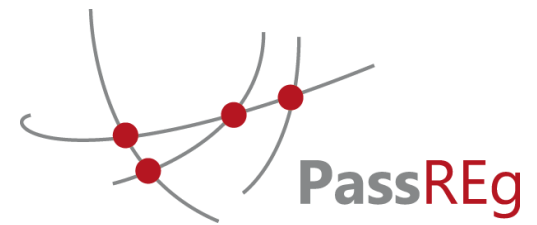


# Building for the Energy Revolution



*PassREg – Passive House Regions  
with Renewable Energies*

# Building for the energy revolution



In the face of climate change, the EU has set ambitious goals for an energy revolution...

**The building sector represents 40% of our carbon emissions and is KEY to this revolution!**

**We need solutions! Passive House provides answers...**



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[www.passreg.eu](http://www.passreg.eu)

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# Overview



- **Passive House : a solid basis**
- **Passive House + Renewables = a solid basis for NZEBs**
- **The PassREg project**
- **Learning from best practice**
- **Key outputs**
- **Building the groundwork: Quality Assurance**
- **Building the groundwork: Training**
- **Sector specific benefits and opportunities**
- **Project partners**



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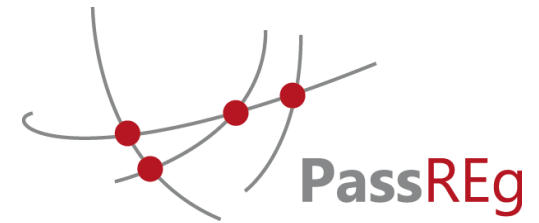
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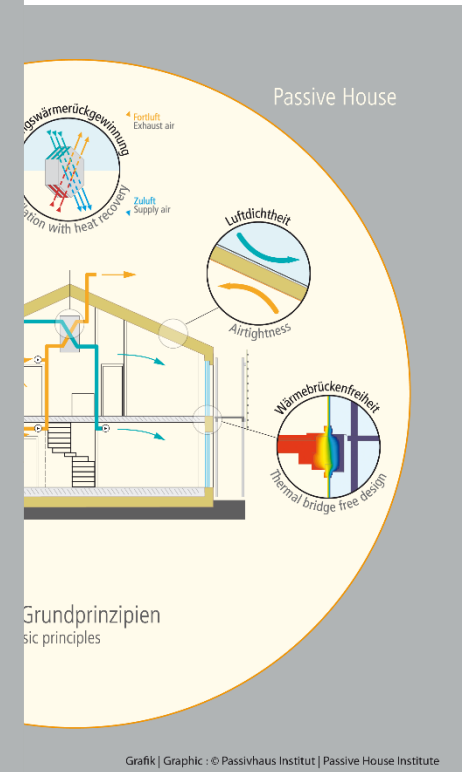
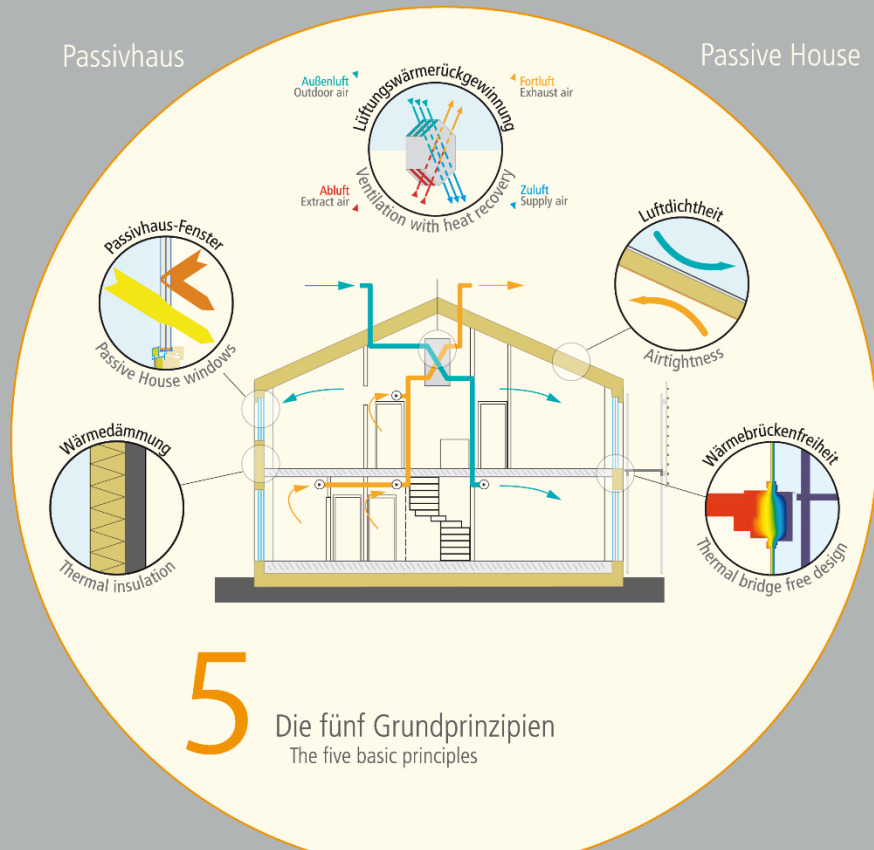


# Passive House: a solid basis



## Passive House

- International standard
- Applicable to all building types
- Maximum comfort, use and life expectancy
- Tried and tested
- Assessed with the Passive House Planning Package



**Passive House buildings use up to 90% less energy than 'typical' buildings**

Grafik | Graphic : © Passivhaus Institut | Passive House Institute

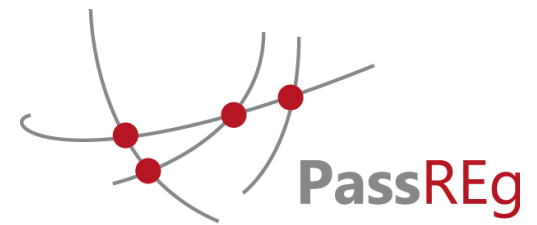


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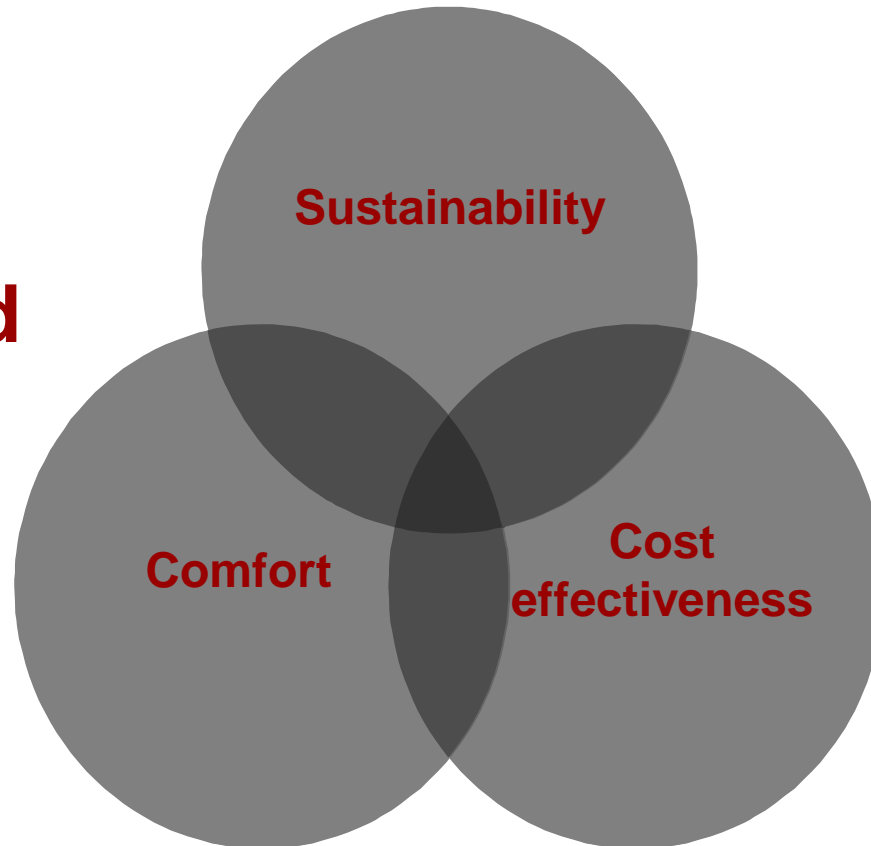
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# Passive House: a solid basis



**Passive  
House  
Standard**



**Buildings  
built  
better**

*Flexible, straightforward and open to all*



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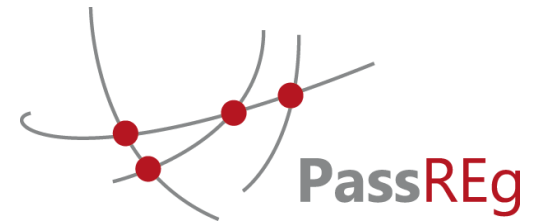
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# Passive House + Renewables: a solid basis for NZEBs



Passive House makes  
renewables feasible

**Energy efficiency first!**

Passive House reduces  
energy demand such that it  
becomes feasible and  
economical to supply  
remaining energy needs  
with renewable  
technologies, onsite or  
nearby

**Passive House +  
Renewables = a  
sustainable path towards  
NZEBs**



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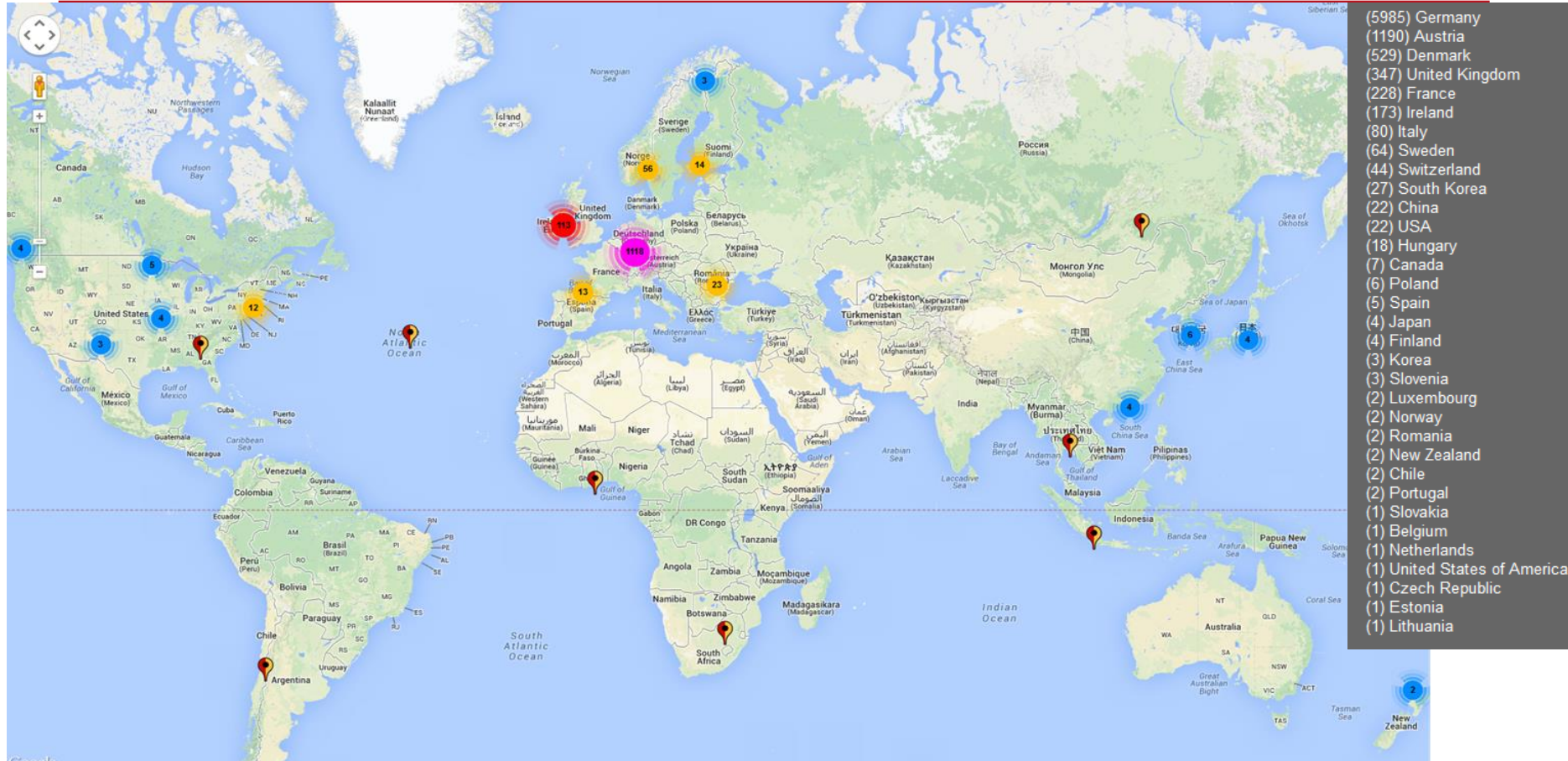
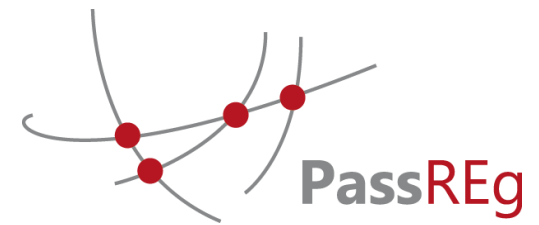
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# Passive House: a solid basis



**Over 8,700 PH units certified... an estimated 50,000 PH units worldwide!**



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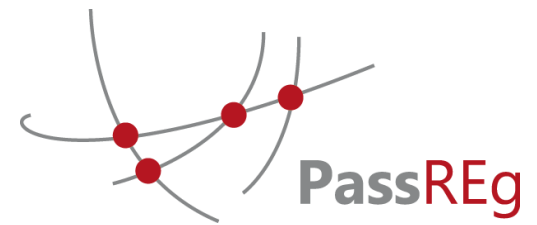
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# The PassREg project



The PassREg project aims to promote the growth of

## **Passive House Regions with Renewable Energies**

*Regions that promote an 'energy efficiency first' approach with the Passive House Standard, thus making renewable energy sources to deliver the remaining energy demand feasible*

**Some regions are already successfully implementing Passive House with renewable energies; Others have a longer road ahead of them...**



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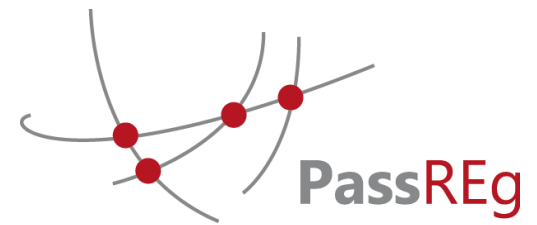
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# The PassREg project



**14 Partners. 11 Countries. 3 Years. 1 Goal.**

Supporting the growth of Passive House regions

PassREg helps aspiring regions succeed by

- Investigating successes
- Making them known and accessible
- Building up training, quality assurance and certification infrastructure
- Simulating the market for suitable products and professionals



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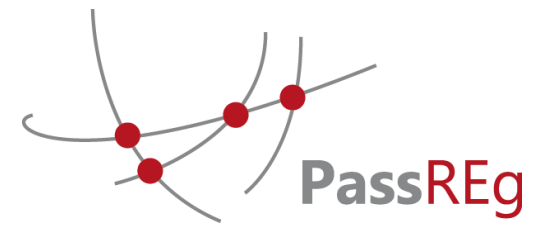
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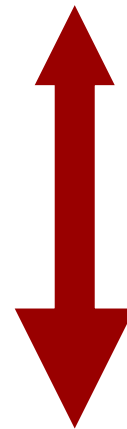
# Learning from best practice



**PassREg draws from experiences in front runner regions**

The Region of Tyrol (Austria)  
The Brussels Capital Region (Belgium)  
The City of Hanover (Germany)

*Front runners may also learn from one another or from aspiring regions in this process!*



Through the study of

- Individual building projects
- Whole regions

Makes approaches accessible to aspiring regions striving to become front runners themselves



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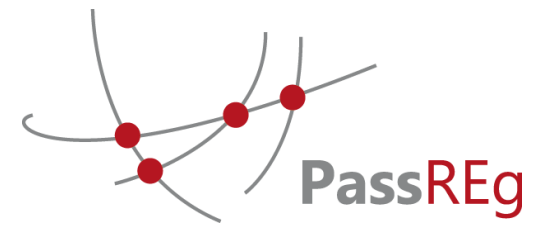
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# THE FRONTRUNNER REGIONS



## Hannover, Germany



- Birthplace of PH concept
- Began in the 1980s
- Political consensus present / financial mechanisms in place

## Brussels, Belgium



- Heart of EU
- Recent political commitment to the PH standard
- Rapid growth in PH new builds and retrofits

## Tyrol, Austria



- Strong national and regional policies
- LPHA dominated construction market
- Vast improvements over last few years



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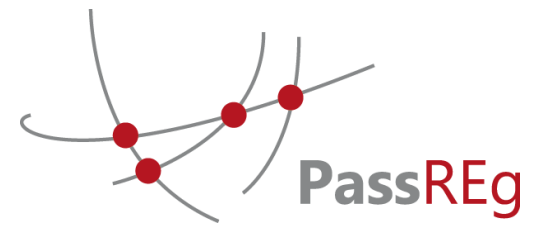
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# Learning from best practice



## Key fields of focus

- Policy and strategy implementation
- Financial mechanisms
- Education and training needs
- Quality assurance



One to one transfer is NOT the goal!

Tailoring successes for local contexts is critical to all areas!!



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# Key outputs



- A 'Success Guide' detailing successes in frontrunner regions
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- International and regional events and study tours
- 2014 Passive House Award



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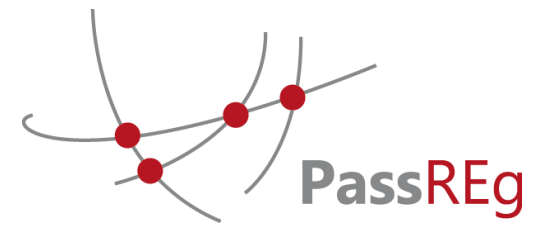
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# Success Guide: REGULATIONS VS. INCENTIVES



## Hannover, Germany



- Energy concept and standards
- The proKlima fund
- Public-private partnerships and support for SMEs

## Brussels, Belgium



- Mandatory local regulations
- The “Exemplary buildings” programme
- Financial incentives in place

## Tyrol, Austria



- National framework and strategies
- Energy strategies at federal states level
- Incentives based on energy performance



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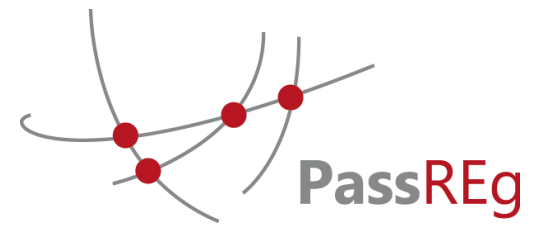
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# Success Guide: CAPACITY FOR CHANGE



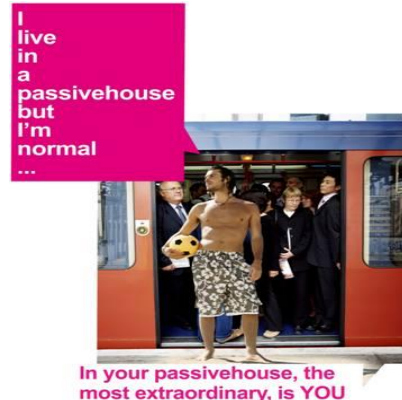
## Hannover, Germany



Source: Eneffect

- Agenda 21 and public dialogue
- Functioning networks
- Administrative capacity

## Brussels, Belgium



Source: <http://areyounormal.be>

- Institutional arrangements: Brussels environment
- Training of building professionals
- Are you normal?

## Tyrol, Austria



Lodenareal project, Source: [www.buildup.eu](http://www.buildup.eu)

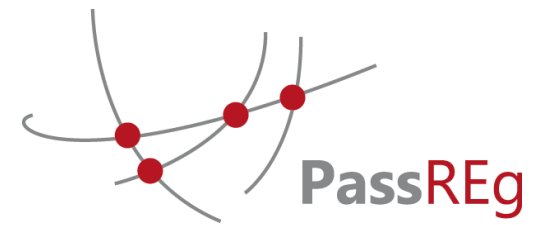
- Knowledge sharing hub: Energy agencies
- Networking and PPP
- Professional capacity building



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# Success Guide: CONCLUSIONS SO FAR



Hanover: success is based on **longstanding political consensus** on the strategic goals of the region.

Brussels: recent explosion of PH construction due to **new legislation / incentive schemes.**

Tyrol: example of **regional and local initiatives**, pioneering role of limited profit housing associations.

## Success can be top down or bottom up or both...

EU 2020  
Energy goals



Regional and  
private  
commitment



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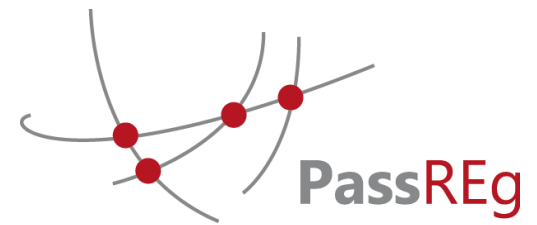
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# Success Guide: CONCLUSIONS SO FAR



- **Implementing Passive House in the definition of national standards for ‘nearly zero-energy buildings’ is a major opportunity and challenge for each EU member state.**
- **The compulsory regulation of PH buildings is effective, when implemented with appropriate *promotional tools*.**
- **Striving for sustainability through Passive House (and ‘green’) buildings creates *new industries and jobs*, boosting economic growth.**
- **The availability of an appropriate national regulatory framework is a favourable condition, but does not reduce the need for active *involvement of regional and local authorities*.**
- **The role of regional/local authorities cannot be fully achieved without attracting a wide range of local *partners and stakeholders*.**

**Success guide coming soon on [www.passreg.eu](http://www.passreg.eu)**



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# Key outputs



- A 'Success Guide' detailing successes in frontrunner regions
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- International and regional events and study tours
- 2014 Passive House Award



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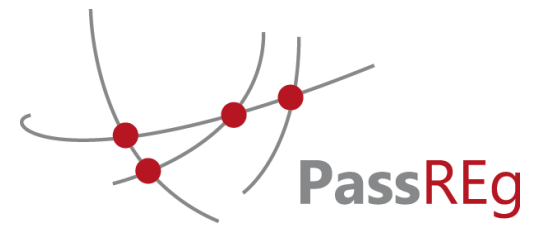
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# Examples to follow

## PassREg beacon projects



### Beacon project: Burry Port Primary School

SA Llanelli, City of Cardiff, Wales, UK (Aspiring region) , United Kingdom

New build  
Individual building  
Public ownership  
Completion: Aug 2015

The scheme will aim for Passive House Certification and will include PV to offset grid electricity demand.



Initial architects drawings of Burry Port School.  
Andrew Tidy, Carmarthenshire County Council



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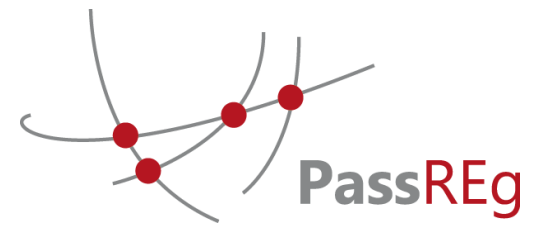
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# Examples to follow

## PassREg beacon projects



### Beacon project: smart Zero Energy Building in SICILY - Botticelli project

95030 Mascalucia, Region of Catania, IT (Aspiring region) , Italy

New build  
Individual building  
Privately owned  
Detached single family house  
144m<sup>2</sup> according to PHPP  
Completed

Certified Passive House Building

[www.sapienzaepartners.it](http://www.sapienzaepartners.it)



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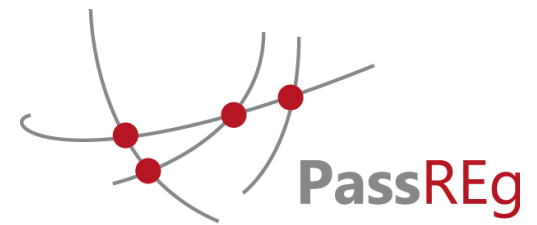
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# Examples to follow

## PassREg beacon projects



### Beacon project: Social Housing Case Finali

47521 Cesena, City of Cesena, IT (Aspiring region), Italy

New build  
Individual building  
Social housing  
Apartment house

The building is designed to reach Passive House Certification.



Social Housing Case Finali / studio Archefice associati



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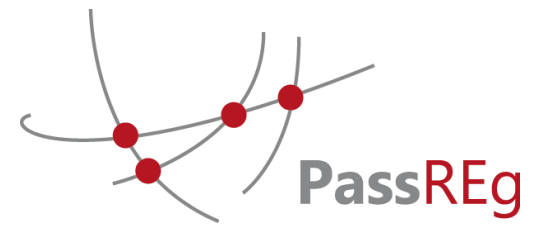
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# Examples to follow

## PassREg beacon projects



### Beacon project: Nieuw zuid

2000 Antwerp, City of Antwerp, BE (Aspiring region), Belgium

New build  
Urban neighbourhood  
Privately owned  
Urban settlement  
400,000m<sup>2</sup> according to PHPP

Planned as Passive House  
settlement with use of district  
heating, PV and smart metres



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# Examples to follow

## PassREg beacon projects



### Beacon project: Energy efficient reconstruction of the service hotel / vocational secondary school

LV4840 Vidzeme, Region of Vidzeme, LV (Aspiring region) , Latvia

Retrofit

Individual building

Public ownership

3864m<sup>2</sup> according to PHPP

745 EUR gross construction costs  
per m<sup>2</sup> (Treated Floor Area)

Completed

Heating demand: 18 kwh/m<sup>2</sup> per yr



[www.ergliarods.lv](http://www.ergliarods.lv)



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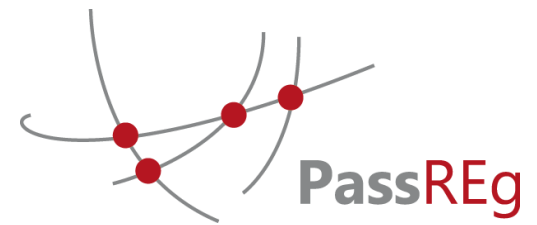
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# Examples to follow

## PassREg beacon projects



### Beacon project: Low energy refurbishment of two buildings: school and dormitories

LV4601 Tiskadi , Region of Rezekne, LV (Aspiring region) , Latvia

Retrofit

Building cluster

Public ownership

4256m<sup>2</sup> according to PHPP

404 EUR gross construction costs  
per m<sup>2</sup> (Treated Floor Area)

Completion: Aug 2013

Heat demand: 15 kwh/m<sup>2</sup> per yr



[www.rdc.lv](http://www.rdc.lv)



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# Key outputs



- A 'Success Guide' detailing successes in frontrunner regions
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- 2014 Passive House Award



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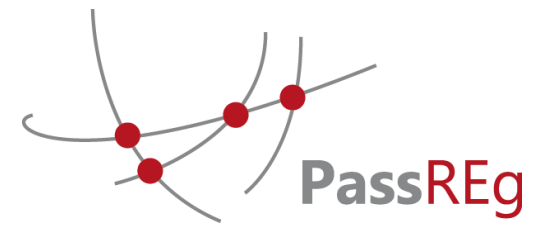
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# Set of Solutions



## The new Set of Solutions resource came into life...



Navigation

- [Main page](#)
- [Long list of solutions](#)
- [Regions](#)
- [Community portal](#)
- [Current events](#)
- [Recent changes](#)
- [Random page](#)
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Toolbox

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Page [Discussion](#) [Read](#) [View source](#) [View history](#)

## Main Page

### Welcome to our SoS-wiki

This wiki contains information supporting the **transition towards Nearly Zero Energy regions** - Passive House regions sustainably supplied with renewable energies. Inspired by the findings in [frontrunner regions](#), this wiki provides an interactive, continually growing **Set of Solutions (SoS)** to guide the path towards the energy revolution.

#### Long list of solutions

The Long list of Solutions is an abridged version of the Set of Solutions that will follow soon in this wiki. The contributions focus on the Frontrunner Regions Hannover (DE) Brussels (BE) and Tirol (AT). Special thanks to our partners in this regions for willingly providing information.

#### Themes

- [Knowledge and quality assurance](#)
- [Business case and financing](#)
- [Regulations and political agenda](#)
- [Transition process](#)

#### Regions

- [Frontrunner Region Brussels](#)
- [Frontrunner Region Tirol](#)
- [Frontrunner Region Hannover](#)

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# Help desk and experts



If you need answers and the Set of Solutions doesn't help..., there are a number of resources being built up through PassREg to fit your needs...

Network search

Ask one of the 60+  
PassREg experts

Contact the  
Helpdesk

Help Desk



Passipedia: The Passive  
House resource.

Search Passipedia  
[passipedia.org](http://passipedia.org)

FORUM



Where PassREg  
stakeholders meet.

Have a look at the  
PassREg Forum



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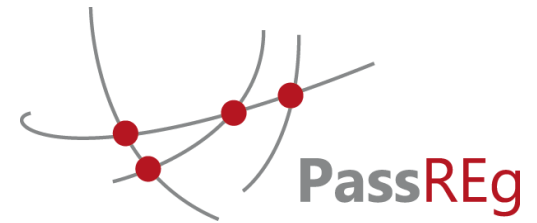
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# Building the groundwork: Quality Assurance



K  
P:

**CERTIFIED  
PASSIVE HOUSE  
TRADESPERSON**

**TRADESPERSON**

**DESIGNER**

**CERTIFIED  
PASSIVE HOUSE  
DESIGNER**

© Passive House Institute  
Energy balance and Passive Ho  
for quality approved Passive House an

for

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CERTIFIED  
PASSIVE HOUSE  
DESIGNER



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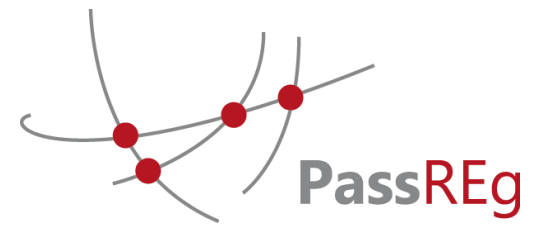
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# Building the groundwork: Training



The availability of high quality training will facilitate delivery of Nearly Zero Energy Buildings on the basis of Passive House

Courses for trainers of designers and tradespeople are being rolled out

New modules to existing courses are being developed

- Integrated design procedures
- Integration of renewable energy supplies
- Energy efficient cooling
- Training for Passive House Building Certifiers



Future Passive House Designer and Tradesperson trainers in Cesena; photo: Passive House Institute



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# Key outputs



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# **19<sup>TH</sup> INTERNATIONAL PASSIVE HOUSE CONFERENCE 2015**

Leipzig | Germany

**17 - 18 April 2015**

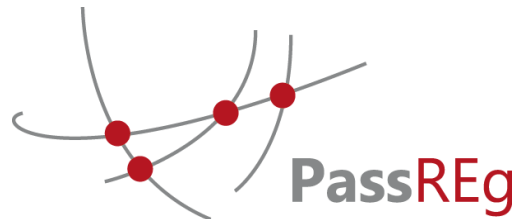
with exhibition and  
framework programme



[www.passivehouseconference.org](http://www.passivehouseconference.org)



# Regional Events



**Beacons and other projects across the Passive House regions open their doors to the public along with hundreds of others worldwide**



PASSIVE HOUSE RESIDENTS WORLDWIDE OPEN THEIR HOMES:

## International Passive House Days

7-9  
November  
2014

Invitation

*Visit Passive House buildings or showcase your own project!*


Doing more with less:

- » Superior comfort
- » Minimal heating and cooling costs
- » For new builds and retrofits alike

Experience Passive House buildings first hand!

- Visits and guided tours offered across the globe
- Architects show how it's done
- Residents share their experiences

Please see [www.passivehouse-international.org](http://www.passivehouse-international.org) for further information.  
Participating buildings will be listed as of September 2014 on  
[www.passivehouse-database.org](http://www.passivehouse-database.org)

International  
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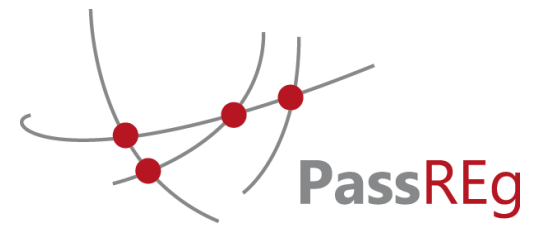
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# Sector specific benefits and opportunities



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## Policy makers and local authorities

Highlighting mechanisms for target setting, implementation and leading by example

## Financiers

Extracting and disseminating models for financing

## Developers and housing associations

Understanding lifecycle costs/ impacts and benefits to occupants

## Architects and engineers

Up-skilling in low energy design techniques

## Construction companies and craftspeople

Training for high quality on-site delivery

## Manufacturers of building components

Exploring new market opportunities, product certification, wider exposure



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International

**PASSIVE HOUSE**

Association



# 2014 Passive House Award

**7 winners from 4 countries in a total of 6 categories:**

- retrofits
- apartment buildings
- single family homes and terraced houses
- educational facilities
- office and special use buildings
- Passive House regions

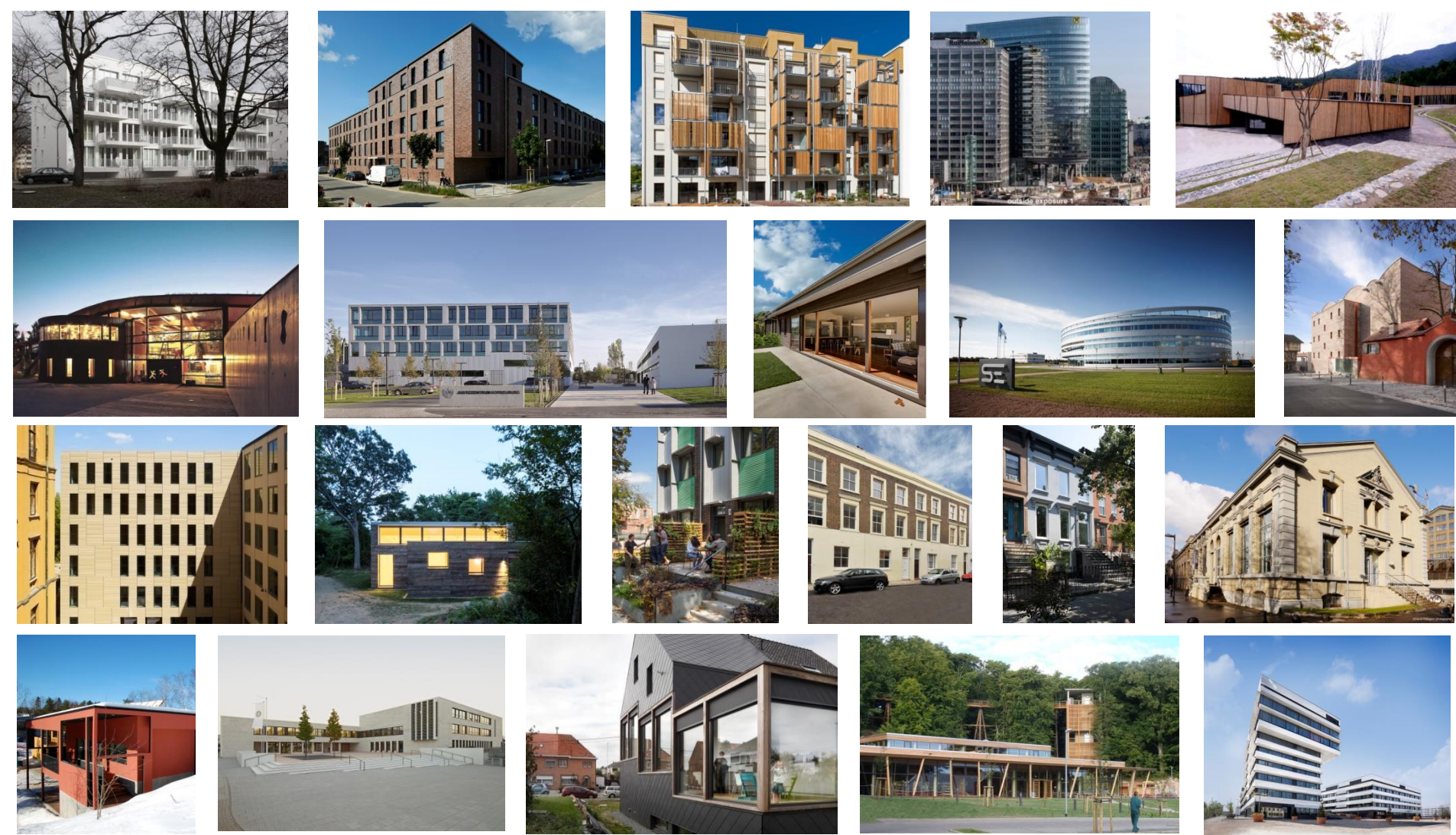
## **Submission statistics**

121 projects submitted, 92 eligible  
46 projects from Germany and 46 non-German  
projects from a total of 21 countries

Winners and finalists visible on

**[www.passivehouse-award.org](http://www.passivehouse-award.org)**





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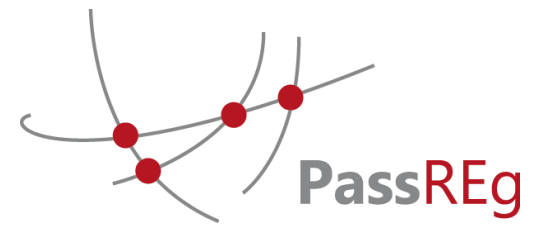


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on the basis of a decision by the German Bundestag



# Active for more comfort: Passive House



## Active for more comfort: Passive House

Information for property developers, contractors and clients



Now more international than ever, this edition includes clear explanations of Passive House basics along with brand new material on topics such as:

- energy retrofitting
- non-residential Passive Houses
- Passive House in warm climates
- the use of renewables

A new chapter also documents the 2014 Passive House Award winners!

**Downloadable via [www.passreg.eu](http://www.passreg.eu)!**



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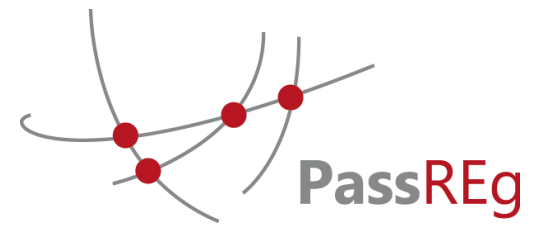
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# Opportunities for policy makers and local authorities



Learn from regions successfully implementing wide-scale NZEBs to:

- Establish 'cost optimal' solutions in line with EPBD
- Provide mechanisms for target setting

Lead by example through own construction projects

- Explore financing options

Provide guidance to help the industry deliver the desired outcomes

Conferences, workshops and study tours to witness demonstration buildings first hand



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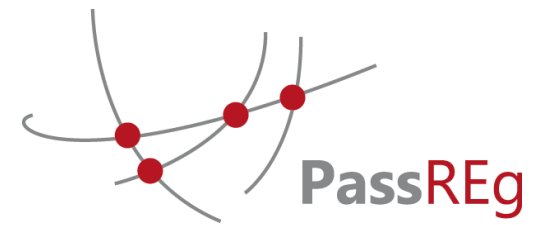
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# Opportunities for financiers



Ethical investment, allowing portfolio holders to differentiate themselves within the market

Learn about proven methods for delivering low energy buildings economically

Explore financial models used by successful projects and regions

Conferences, workshops and study tours to witness demonstration buildings first hand



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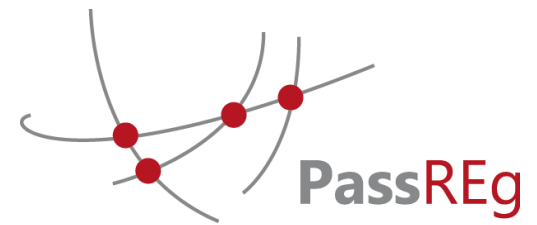
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# Opportunities for developers



Learn about proven methods for delivering low energy buildings economically

Explore financial models used by successful projects and regions

Understand lifecycle costs, impacts and benefits to occupants

Conferences, workshops and study tours to witness demonstration buildings first hand



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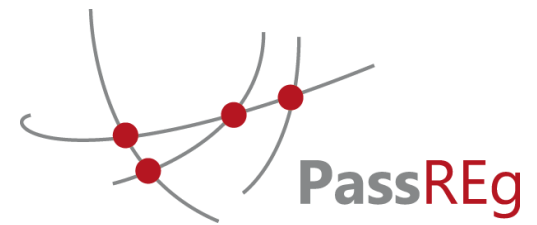
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# Opportunities for designers and engineers



Learn about proven and varied methods for delivering low energy buildings economically

Understand lifecycle costs and compatibility with other existing national standards

Training in low energy design techniques

Conferences, workshops and study tours to witness demonstration buildings first hand



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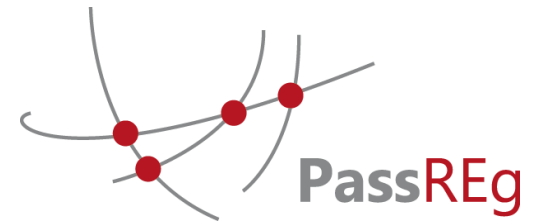
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# Opportunities for Construction companies and craftspeople



Learn about proven and varied methods for delivering low energy buildings

Understand lifecycle costs and compatibility with other existing national standards

Training for high quality on-site delivery

Conferences, workshops and study tours to witness demonstration buildings first hand



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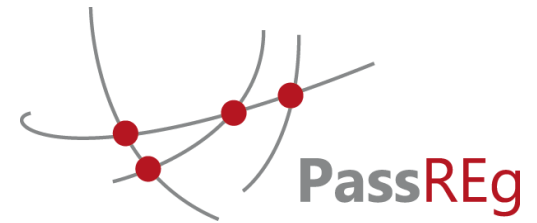
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# Opportunities for manufacturers



Increased delivery of NZEBs will bring demand for high performance construction products and systems

Potential for manufacturers to adapt and diversify to expand into new markets

Product Certification by the Passive House Institute

Regional and international exhibits, workshops, events and study tours at which to promote and market products



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# Project partners



Get involved! [www.passreg.eu](http://www.passreg.eu)



Passive House Institute (DE)  
iPHA (DE)  
Passiefhuis-Platform (BE)  
Plate-forme Maison Passive (BE)  
EnEffect Group (BG)  
DNA in de Bouw (NL)  
City of Zagreb (HR)  
End Use Efficiency Research Group, Politecnico di Milano (IT)  
IG Passivhaus Tyrol (AT)  
Environmental Investment Fund (LV)  
Municipality of Cesena (IT)  
Nobatek (FR)  
BRE Wales (UK)  
proKlima (DE)  
Burgas Municipality (BG)



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Thank you for your attention

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**You can find more information on:**

[www.passivehouse-international.org](http://www.passivehouse-international.org)

[www.passivehouse.com](http://www.passivehouse.com)

[www.passipedia.org](http://www.passipedia.org)

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