

Co<sub>2</sub>olBricks

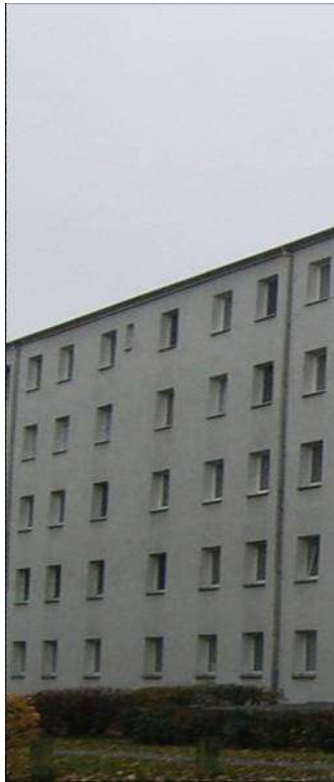
# Climate Change, Cultural Heritage and Energy Efficiency

Co2olBricks Mid-Term Conference, Malmö 17.9.2012



# What is Co<sub>2</sub>olBricks all about?

**How to increase the energy efficiency of historic and traditional buildings without damaging their cultural value!**



# Partnerstructure



## Lead Partner

01 Freie und Hansestadt Hamburg  
Behörde für Kultur, Sport und Medien / Denkmalschutzamt

## Germany

02 Hamburg, Behörde für Stadtentwicklung und Umwelt  
03 Ausbildungszentrum Bau in Hamburg GmbH  
04 Kiel, Umweltamt

## Sweden

05 Stadsmuseum Stockholm  
06 Energy Agency Southeast Sweden  
07 Swedish National Heritage Board  
08 Malmö, Environment Department

## Denmark

09 Aalborg University, Danish Building Research Institute

## Estonia

10 Estonian Heritage Society  
11 Kõhla-Järve Town Government  
12 Centre for Development Programs

## Latvia

14 City of Riga, Infrastructure Department  
15 Riga Technical University

## Poland

16 European Foundation for Monuments Protection

## Belarus

17 Republican Centre for Technology Transfer

## Finland

18 KIINKO- Real Estate Education

## Lithuania

20 Vilnius Gediminas University

# Basic Data of Co<sub>2</sub>olBricks

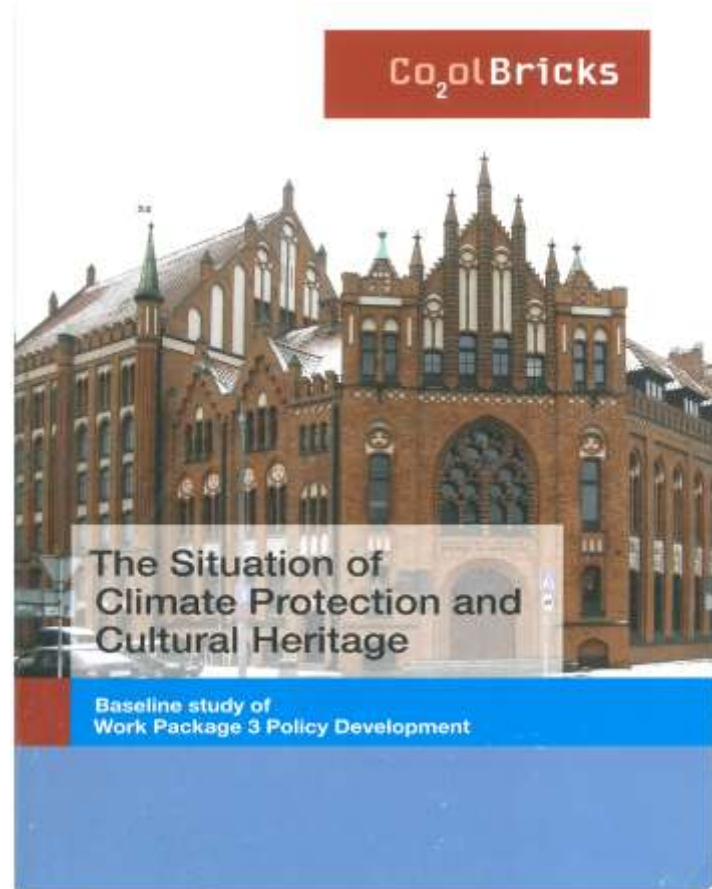
- Project period: December 2010 - December 2013
- 18 Partners from 9 countries with 10 languages
- Project budget: 4,3 Mio. Euro
- Of that EU-Funding: > 75%

# 1. Political Development

## Baseline study:

- No specific national rules concerning energy efficiency and historic buildings.
- energy consumption of historic buildings is unknown
- The cultural heritage regulations only control the restoration and preservation without reference to energy consumption
- financial mechanisms and legislation are not harmonised with the intentions of preservation.
- therefore specific public funding for energy efficiency in historic buildings is needed

**For download go to** <http://co2olbricks.eu/index.php?id=50>



# 2. Technical Solutions

Baseline Study:

## Results:

- Countries deal very carefully with historic buildings
- All measures based on theoretical calculations
- No analysis before the refurbishment (material, real heat transmission values etc.)
- No evaluation after refurbishment
- Definition of value of historic building components before and after refurbishment necessary

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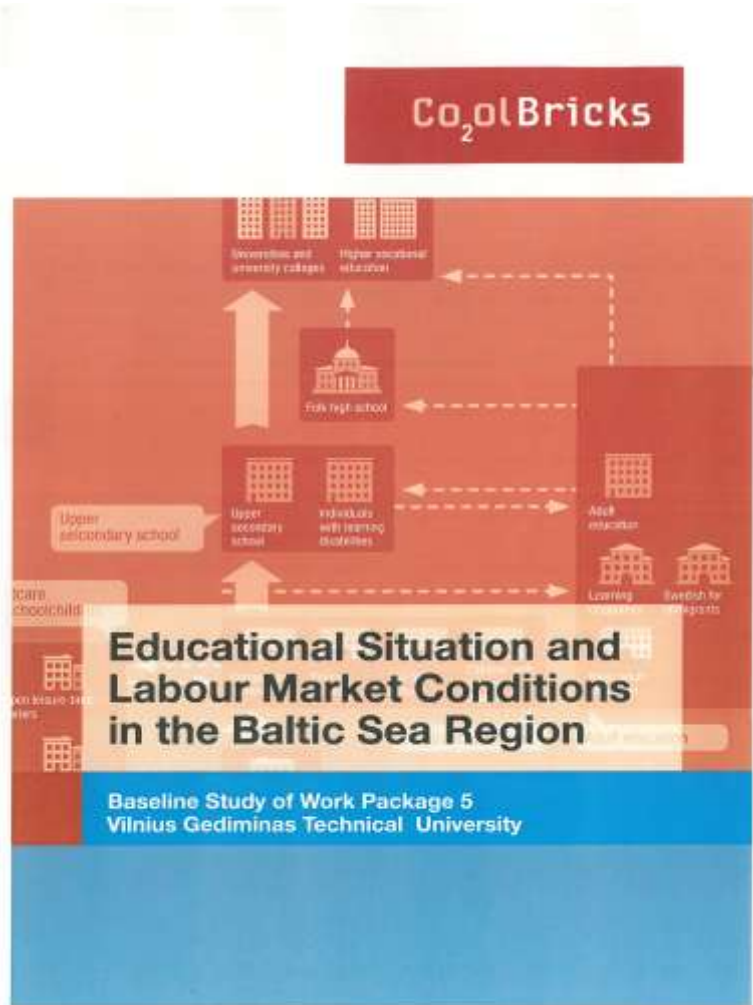
Refurbishment for the energy efficiency of historic buildings in member states in the Baltic Sea Region

A handbook of the "most common methods for improvements to energy efficiency"

For download go to <http://co2olbricks.eu/index.php?id=50>

# 3. Education and Economic Promotion

Baseline Study:



For download go to  
<http://co2olbricks.eu/index.php?id=50>

# Research in Tallin/Kohtla- Järve, Estonia





# Research in Tartu, Estonia



# Research and pilot project in Hamburg, Germany



**Current primary energy consumption: 343 kwh/sqm/a (calculated)**

# Research in Riga, Latvia



# Research in Poland



# **PILOT PROJECTS**

**The built reality of Co2o1Bricks**

# Pilot Project in Estonia: School building in Kohtla-Järve



# Pilot Project in Germany: Residential building in Hamburg



# Pilot Project in Latvia World Heritage site in Riga



- Current annual heat energy consumption (calculated): ca.670 kWh/m<sup>2</sup> /a
- Energy consumption after refurbishment: ca. 130 kWh/m<sup>2</sup> / a
- Internal insulation: aerogel mat, aerogel granules, vacuum insulation panels
- Windows: Tripple glazing+foil blinds+double glazing
- Daylight solution with optic fibers
- Mechanical ventilation with heat recovery





# **Pilot Project in Sweden: Former hospital area in Malmö**



# Co<sub>2</sub>olBricks

## Thank you very much for your attention!

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