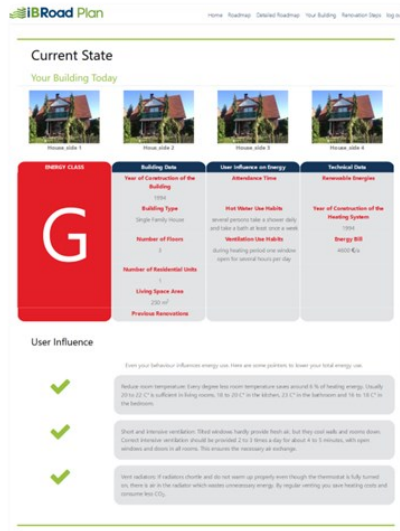
ENERGY CLASS	Measures
A	<p>Renovation Step 4 2035 - 2040</p> <p>Primary Energy Demand 100 kWh/m²a</p> <p>Main Energy Source Electricity</p> <p>Final Energy Demand Main Source 100 kWh/m²a</p> <p>Final Energy Demand second Source 15 kWh/m²a</p> <p>Auxiliary Energy Source Electricity</p> <p>Final auxiliary Energy Demand 15 kWh/m²a</p> <p>Carbon Emissions 100 kg/a</p> <p>Investment Costs for Renovation Step 10000 €</p> <p>Included Costs for Maintenance 2000 €</p> <p>Names of measures</p>
Measures	<p>Substitution of the heating system by a heating pump</p> <p>Installation of a heat recovery unit</p> <p>Substitution of the old boiler</p> <p>Installation of a heating system by a heating pump</p>
Technical Details	<p>Renovation Step 4 2035 - 2040</p> <p>Primary Energy Demand 100 kWh/m²a</p> <p>Main Energy Source Electricity</p> <p>Final Energy Demand Main Source 100 kWh/m²a</p> <p>Final Energy Demand second Source 15 kWh/m²a</p> <p>Auxiliary Energy Source Electricity</p> <p>Final auxiliary Energy Demand 15 kWh/m²a</p> <p>Carbon Emissions 100 kg/a</p> <p>Investment Costs for Renovation Step 10000 €</p> <p>Included Costs for Maintenance 2000 €</p> <p>Names of measures</p>

Previous Steps Benefits

<p>Refurbishment of the facade thus optimal improvement of the building</p> <p>Improved external facade and thermal protection</p> <p>Health</p> <p>The renovation measures reduce the amount of moisture entering your room</p> <p>Acoustic Protection</p> <p>There will be new windows with better sound insulation</p> <p>Reduction of noise nuisance, better and better</p> <p>Reduction of heat emissions</p> <p>Thermal Comfort</p> <p>The temperature in the walls increases, so that they retain a higher content</p> <p>Reduction of draught, dampening and cold</p> <p>Indoor Air Quality</p> <p>Regulated ventilation improves the quality of your indoor space</p> <p>High indoor quality</p>	<p>Additional Benefits</p> <p>Regulated ventilation improves the quality of your indoor space</p> <p>High indoor quality</p>
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Pages of the Renovation Roadmap





Current building state



iB Road Plan | Home | Roadmap | Detailed Roadmap | Your Building | Renovation Steps | Logout

Current State

Your Building Today

 House photo 1
  House photo 2
  House photo 3
  House photo 4

Energy Class	Building Data	User Influence on Energy	Technical Data
G	Year of Construction of the Building 1990 Building Type Single Family House Number of Floors 3 Number of Residential Units 1 Living Space Area 235 m ² Previous Renovations 	Heat Water Use Habits Several persons take a shower daily and take a bath at least once a week. Ventilation Use Habits During heating period one window opens for several hours per day. 	Year of Construction of the Heating System 1990 Energy Bill 2000 €/a

User Influence

Even your behaviour influences energy use. Here are some pointers to lower your total energy use.

- Reduce room temperature. Every degree less room temperature saves around 5 % of heating energy. Usually 20 to 22 °C is sufficient in living rooms, 18 to 20 °C in the kitchen, 22 °C in the bathroom and 16 to 18 °C in the bedrooms.
- Short and intensive ventilation. That window hardly provides fresh air, but they cool walls and rooms down. Correct intensive ventilation should be provided 2 to 3 times a day for about 4 to 5 minutes, with open windows and doors in all rooms. This ensures the necessary air exchange.
- Heat radiators: If radiators chatter and do not warm up properly, even though the thermostat is fully turned on, there is air in the radiator which wastes unnecessary energy. By regular venting you save heating costs and improve heat efficiency.

Roadmap

Detailed

Detailed

Measure	Roof insulation
Renovation Costs	25000 €
Included Costs for Maintenance	18000 €
Note	If the roof is insulated, it must be taken into account in a later outside wall insulation. The roof overhang must be designed so that the future wall insulation is sufficiently covered (thickness of the insulation plus sufficient overhang). Potentially, the underside of the roof overhang shall be provided with a temporary covering. New downpipe connections on the ground should already consider the extent of the future wall insulation.
Incentives Information only relating to this Measure	Funding
Specific Incentive Bonus	6000 €

Roadmap Assistant in general


iBRoad Plan Your Roadmaps log out


Building Address


Street Number Postal Box


Municipality Zip Code Country

Building Facts

Subtitle 

Subtitle 

Subtitle 

Subtitle 

Number of Residential Units

Living Space Area

Year of Construction of the Heating System

Number of Floors

Here the energy auditor can edit the data ...

Current State

Your Building Today

 House_side 1
  House_side 2
  House_side 3
  House_side 4

ENERGY CLASS	Building Data	User Influence on Energy	Technical Data
G	Year of Construction of the Building 1994	Attendance Time	Renewable Energies
	Building Type Single Family House	Hot Water Use Habits several persons take a shower daily and take a bath at least once a week	Year of Construction of the Heating System 1994
	Number of Floors 3	Ventilation Use Habits during heating period one window open for several hours per day	Energy Bill 4600 €/a
	Number of Residential Units		
	Living Space Area 250 m ²		
	Previous Renovations		

User Influence



Even your behaviour influences energy use

Reduce room temperature: Every degree less 20 to 22 °C* is sufficient in living rooms, 18 to 20 °C* in the bedroom.

Short and intensive ventilation: Tilted window. Correct intensive ventilation should be provided by windows and doors in all rooms. This ensures fresh air.

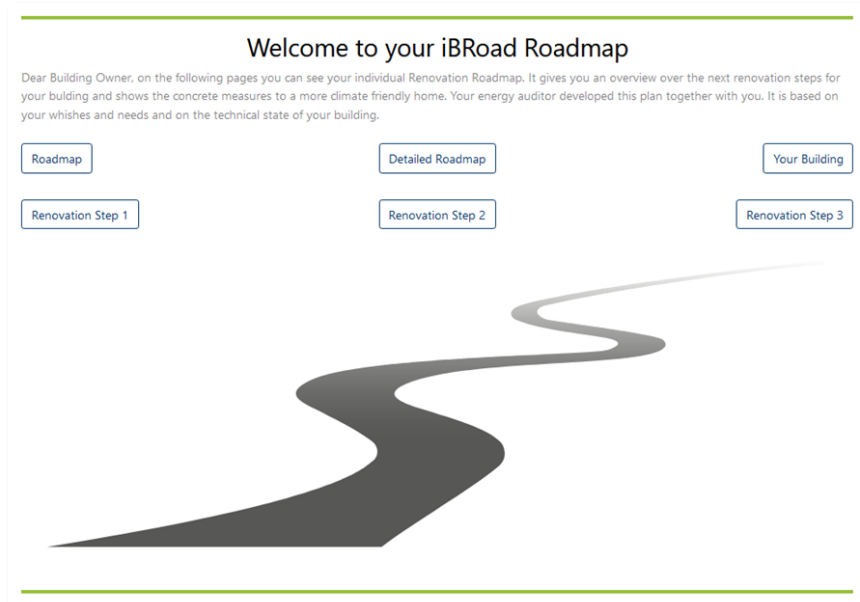
Vent radiators: If radiators chortle and do not warm up properly even though the thermostat is fully turned on, there is air in the radiator which wastes unnecessary energy. By regular venting you save heating costs and consume less CO₂.

... that is shown in the Renovation Roadmap

iBRoad Roadmap Assistant

The iBRoad Roadmap Assistant is not publicly available because

- it is a tool for energy auditors
- it needs to be adapted to specific Member State requirements.





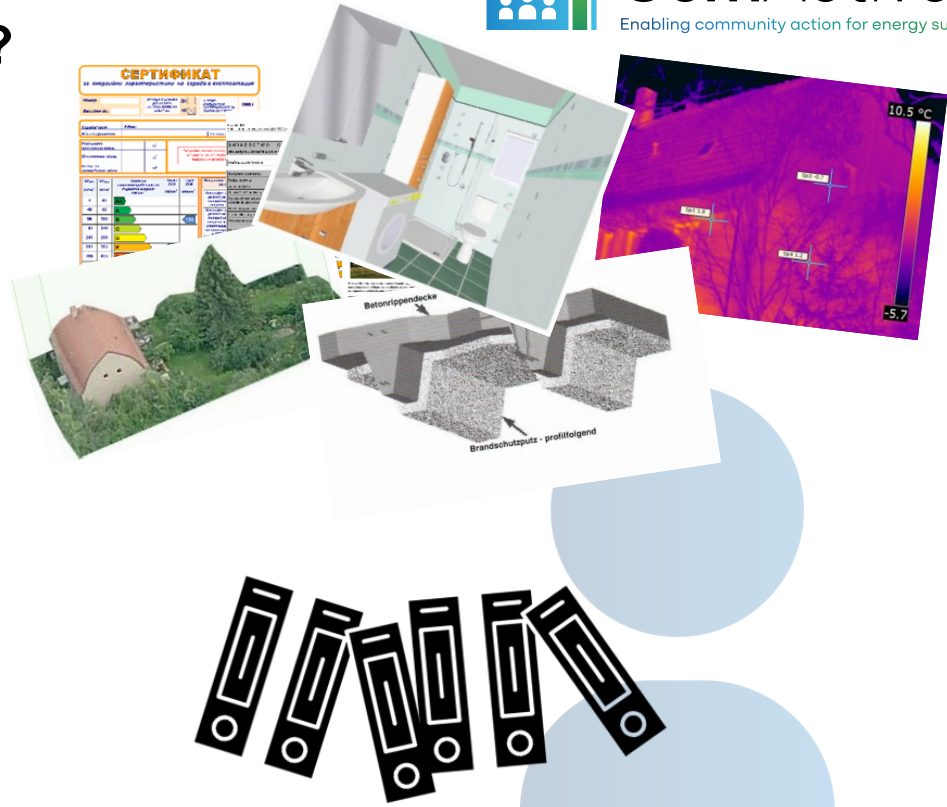
iBRoad Logbook – why?

1

A lot of information about the buildings already exist (EPC data, energy audit) – but where?

2

Most renovations are stepwise and refer to a long period of time. How can they be remembered?



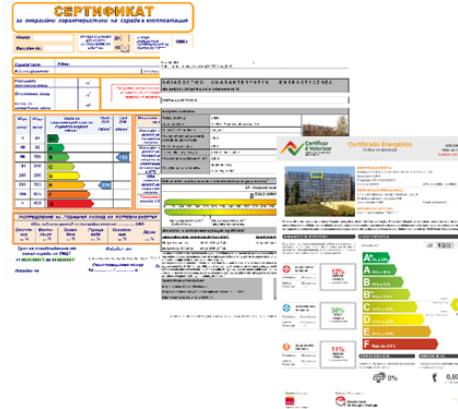
iBRoad Logbook – why?

3

Simple presentation of the efficiency of the individual building and its components

4

Simple forward planning for homeowners



ComActivate
Enabling community action for energy sufficiency

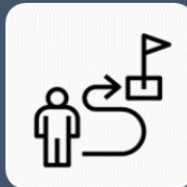


What is the iBRoad Logbook?

Start page	Envelope Performance						
My buildings		2019-02-11	2021-02-13	2027-02-13	...	2050	
Data Store Repository My documents & plans		Walls				...	
Building diagnosis		Roof				...	
Overall Performance		Windows				...	
Envelope Performance		Floor				...	
Equipment Performance							
Comfort Performance							
Recommendations							



iBRoad Logbook:
digital repository for all building related information



Features:

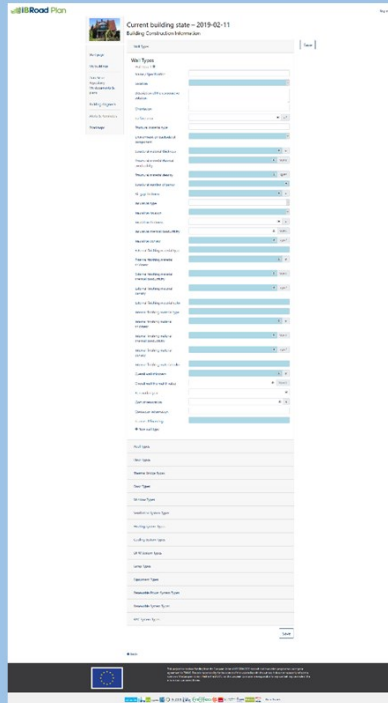
- Save complete data set of each building state
- Track all changes to the building
- Connection to the iBRoad Roadmap

iBRoad Logbook

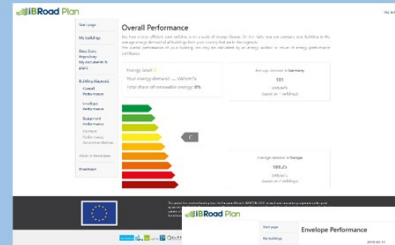


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Enabling community action for energy sufficiency

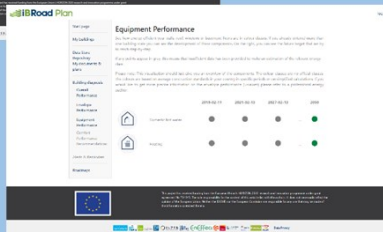
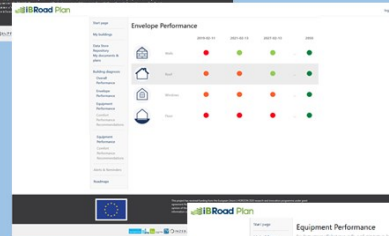
Data storage



Building performance




Envelop performance





Equipment performance

iBRoad Logbook



Repository

Building state – 2039-02-13  

Building state

[+ New building state](#) [Manage building states](#)

[Start page](#)

[My buildings](#)

[Data Store](#)


- Repository
- My documents & plans
- Building states

[Building diagnosis](#)


[Alerts & Reminders](#)

[Roadmaps](#)


[Glossary](#)




General and Administrative Information




Building Construction Information




Building Equipment



Building Energy Performance



Building Operation and Use



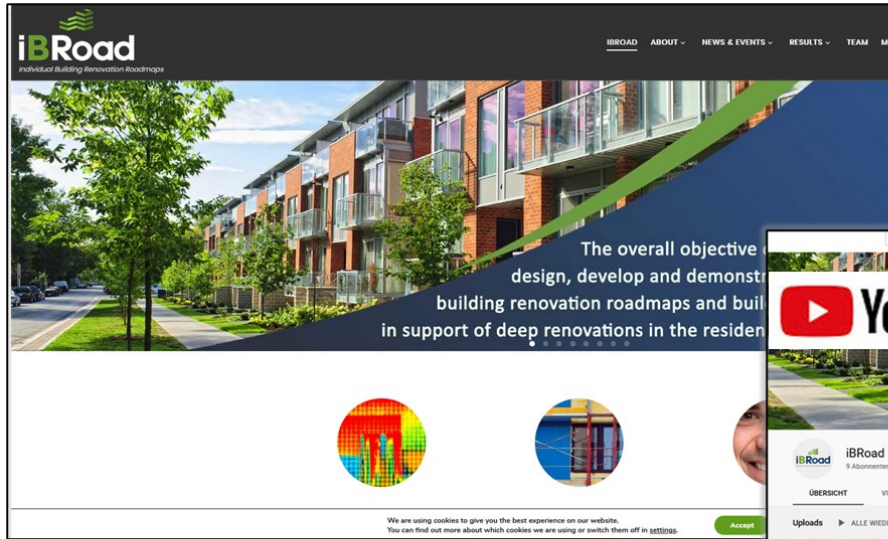
Smart Information

iBRoad Logbook

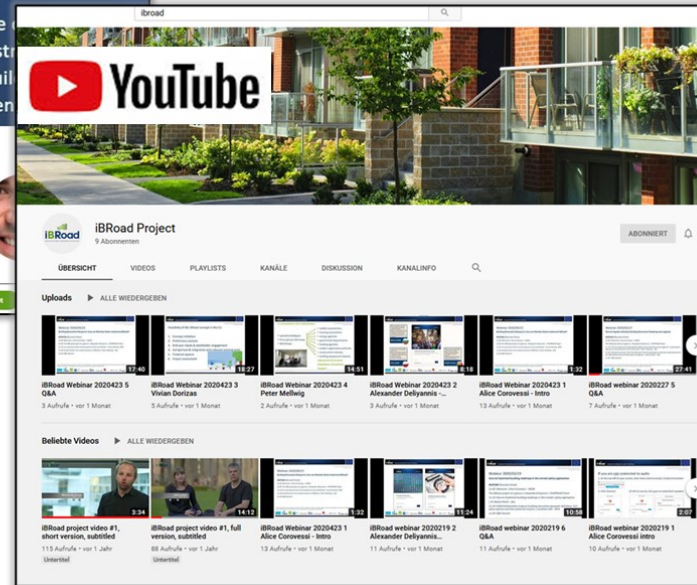
Store data about the present building state



Find more information on iBRoad



<https://ibroad-project.eu/>





Content



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iBRoad2EPC consortium

12 partners from 9 countries

Implementing countries
Consortium



ComActivate
Enabling community action for energy sufficiency



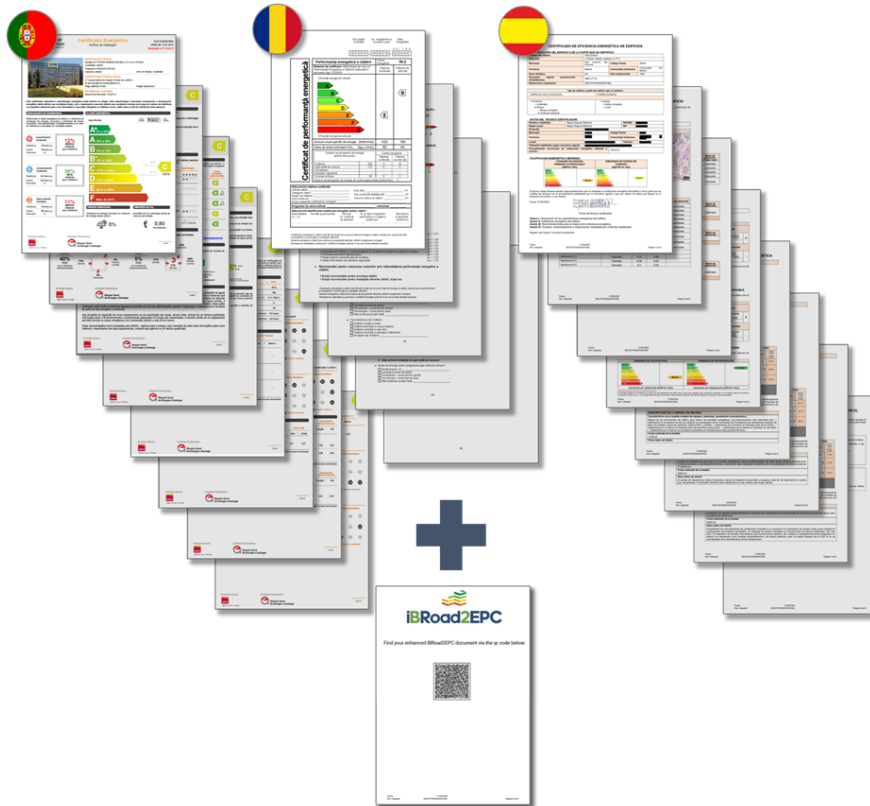
European
Commission

Horizon 2020
European Union funding
for Research & Innovation



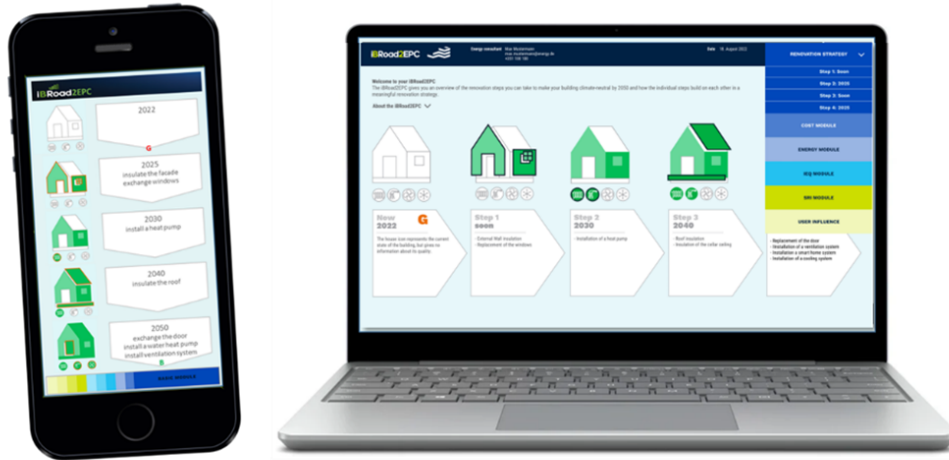
Project duration
from September 2021
to August 2024

What is iBRoad2EPC?



- iBRoad2EPC comes as an **extra page** to the regular EPC with an individual URL and QR-code.

What is iBRoad2EPC?



- iBRoad2EPC is hosted online and thus can be adapted dynamically.
- iBRoad2EPC is an individual **energy consultation** for building owners, issued by trained building professionals.
- iBRoad2EPC outlines an initial **renovation strategy** on how a building can become climate neutral in the long term.

Overview page



Detail page



ComActivate

Enabling community participation for energy sufficiency


Future Requirements
Information about
content and timing

Preparation for later
renovation steps
reach deep renovation
and avoid lock-in

Description of the
measures
What should be
renovated?


Specification of the
measures
Renovation depth
according to NBRP

Icon
same as in the
overview for easy
orientation


iBRoad2EPC


Energy consultant Max Mustermann
max.mustermann@energy.de
+351 100 100


Date 18. August 2022

RENOVATION STRATEGY 

Basic Module > **Step 1**

Step 1 Soon 

Measure 1
External wall insulation
Description of the measure
The external wall is insulated with a "Exterior Insulation Finishing System (EIFS)". EIFS is a lightweight synthetic wall cladding that includes foam plastic insulation and thin synthetic coatings.
Specification of the measure
15 cm of insulation ($U = 0,2 \text{ W}/(\text{m}^2\text{K})$)


Measure 2
Replacement of the windows
Description of the measure
Replacement of all windows that are older than 10 years.
Specification of the measure
Triple glazing, highly efficient windows ($UW = 0,8 \text{ W}/(\text{m}^2\text{K})$).


MEPS/Regulations
By 1 January 2024, every newly installed heating system is to be based on 65 percent renewable energy.
Note/Recommendation
When the outer wall is being insulated, please prepare a low thermal bridge connection to a later pitched roof insulation. Existing panels at the eaves should be opened so that the insulation can be laid up to the upper edge of the rafters. At the verge, the insulation should be laid up to the upper edge of the gable wall. For this, the roof overhang must usually be extended.
When the outer wall is being insulated the control settings of the existing heat generator should be adapted to the reduced heat load. Your installer should check whether the flow temperatures and the flow rate of the heating circuit pump can be reduced.

When the outer walls are being insulated, please prepare for a later installation of a ventilation system by installing the outside wall openings for fresh and exhaust air shafts for the ventilation system in the wall insulation layer. Facade integrated ventilation units for single or multiple rooms are most easily installed in the same step as the wall insulation.

If you plan to install a heat pump in the future, please carry out preparation measures to lower the flow temperature of the heating systems (ideally below 55°C or less). This will raise the efficiency of the heat pump significantly. The flow temperature can be lowered by carrying out a hydraulic balance, exchanging single radiators and insulating single building components. An energy auditor can identify the components and radiators that provide the maximum improvements.

Back

Detail page

what?

Based on the on-site visit and together with the building owner, the issuer decides which building components or technical building equipment need to be renovated or renewed.

when?

Each implementing country defines the time steps so that they are aligned with relevant dates and intermediate targets in the national building strategy. The issuers decide which building component is to be renovated by which time step.

how?

Technical specifications of the renovation measures are automatically derived from the national building strategy (NECP, LTRS, NBRP). Issuers may override them if necessary.

what to
beware
of?

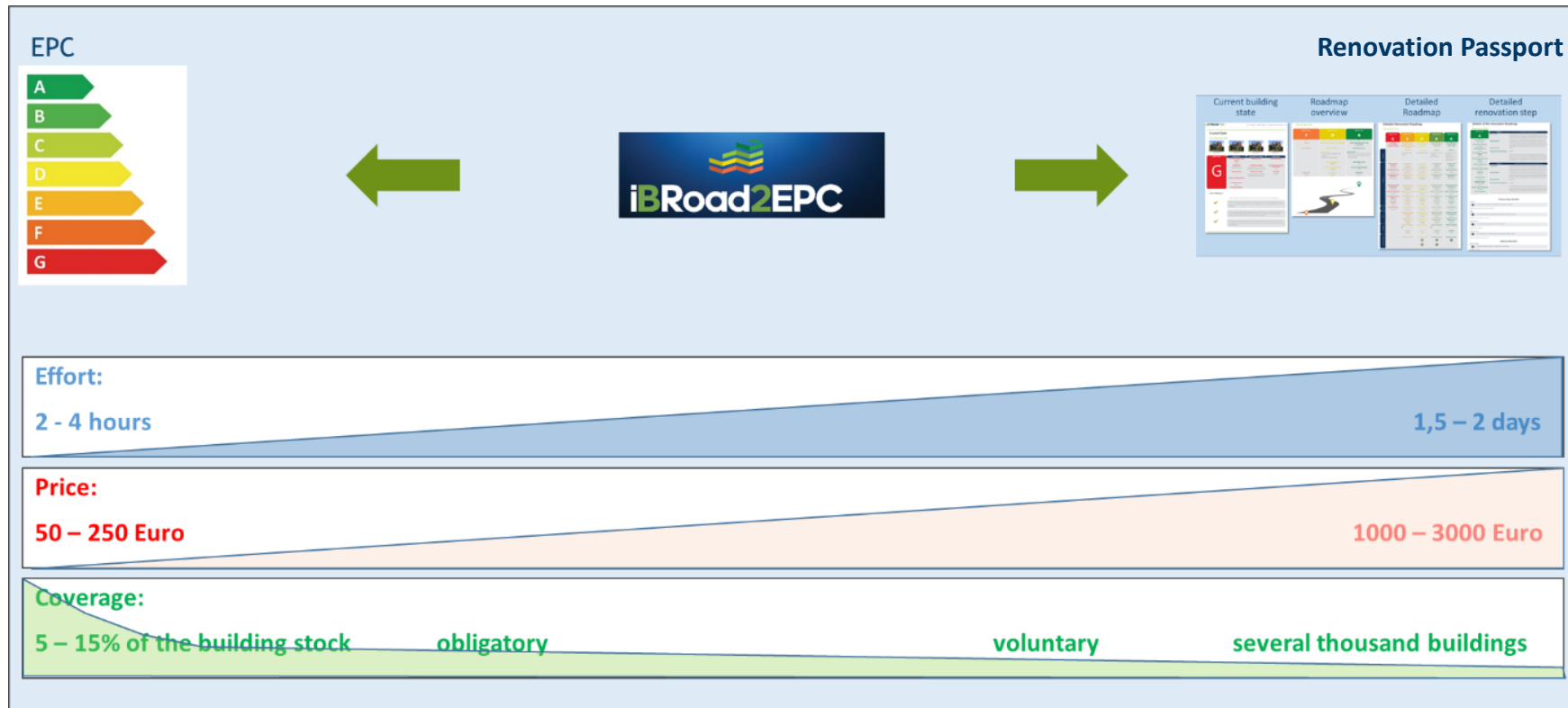
Building owners need information about legal obligations that their buildings will have to meet in the future. They are automatically displayed for each time step.

what to pay
attention
to?

iBRoad2EPC automatically fills in text blocks with technical tips and hints for a seamless connection of all renovation measures even if carried out at different times.

Modular enhancement

Implementing countries decide where they place iBRoad2EPC between the EPC and the Renovation Passport



Modular enhancement

iBRoad2EPC can be extended flexibly with additional modules

- Energy demand, cost and GHG emissions
- Investment cost
- Indoor environment quality (IEQ)
- Smart readiness indicator (SRI)

Implementing countries decide which modules to include.



Step 2 2030

Energy source
electricity-heat pump



Final energy demand
95 kWh/m²a
GHG emissions
50 kg/m²
Energy costs
1.900 €/a

Step 2 2030

13.000 € Maintenance Costs
+ 2.000 € Energy-related Costs
15.000 € Investment Costs
5.000 € Funding

Funding is rated in "Subsidies-EU"
www.subsidies-in-your-country.eu
(Status as of 24.11.2022)

Step 2 2025

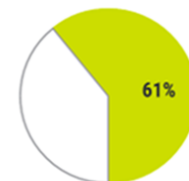
IEQ



6.2

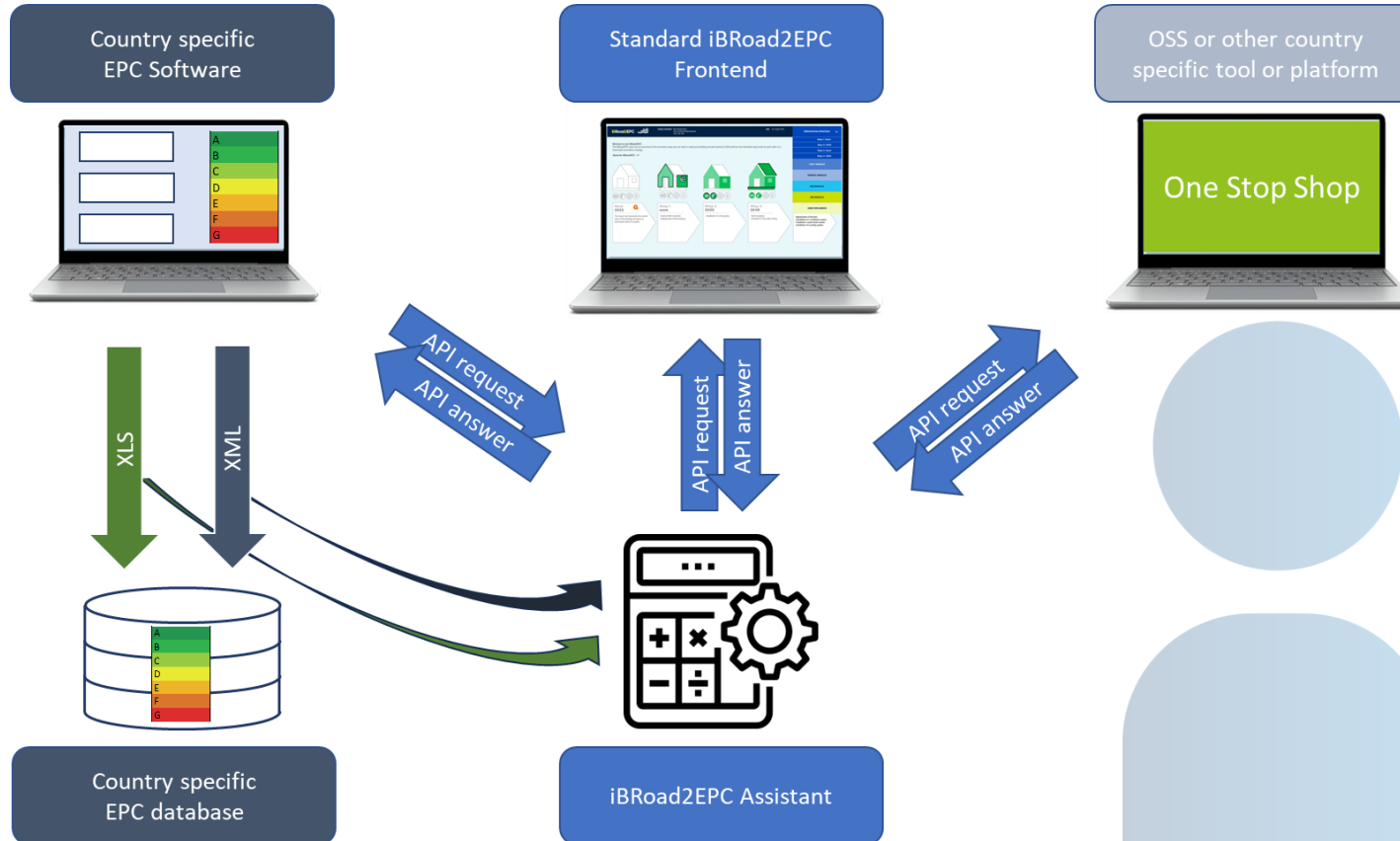
Step 4 2050

SRI Class **D**













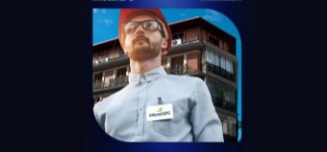

Adaptability to countries' requirements

Connectivity to existing tools



Modular enhancement

For more information, please visit www.ibroad2epc.eu

 <p>IBRoad2EPC field test results Reports</p> <p>IBRoad2EPC field test results - August 2024</p>	 <p>Accelerating deep renovation in the EU with renovation passports Reports</p> <p>Accelerating deep renovation in the EU with renovation passports - July 2024</p>	 <p>Initial national guides Reports</p> <p>Draft national guides for the roll-out of IBRoad2EPC in the six pilot countries - December 2023</p>	 <p>Training toolkit Reports</p> <p>Training toolkit for energy experts - January 2024</p>
 <p>IBRoad2EPC Advisory package for public authorities Reports</p> <p>Advisory package for public authorities - June 2024</p>	 <p>Evaluation of IBRoad2EPC training Reports</p> <p>Evaluation of IBRoad2EPC training - May 2024</p>	 <p>Specification for the IBRoad2EPC software tools Reports</p> <p>Specifications for the national adaptation of the software tools - November 2023</p>	 <p>Extending the IBRoad Building Renovation Passport II Reports</p> <p>How to technically implement a selection of indicators in IBRoad2EPC - November 2023</p>
 <p>IBRoad2EPC Assistant software</p>	 <p>Enhancing incentives through IBRoad2EPC</p>	 <p>IBRoad2EPC in depth</p>	 <p>Extending the IBRoad Building Renovation Passport I</p>

Mandatory content of a Renovation Passport

Current energy performance of the building



Graphical representation of the renovation passport



Information on relevant national requirements



Explanation of the optimal renovation step sequencing



Information on each renovation step



Information about a potential connection to district heating or cooling



Share of generation and consumption of renewable energy after the renovation

General information on improvement options for various other aspects of a green building



Optional content of a Renovation Passport

Indicative timing of renovation steps



Details for each renovation step, e.g. estimated cost, construction time, in-depth technology description



More independent modules, e.g. a list of relevant architects and craftsmen, smart readiness improvement



Information about accessing the digital version of the RP



Already carried out major renovations of the building or the envelope



Information on seismic safety

Additional information such as adaptability of spaces or planned renovations



Thank you for your attention



Peter Mellwig



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