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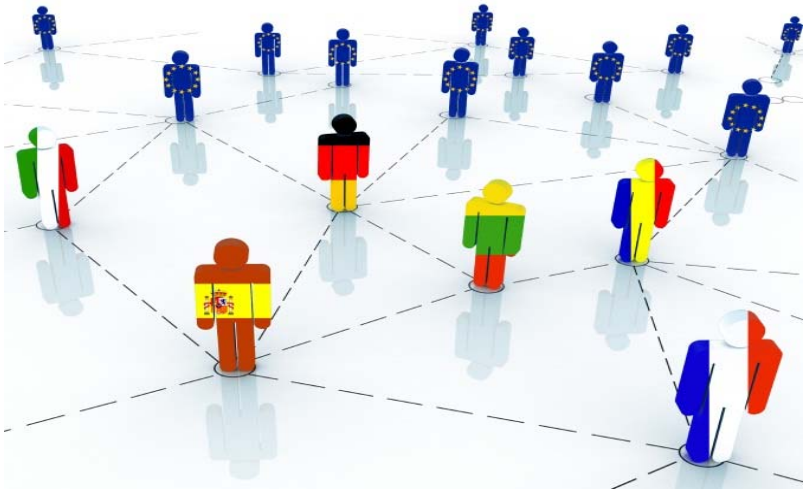
How social media will revolutionise the building industry towards sustainability?



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Steve Borncamp
President of Romanian Green Building Council

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EUROPE

construction = conservative

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construction = conservative

+

only incremental changes?

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SERIOUS MATERIALS

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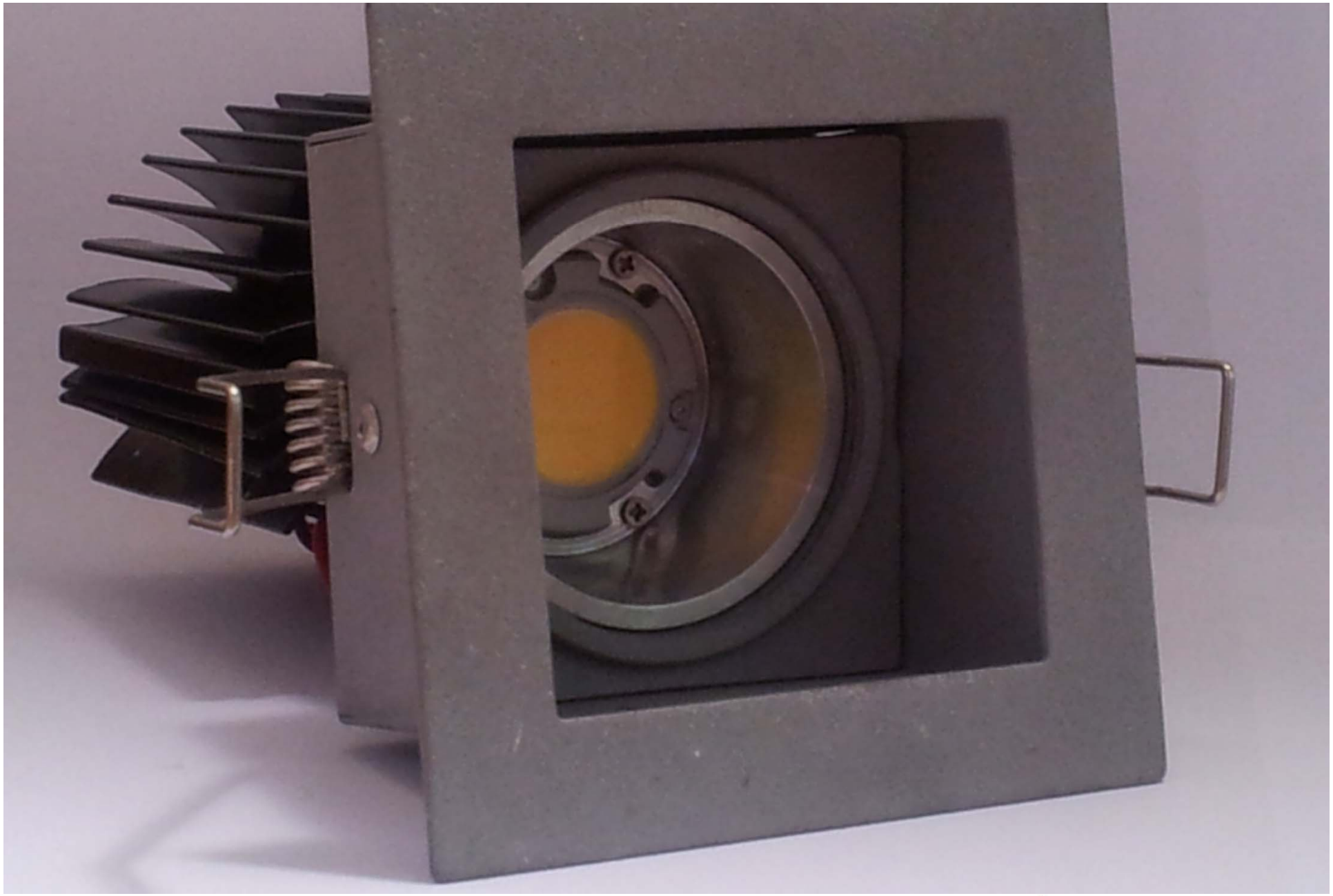

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¡Viva La Revolución!

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science

big data

connectivity

measurement

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science

big data

connectivity

measurement

meets

9-10 billion people

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a powerful tool?

a powerful tool = social media

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a powerful tool = social media

why?

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benefits

consolidate common interest

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benefits

consolidate common interest

bring more to the conversation

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benefits

consolidate common interest

bring more to the conversation

democratization of information

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challenges

“knowledge hoarding” is difficult

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challenges

“knowledge hoarding” is difficult

validation of data

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challenges

“knowledge hoarding” is difficult

validation of data

just because you can…

doesn’t mean you should

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another benefit

mediocrity filter

instant meritocracy

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another benefit

mediocrity filter

instant meritocracy

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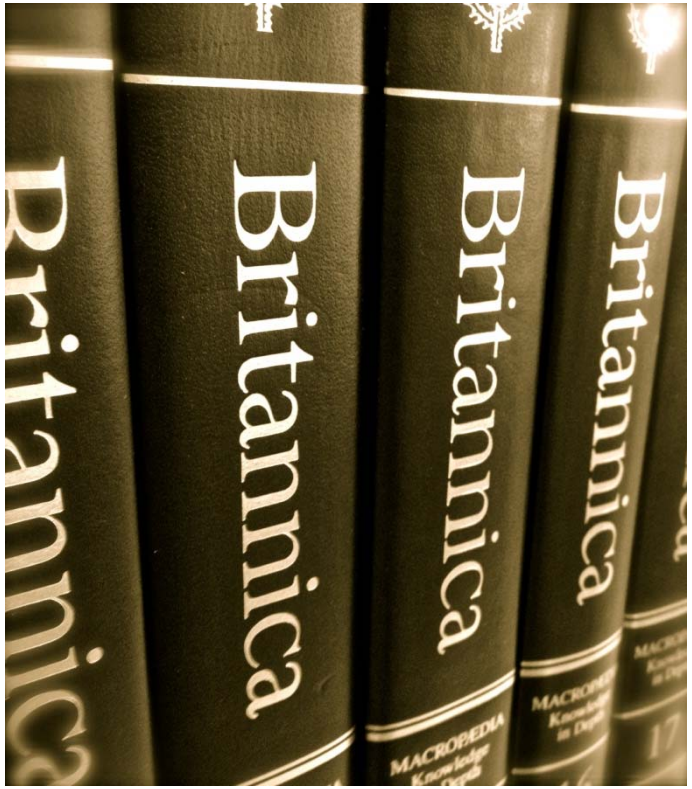

VS

WIKIPEDIA
The Free Encyclopedia

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wisdom of crowds

the group is smarter than its smartest individual

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wisdom of crowds

a community of your peers

recommending and elevating items of importance

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must bring the debate closer to the construction community

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must bring the debate closer to the construction community

innovation needs integration

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two big challenges

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two big challenges

0% to 60%

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two big challenges

0% to 60%

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ASK!!!!

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ASK!!!!

improve communication of the full project team

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socialize the great ideas!

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Steve Borncamp

President of Romanian Green Building Council

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David Clark
Partner of CUNDALL Engineering

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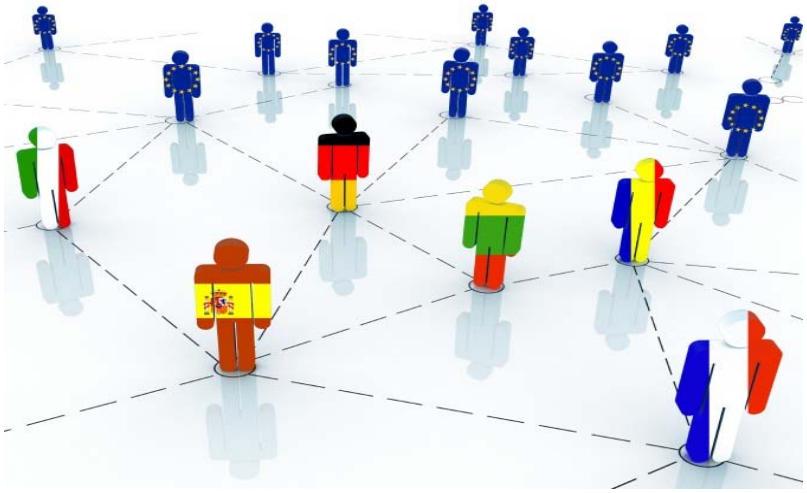
Raising the Ambition of Europe's Energy Performance for Buildings



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The need for data and good examples

- Energy data on real building performance
  - To turn theory into reality
  - To focus on what actually works
  - To replicate success
  - To avoid repeating mistakes

- Whole Carbon Footprint
  - embodied carbon
  - transport to and from the building

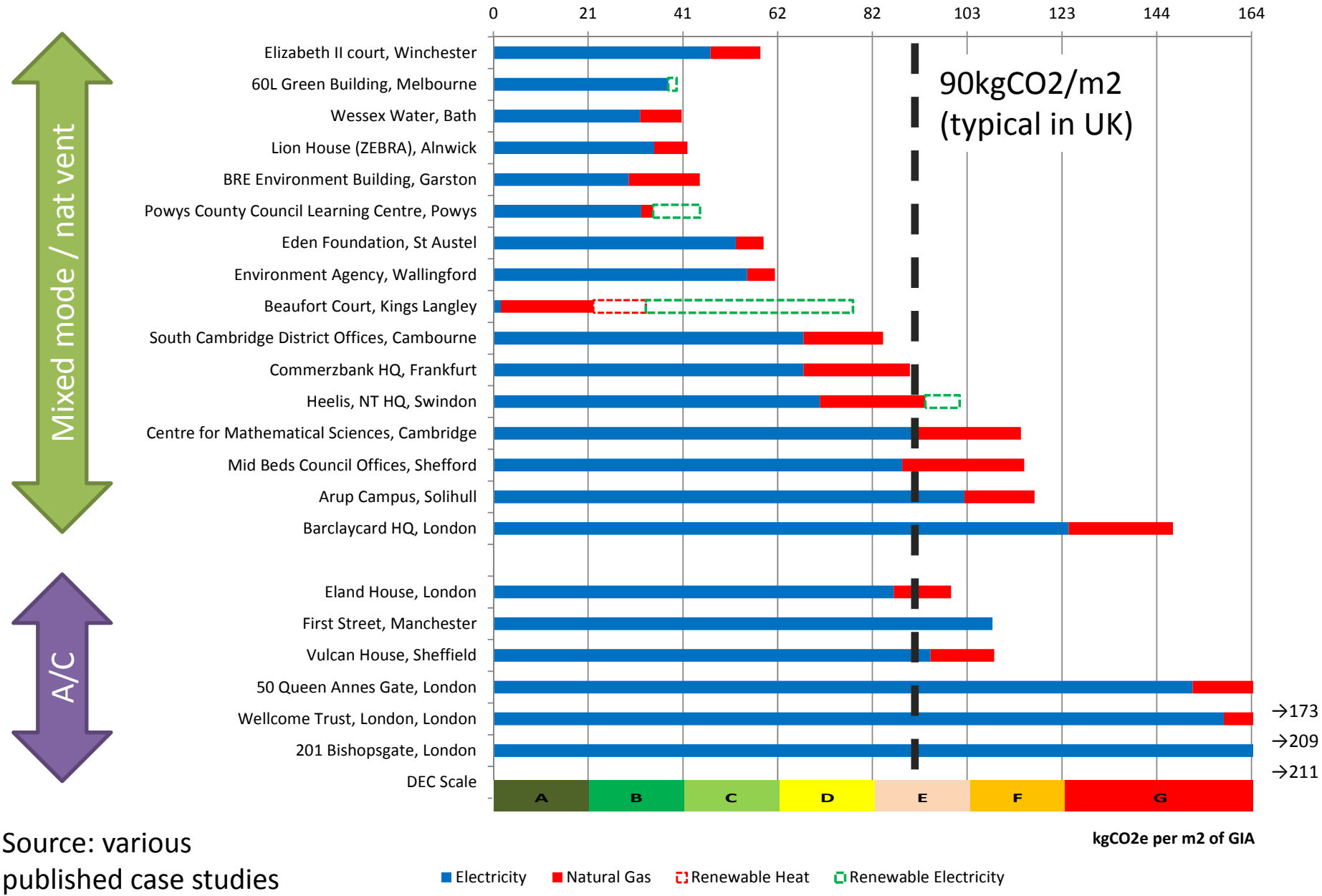
Most case studies are based on

Energy Performance Certificates
(modelled energy)

We really need

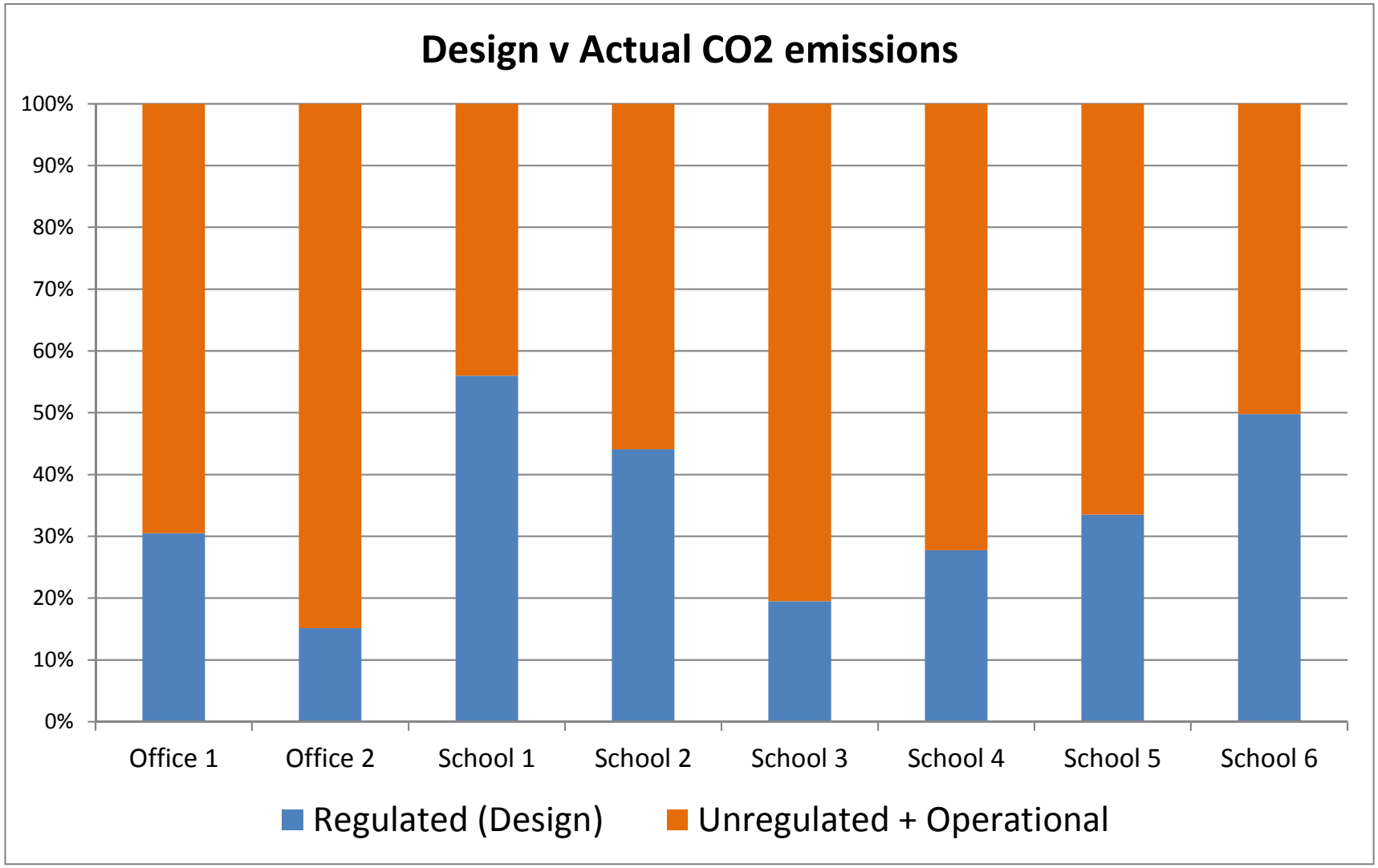
Total Energy Consumption
(actual performance)

Real performance of green office buildings



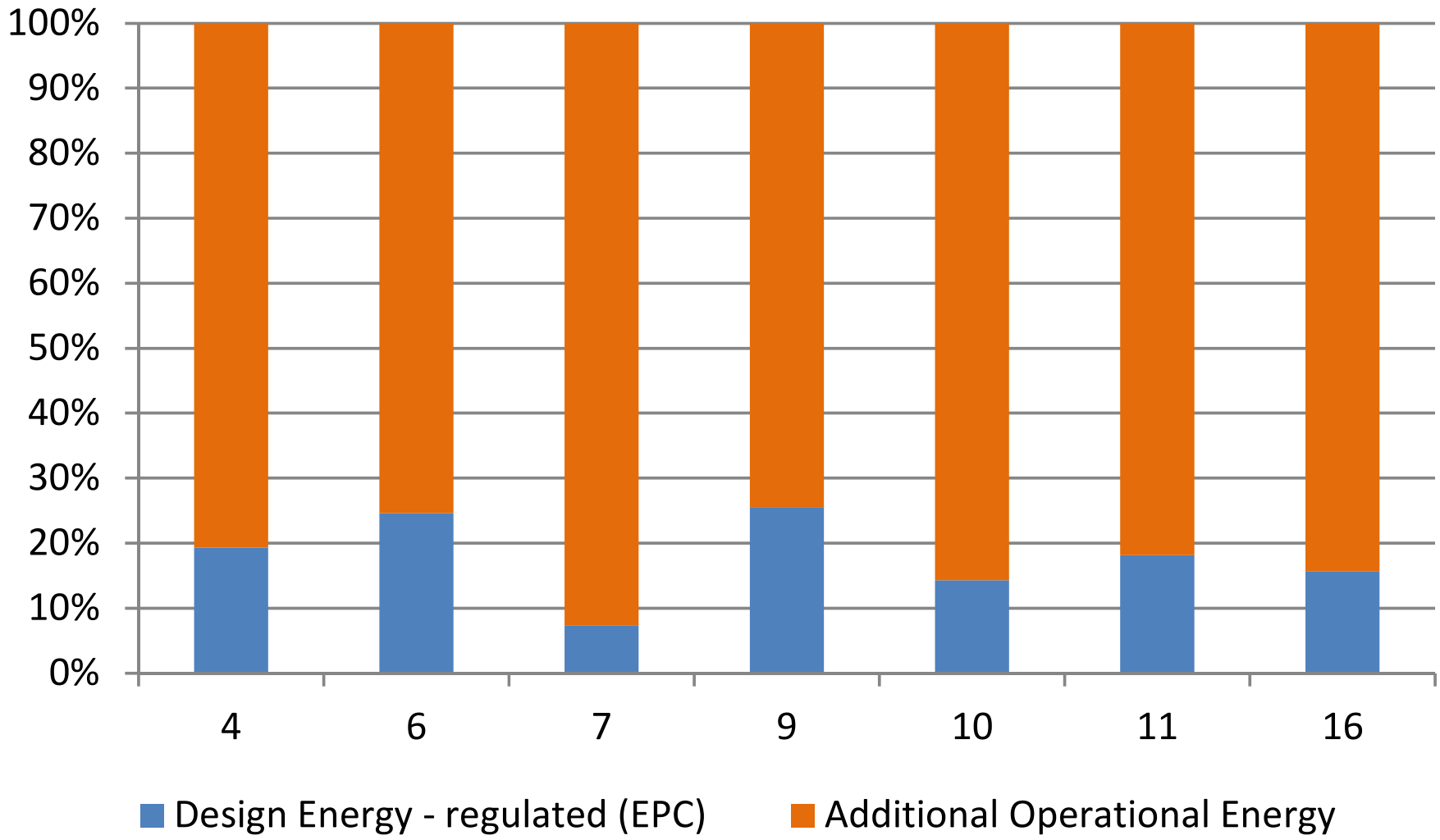
Source: various published case studies

Closing the gap between design & reality



Source: Cundall

Closing the gap between design & reality



Source: www.carbonbuzz.org

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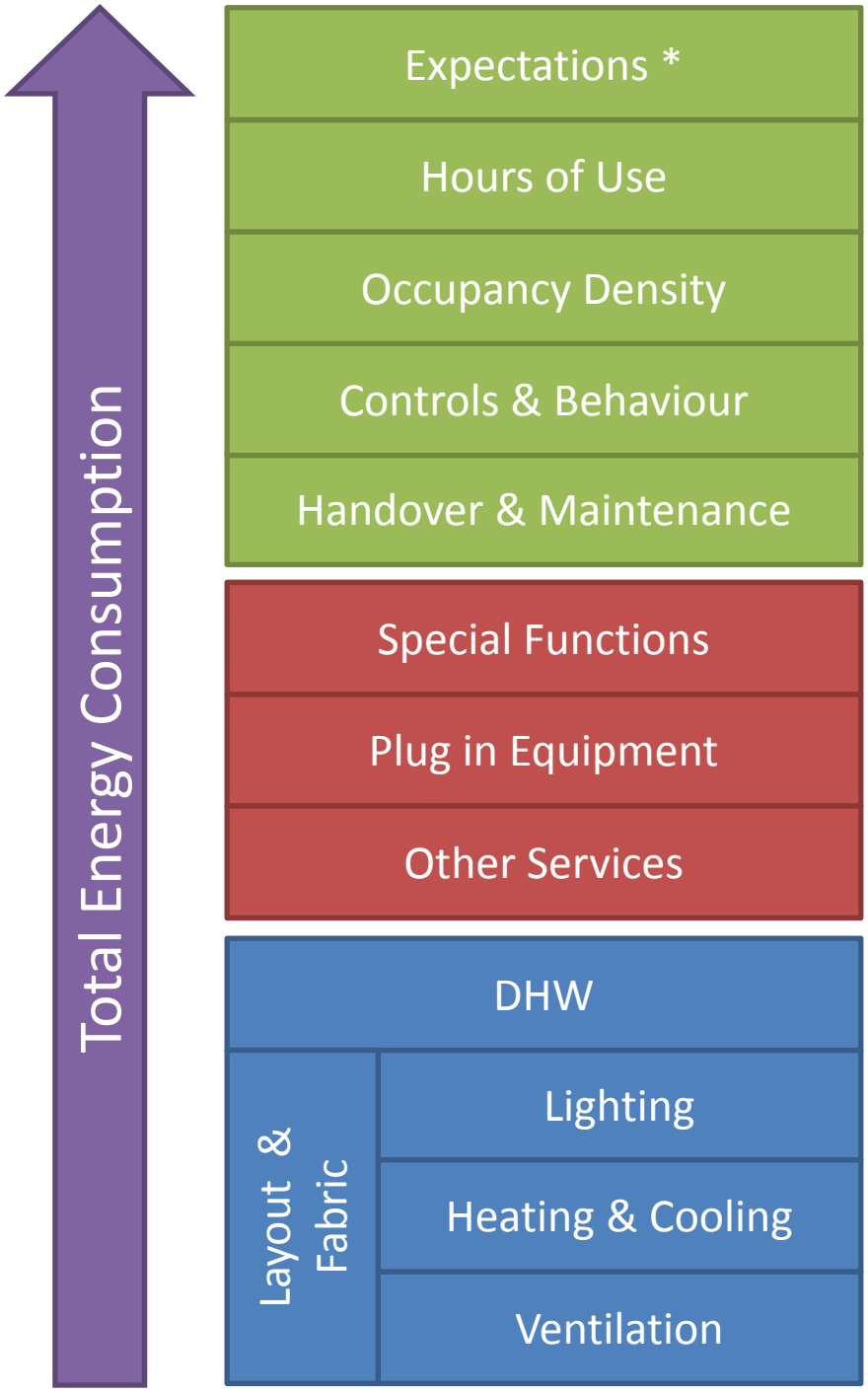

Operational factors

Various factors which influence actual energy consumption that are typically not included in energy modelling

* - expectations includes lighting levels and thermal comfort criteria

Unregulated Energy

Tenant's equipment (e.g. computers, servers) Lifts, external lights and other services not included in building regs modelling

Regulated Energy

Computer energy modelling for Building Regulations, Energy Performance Certificate and BREEAM energy points.

Whole Carbon Footprint - LCA

- Embodied carbon gaining prominence in UK
- Very few buildings have an LCA
- No consistency between factors used
  - Steel = <1,000kgCO2/t OR > 2,000kgCO2/t ?

- Need to consider Whole Carbon Footprint
  - embodied carbon AND
  - transport to and from the building
  - Location matters!

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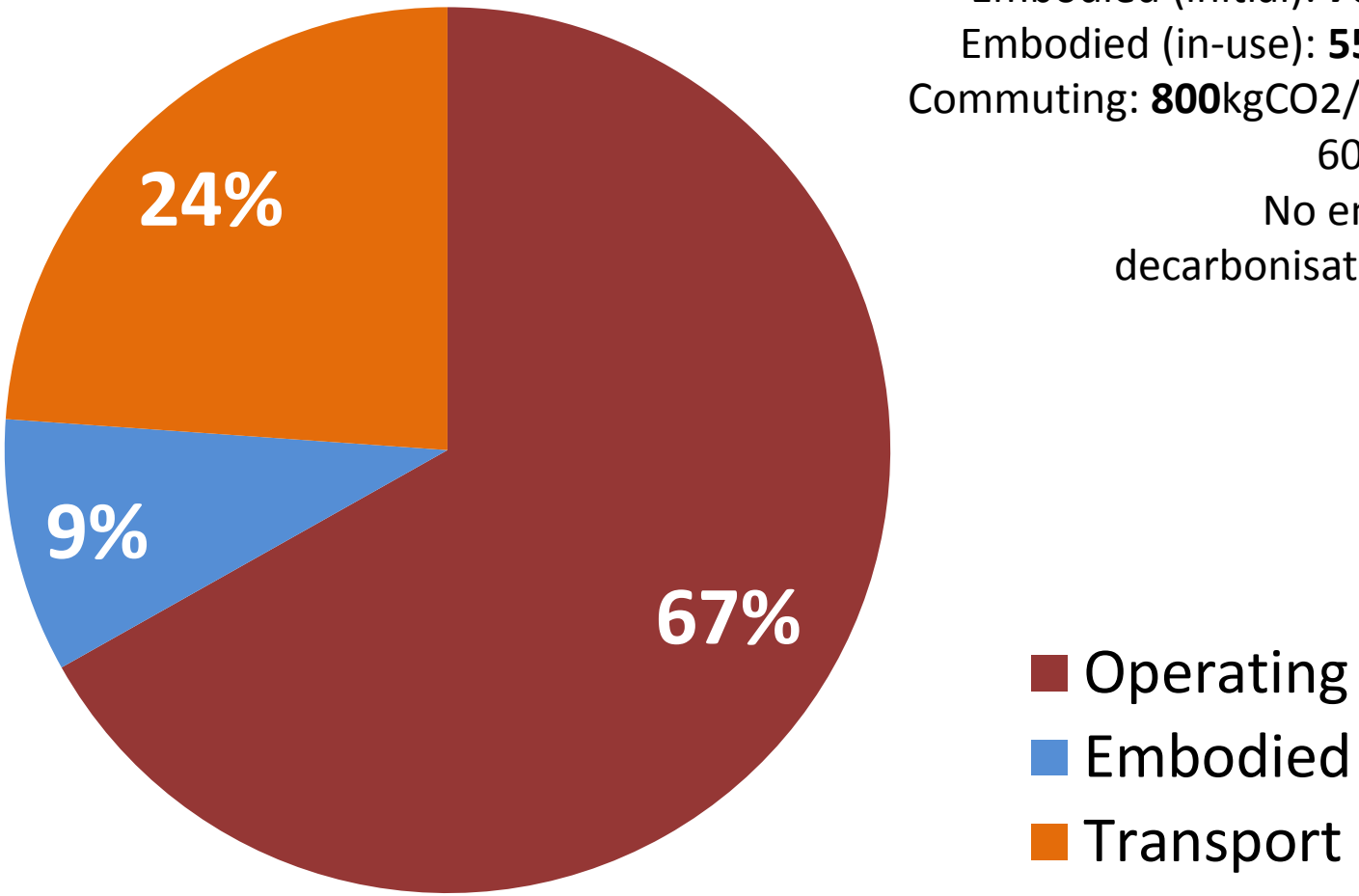
Carbon footprint – new London office

Operating: **150**kgCO2/m^2/year
Embodied (initial): **700**kgCO2/m^2
Embodied (in-use): **550**kgCO2/m^2
Commuting: **800**kgCO2/person/year
60 year period
No energy supply
decarbonisation included



Source: Cundall

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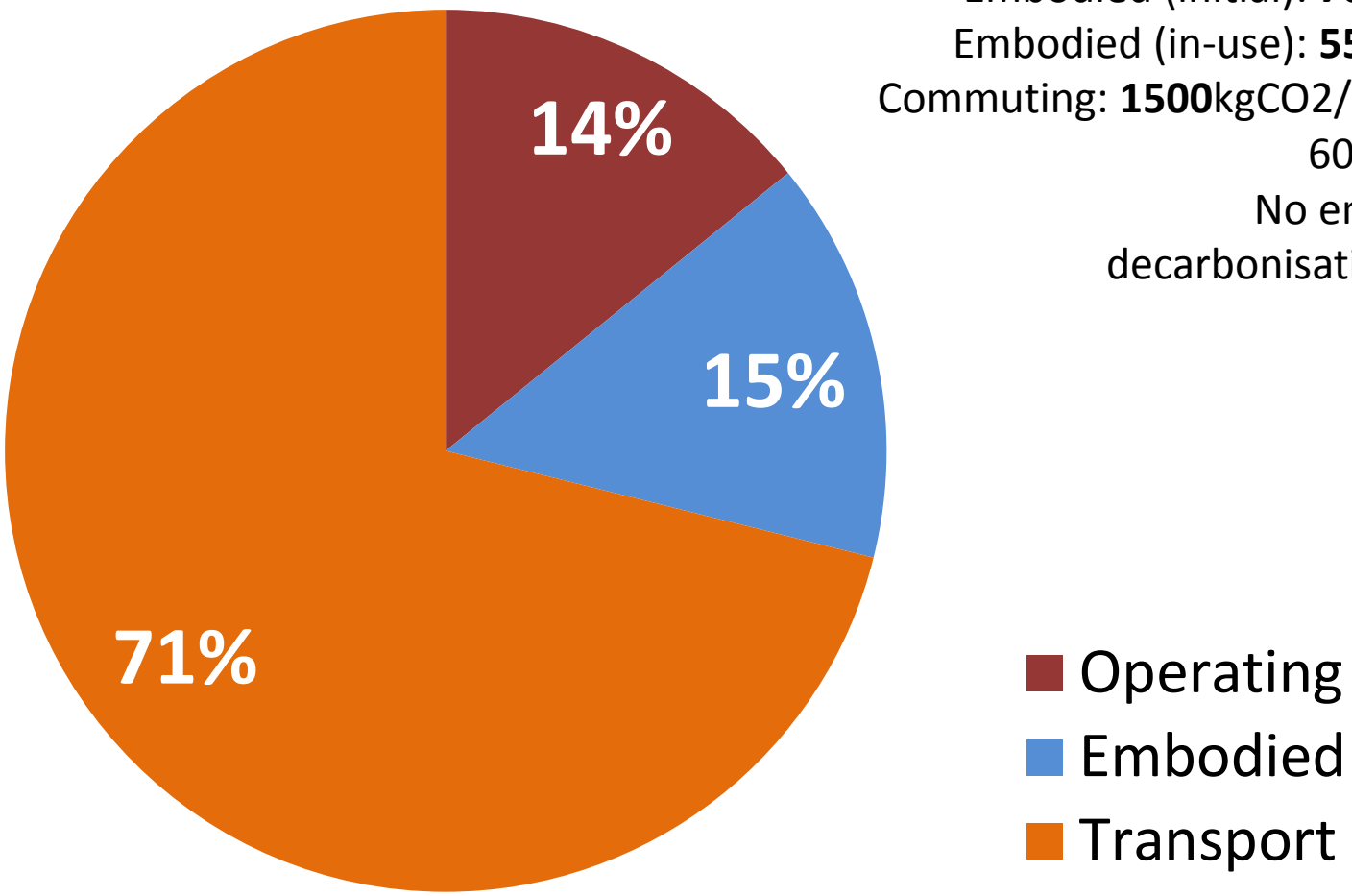
Carbon footprint – new rural low energy office

Operating: **20**kgCO2/m^2/year
Embodied (initial): **700**kgCO2/m^2
Embodied (in-use): **550**kgCO2/m^2
Commuting: **1500**kgCO2/person/year
60 year period
No energy supply
decarbonisation included



Source: Cundall

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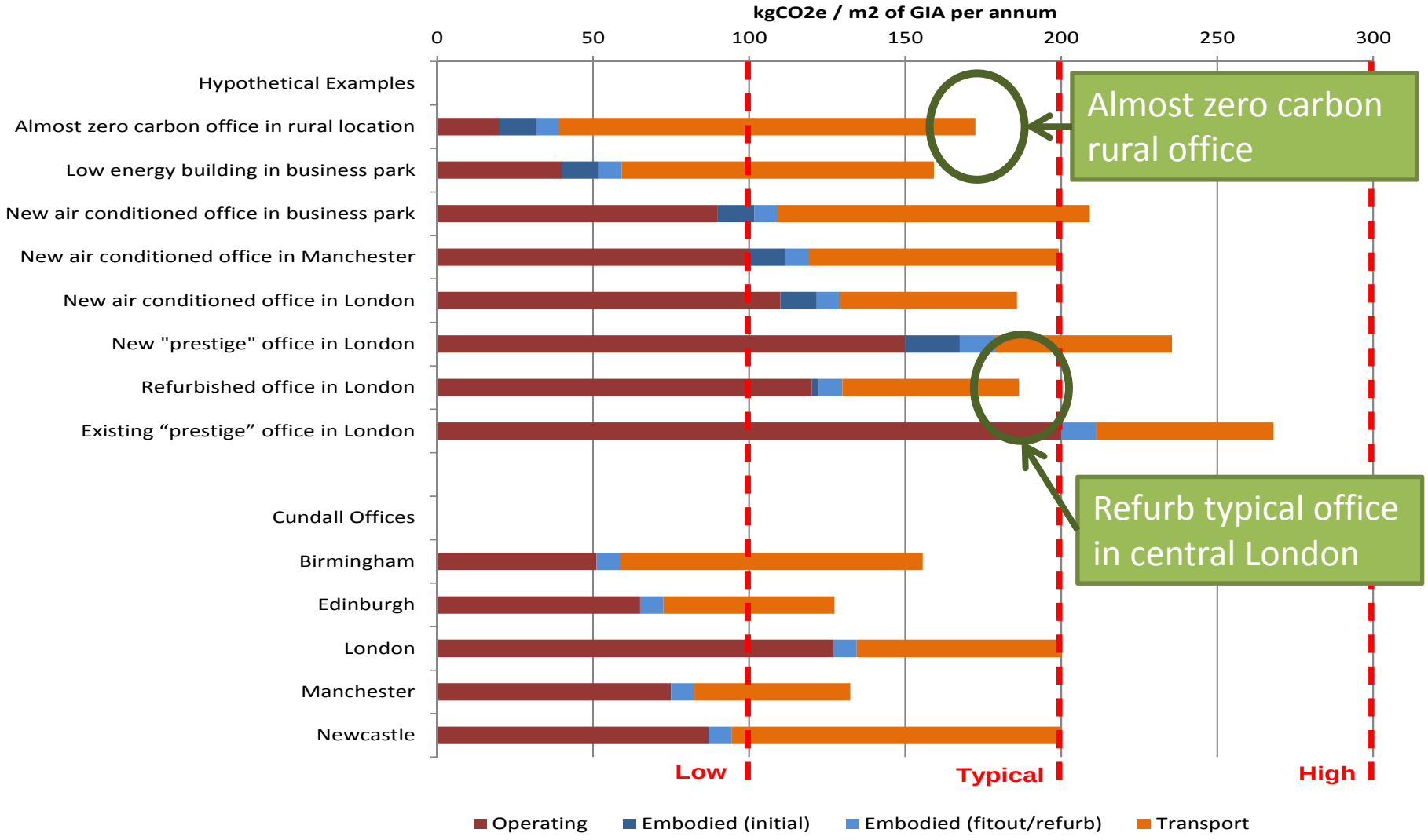
Whole Carbon Footprint



Source: Cundall

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How c21 could help

- Provide case study data in consistent format
- Encourage operational data rather than design
- Provide whole carbon footprint data
- Share ideas
- Encourage debate

- Part of the jigsaw (gov policy, rating tools, taxes, etc) to reduce the environmental impact of buildings

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Véronique Pappe
Project manager of Construction21.eu
at French Institute for Energy Performance in Buildings

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The European platform for green building practicioners

http://www.youtube.com/watch?v=fHQ0KHeX3kY&feature=plcp

What is Construction21?

- Become the first meeting place for all green building practitioners
- A social network, made by practitioners for practitioners
- Based on the “word to mouth” principle : practicioners share their experiences with their peers
- At a regional, national and international scale

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Construction21 founding partners

VILNIAUS GEDIMINO TECHNIKOS UNIVERSITETAS

DGNB®
Deutsche Gesellschaft für Nachhaltiges Bauen e.V.
German Sustainable Building Council

United Nations Educational, Scientific and Cultural Organization

uniTwin UNESCO Chair in Life Cycle and Climate Change

ESCi UNIVERSITAT POMPEU FABRA

PE INTERNATIONAL
EXPERTS IN SUSTAINABILITY

Unioncamere Veneto

ANCE ASSOCIAZIONE NAZIONALE COSTRUTTORI EDILI

France GBC

CIRIDD
Centre International de Ressources et d'Innovation pour le Développement Durable

ROMANIA GREEN BUILDING COUNCIL

IFPEB
Institut Français pour la Performance Energétique du Bâtiment

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BUILD UP
energy solutions for better buildings

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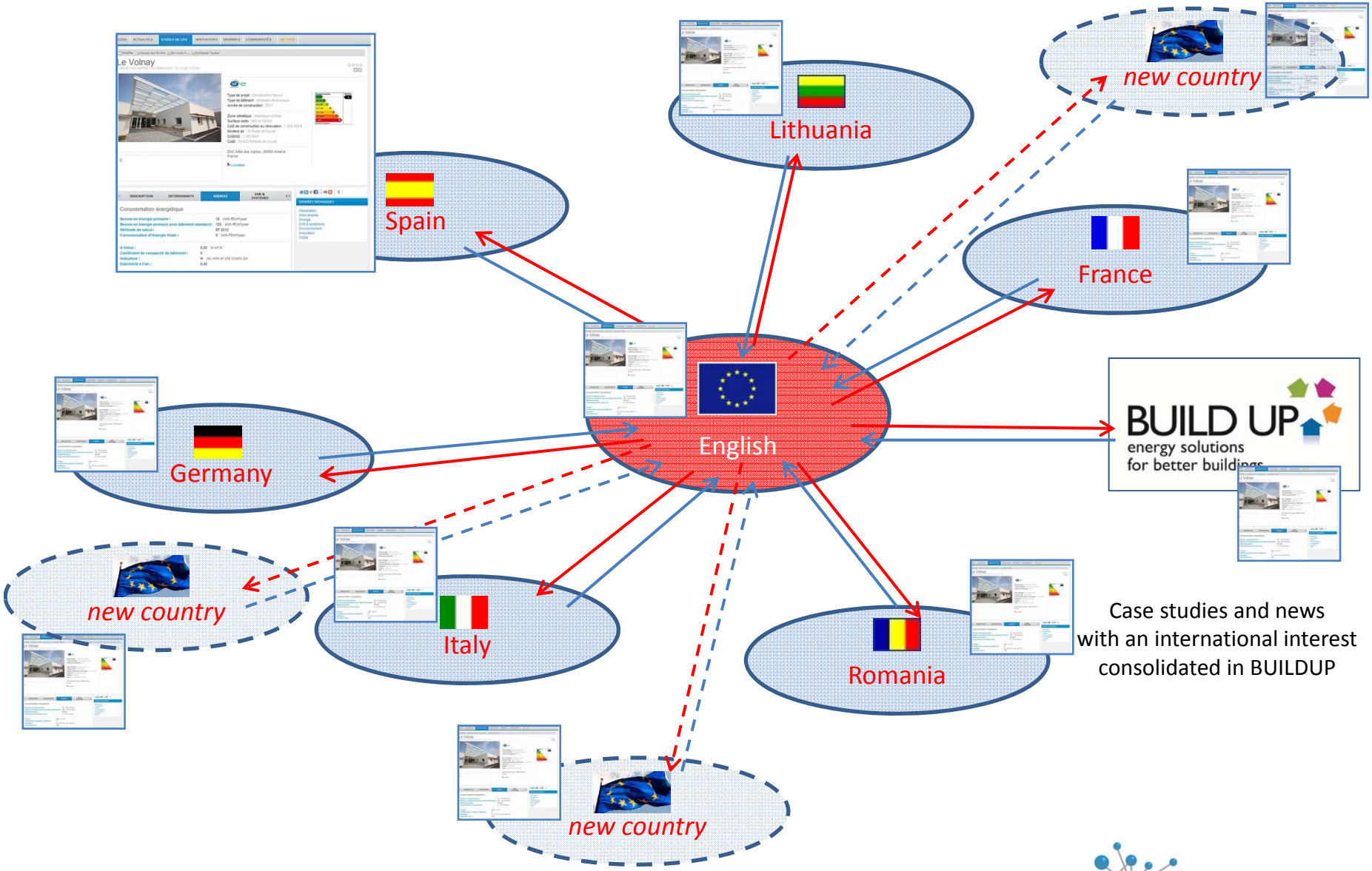
A multi-lingual platform



Case studies and news with an international interest consolidated in BUILDUP

In blue : information coming from the national platforms, translated in English
In red: information flowing towards the national platforms, in English

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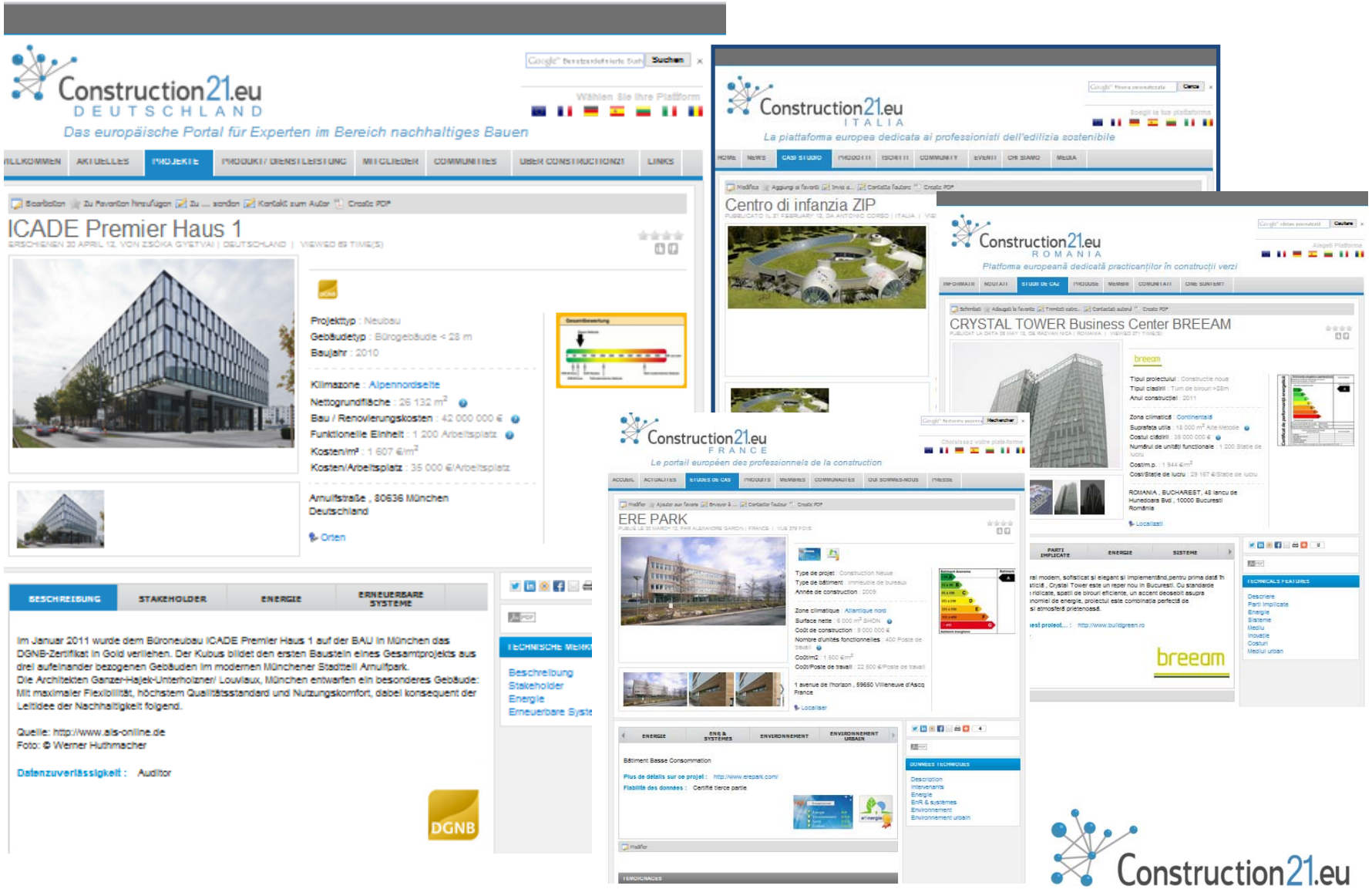
A database of exemplary case studies



A focus on performing products and services

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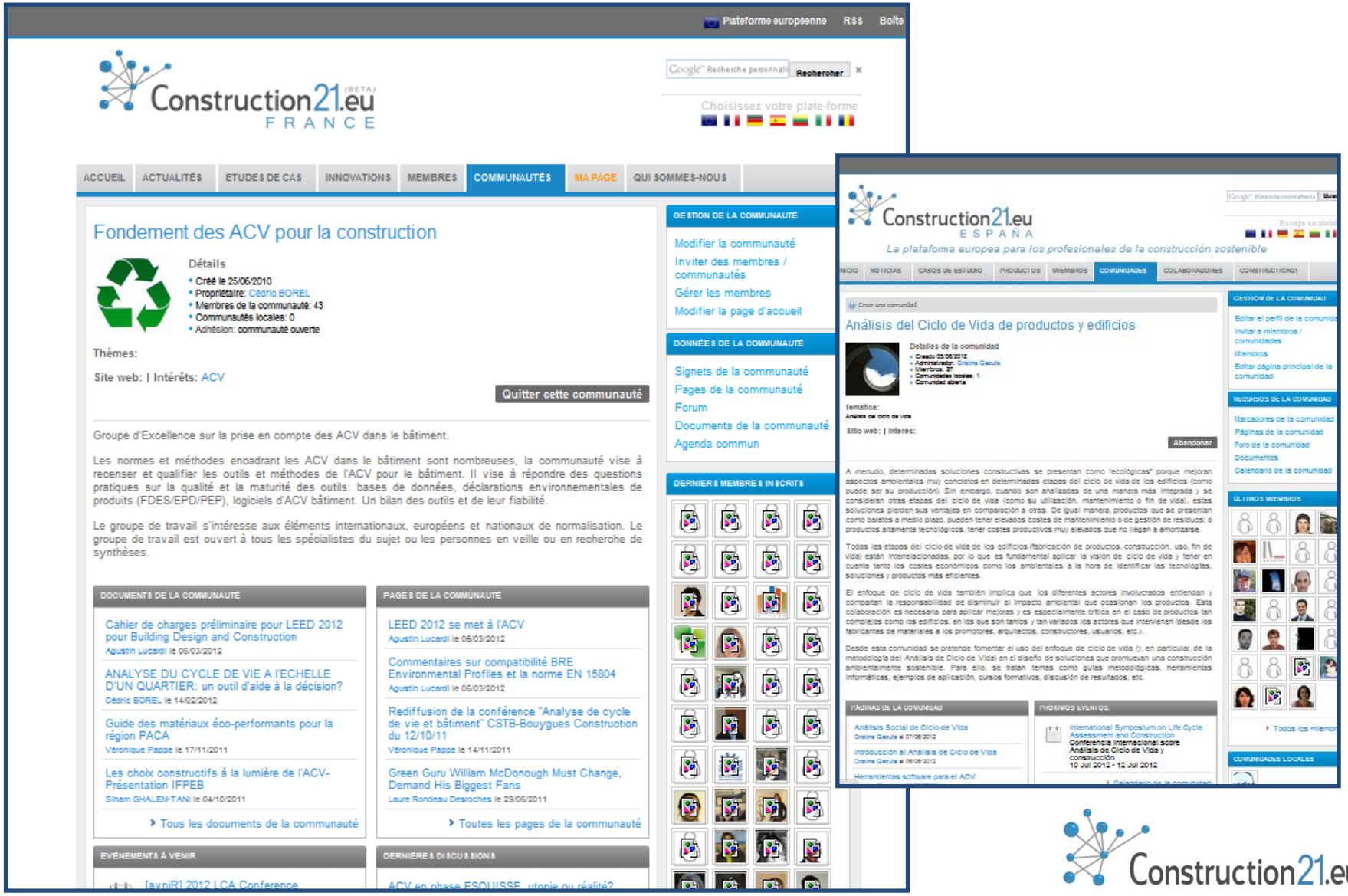
Thematic communities to exchange with peers



News

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Anna Braune

Head of **PE INTERNATIONAL**'s building & construction team

Supported by INTELLIGENT ENERGY EUROPE

C 21 Communities

5 community(s) set(s)

Energy Performance Contracting in buildings - The Essential

Energy Performance Contracting - Essential Resources

Open community | 12Members

Join

Life Cycle Assessment of products and buildings

Open community to professionals interested in the application of Life Cycle Thinking into the building sector.

Open community | 13Members

Join

SEEMPubS

The community about SEEMPubS, a seventh framework's project regarding energy saving in existing and historical building by ICT-based services.

Open community | 4Members

Join

EeBGuide Expert Group

Expert Group community for the EeBGuide Project

Private community | 1Members

Request a membership

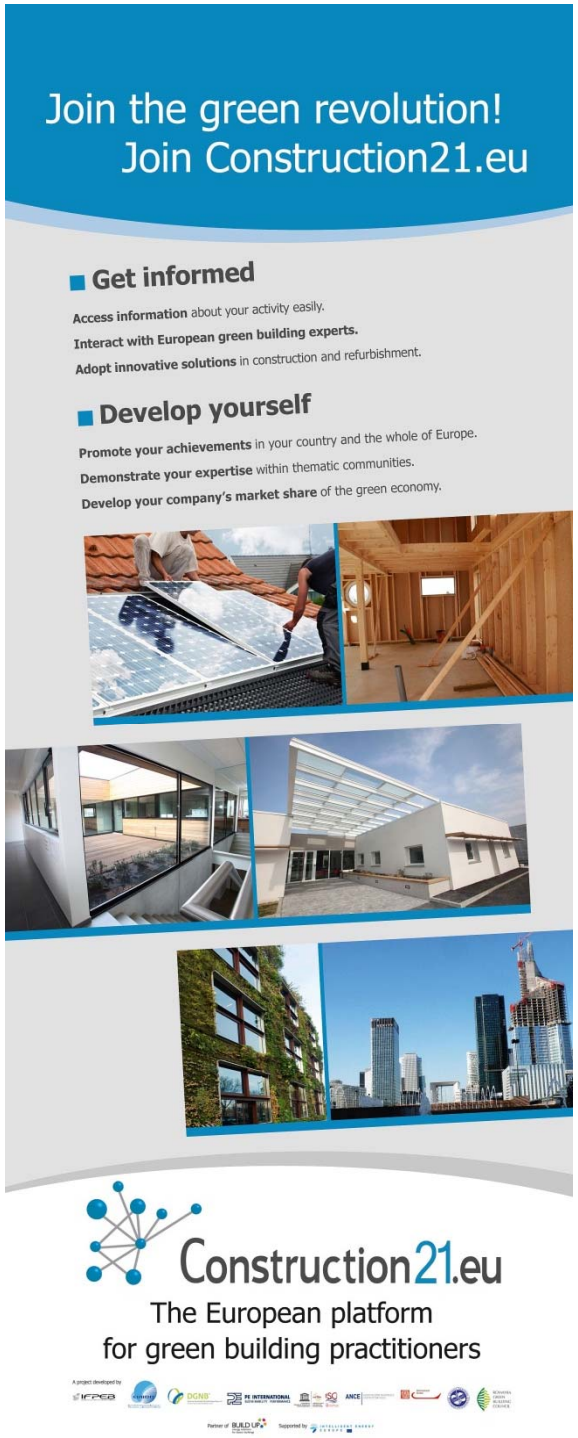
Construction21 project team community

Construction21 project team community

Private community | 27Members

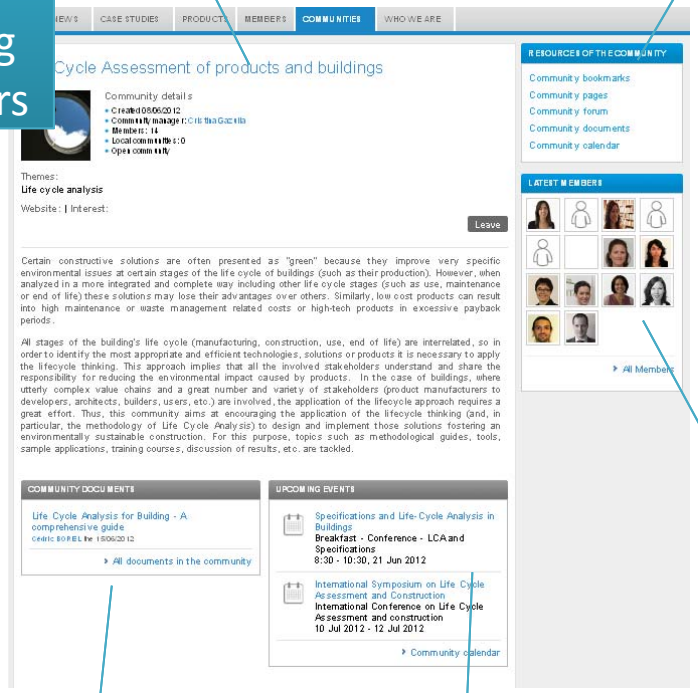
Request a membership

PE INTERNATIONAL
EXPERTS IN SUSTAINABILITY



Benefits of C 21 Communities

Define topics that you find worth discussing with others

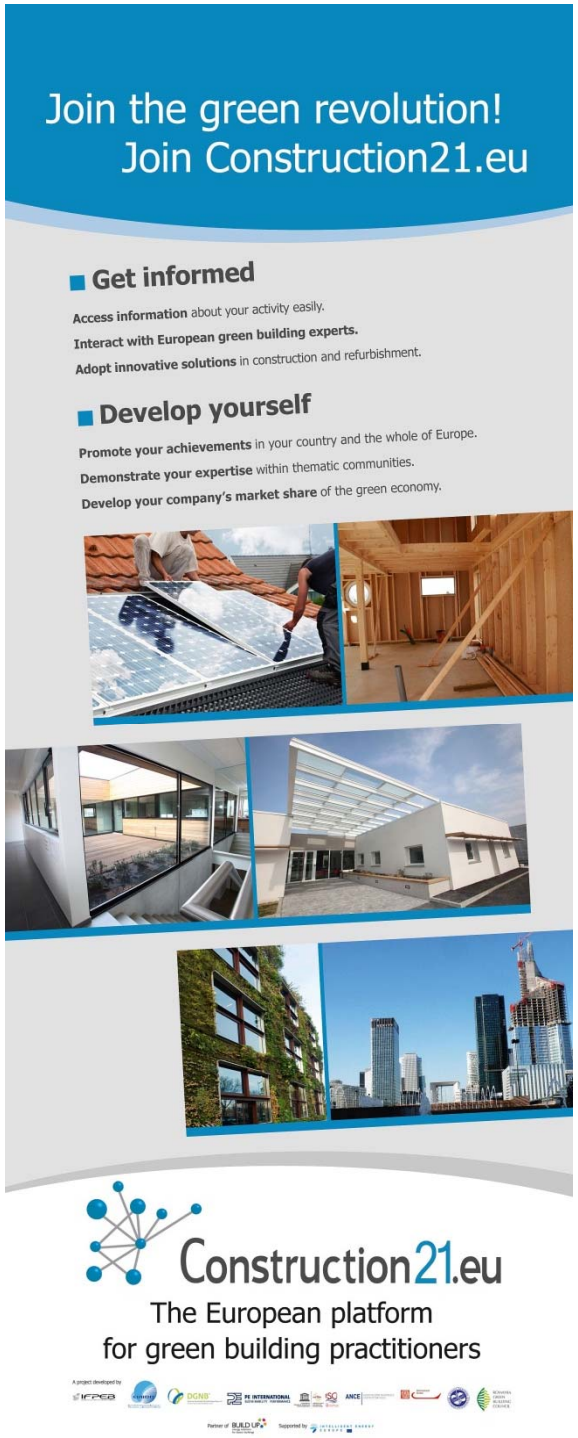


Create forum, calendar, documents easy on a mouseclick

Get connected with experts

Exchange documents

Exchange events news



PE INTERNATIONAL
EXPERTS IN SUSTAINABILITY

Benefits of C 21 Communities

Start and monitor discussions

Subiecte de discutat

Forumul comunității > Din experiența dumneavoastră, se solicită Certificatul de Performanță Energetică la recepția clădirilor noi?

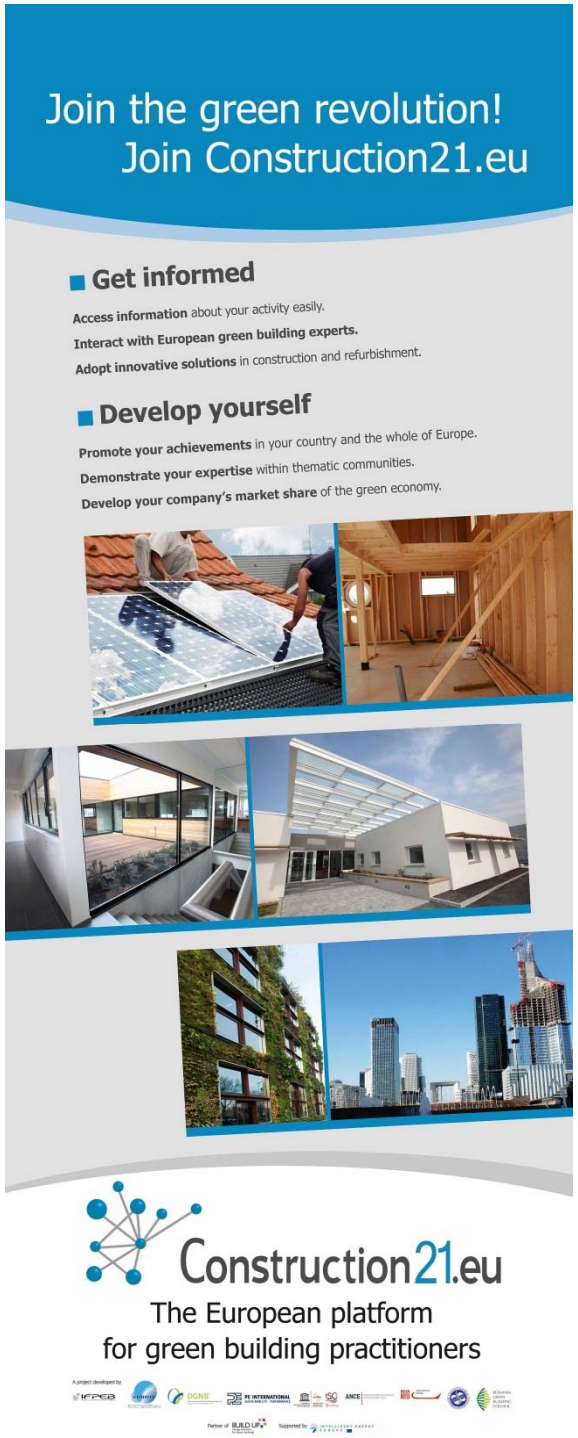
DIN EXPERIENȚA DUMNEAVOASTRĂ, SE SOLICITĂ CERTIFICATUL DE PERFORMANȚĂ ENERGETICĂ LA RECEPȚIA CLĂDIRILOR

Anca Bieru 12/04/2012

Conform Legii 372/2005, începând din Ianuarie 2007, certificatul de performanță energetică este obligatoriu pentru clădirile noi și se verifică la recepția clădirii. Care este situația în practică?

NOTA: pentru a răspunde, trebuie să vă logați pe Construction 21 și să vă înscrieți în această comunitate

Use C21 Communities for your own project work – benefit from secure non-profit platform



PE INTERNATIONAL
EXPERTS IN SUSTAINABILITY

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Roser Gasol
Communication Manager at the UNESCO Chair in Life Cycle and Climate Change

Gintaras Staukis
Assoc. Prof. Vilnius Gediminas Technical University, Lithuania

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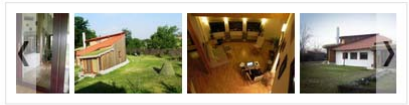
What is a case study?

- Exceptional examples of both new and refurbished buildings
- Consistent and comprehensive data
- Outlining outstanding eco-innovations



DESCRIPTION | STAKEHOLDERS | ENERGY | RENEWABLES & SYSTEMS

Energy consumption

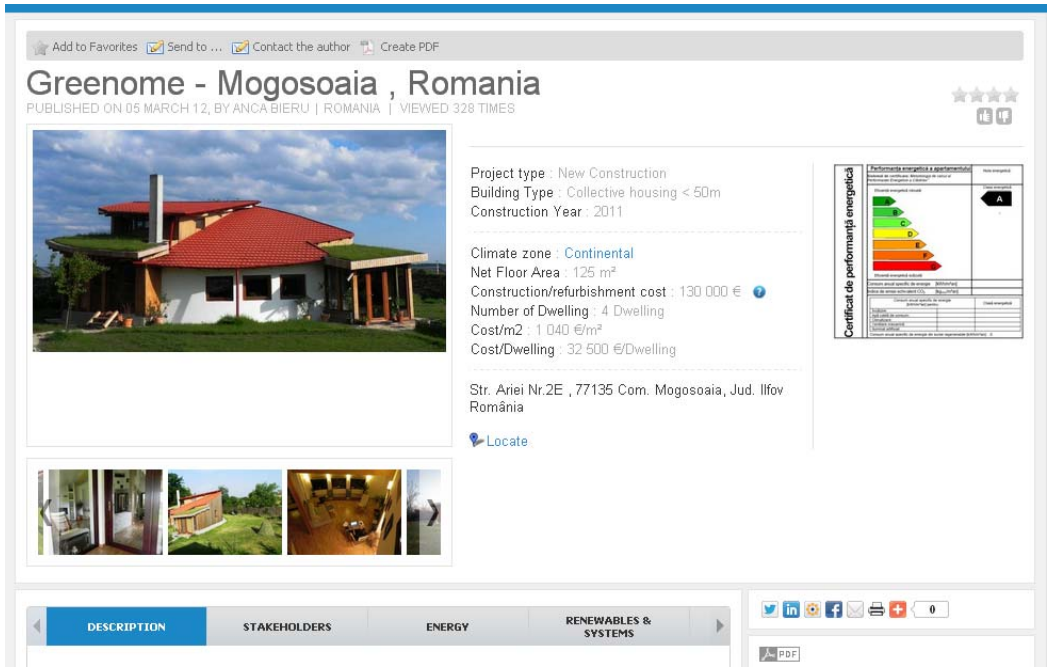
Breakdown for energy consumption : Heating: 29.97 kWh/sq.m year ; Hot water: 10.03 kWh/sq.m year ; A/C: 10.48 kWh/sq.m year ; Mechanical Ventilation: 3.23 kWh/sq.m year ; Lighting: 8.9 kWh/sq.m year

Primary energy need :	175,28 kWh PE/m²/an
Primary energy need for standard building :	480,00 kWh PE/m²/an
Calculation method :	Primary energy needs
Final Energy :	62,60 kWh FE/m²/an

Envelope performance

More information : Exterior Wall type 1 Thermal Resistance: 4.83 sq.m K/W ; Exterior Wall type 2 Thermal Resistance: 3.43 sq.m K/W ; Exterior Wall type 3 Thermal Resistance: 2.63 sq.m K/W ; Exterior Wall type 4 Thermal Resistance: 5.36 sq.m K/W; Ground Plane Resistance: 5.51 sq.m K/W ; Frame Resistance: 5.52 sq.m K/W. An area of the roof is a Green Roof.

U-Value :	0,22 W.m².K⁻¹
Building Compactness Coefficient :	0,95
Indicator :	n50 (l4) m³/H.m² n50 (Vol/H) Q4



Add to Favorites | Send to ... | Contact the author | Create PDF

Greenome - Mogosoaia , Romania

PUBLISHED ON 05 MARCH 12, BY ANCA BIERU | ROMANIA | VIEWED 328 TIMES

Project type : New Construction
Building Type : Collective housing < 50m
Construction Year : 2011

Climate zone : Continental
Net Floor Area : 125 m²
Construction/refurbishment cost : 130 000 €
Number of Dwelling : 4 Dwelling
Cost/m2 : 1 040 €/m²
Cost/Dwelling : 32 500 €/Dwelling

Str. Ariei Nr.2E , 77135 Com. Mogosoaia, Jud. Ilfov România

Locate

Certificat de performanță energetică

DESCRIPTION | STAKEHOLDERS | ENERGY | RENEWABLES & SYSTEMS

What is a case study: 8 categories

INICIO | NOTICIAS | CASOS DE ESTUDIO | INNOVACIONES | MIEMBROS | COMUNIDADES

Hemiciclo Solar. Edificio bioclimático de 92 VPPA en Móstoles

PUBLICADO POR SALA | 01 FEBRUARY 12 | VIEWED 50 TIME

Tipo de proyecto : Nueva construcción
Tipo de edificio : Edificios colectivos <50m
Año de la construcción : 2009

Zona climática : Sud Mediterrani
Superficie útil : 13 243 m² Spanish Useful area
Coste de la construcción : 9 259 930 €
Número de unidades funcionales : 92 Pisos
Coste/m2 : 699 €/m²
Coste/Pisos : 100 651 €/Pisos

Plaza del Sol 1-3 , 28938 Móstoles (Madrid) España

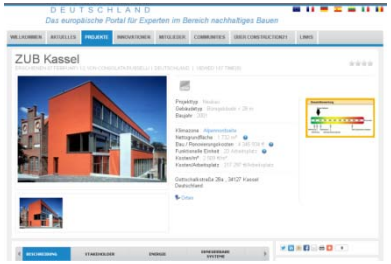
Localizar

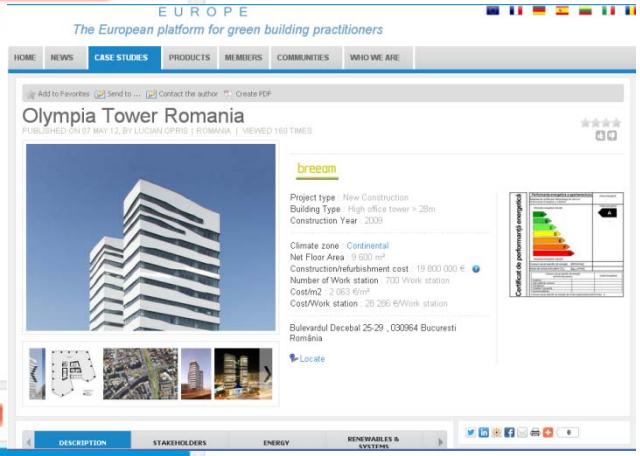
DESCRIPCIÓN | ACTORES | ENERGÍA | RENOVABLES Y SISTEMAS

El proyecto resuelve un programa de un edificio para albergar 92 viviendas de alquiler para jóvenes, una dotación de 1000 m2 edificables para locales comerciales y una dotación de aparcamiento como mínimo igual a la exigida por la normativa vigente.Se buscaba una propuesta ejemplar en cuanto a criterios de alta eficiencia energética y por tanto menor consumo de no renovables, teniendo además el proyecto que proponer espacios de alto valor de relación social capaz de integrar distintos grupos de origen cultural, social y étnico.Igualmente se quería aprovechar esta pieza para cualificar un espacio de reciente creación en el ensanche de Móstoles.El edificio es un bloque unitario, orientado al Sur y dotado de una ligera curvatura que acentúa el aprovechamiento energético de la captación

CARACTERÍSTICAS TECNICAS

- Descripción
- Actores
- Energía
- Renovables y sistemas
- Comportamiento ambiental
- Innovación
- Costes
- Entorno urbano





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What is a case study: 8 categories

DESCRIPTION | STAKEHOLDERS | ENERGY | RENEWABLES & SYSTEMS

The project consists of a building with a unitary image as a whole. It
block B and block C) in order to adapt itself to the slope of the terrai
leveling operations, which shows a stepwise skyline.The three block
courtyards on its four sides. The access to the building is through th
full and empty spaces, in alternate positions, boosting the presence
improving the thermal inertia of the building.

Functionally, each of the blocks is shaped with two sections of offic
access. These cores contain elevators and freight elevators, building
in the center and a fire escape. These cores are likewise divided in t
intermediate positions.

The design is exhaustive in the search for materials to control solar
transparency, adopting constructive solutions with stressed fabric.

See more details about this project : http://www.arup.com/Proj

Data reliability : 3rd part certified

RENEWABLES & SYSTEMS | ENVIRONMENT | INNOVATION | COSTS

Systems

Heating system :
- Heat pump

Cooling system :
- Reversible heat pump

Renewable systems :
- Solar Thermal

Renewable energy production : 2,53 %

RENEWABLES & SYSTEMS | ENVIRONMENT | INNOVATION | COSTS

GHG emissions

GHG in use : 76,00 $KgCO_2/m^2/year$

Methodology used : The program used to elaborate de testing was eQuest™ 3.2 that uses the DOE-2.2 engine, making a simulation by comparing the building subject to analysis to another one considered as a "reference building". Using this si

Building lifetime : 50

GHG Cradle to Grave : 3

Life Cycle Analysis

The resultant impact avoided respect to a reference buil of 45% respect to a building with the same characterist health, wellfare and the final pr

Water & Indoor air quality

Consumption from water network :

Consumption of grey water :

Consumption of harvested rainwater :

Indoor Air quality : In order to guarantee comfort as includes a VRV system (variable cooling volume syster mechanical ventilation system. The ventilation system outside. There are ducts which take the supply air and kept in comfort levels. Additionally, there is a secundar room and drive it to the VRV units, where it is processe

RENEWABLES & SYSTEMS | ENVIRONMENT | INNOVATION

Facade coating with textile

- **Producer :** BAT Spain
- **Contact :** Calle de San Andrés, 25 28004 | Madrid | España Tfn. (+34) 91 4 72 41 arquitecturatextil@batspain.com fachadatextil@batspain.com
- **Website:** http://www.batspain.com/
- **Product category:** Structural work / Carpentry, cover, titghtness

Description :

Facades with textile provide the building with solar protection which makes the power consumption on cooling systems to decrease down to 50%. They also improve the visual comfort on workstations with computers, allowing the renovation of the apperance of existing buildings, creating themes or logos.http://www.batspain.com/fachada_textil.html

STAKEHOLDERS | ENERGY | RENEWABLES & SYSTEMS | ENVIRONMENT

Developer

- Hines
- Sor Ángela de la Cruz, 2° - 2° C Edificio Cuzco III Madrid 28020 España
- Website : https://hines.com

Construction Manager

- Arquigremio. Florentino Perez
- C/La Poveda 12 28028 Madrid, España"

Construction Manager

- Acciona S.A.
- Avda. de Europa 18 Parque Empresarial La Moraleja 28108 Alcobendas, Madrid, España"
- Website : http://www.acciona.com/

Construction company

- Aguilera Ingenieros S.A.
- Guzmán el Bueno 133 - Edificio Skandia 28003 Madrid, España

Construction company

- 3-Ingeniería
- C/ Velazquez, 46 – 3º 28001 Madrid España
- Website : http://www.3i-ingenieria.com

Construction company

- Ove Arup & Partners
- c/ Alcalá 54 28014 Madrid, España
- Website : http://www.arup.com

Designer

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Example of a case study I

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Example of a case study II

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Example of a case study III

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Examples in 6 European countries

France

Spain

Italy

Romania

Germany

Lithuania

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Validation process

- Case study supplier registered → WRITE
- Moderator → REVIEW
- Case study supplier registered → TRANSLATE (optional)
- Administrator C21 → PUBLISH

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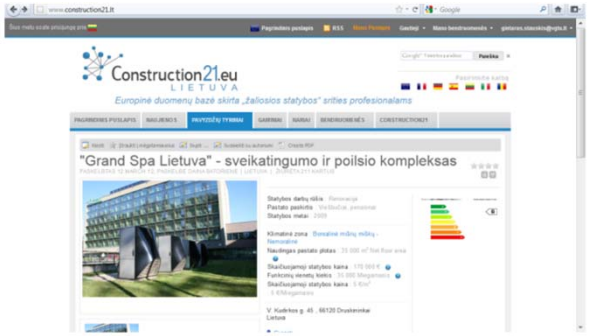
Your case studies in Construction21 : the benefit

- Share information and best practices
- Improve transparency in the European market: replication
- European benchmark
- Promote your products and increase your visibility
- Demonstrate your expertise in Europe
- Influence local and nationals policy makers
- Pool of innovation ideas and contacts



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Case studies presented at international events

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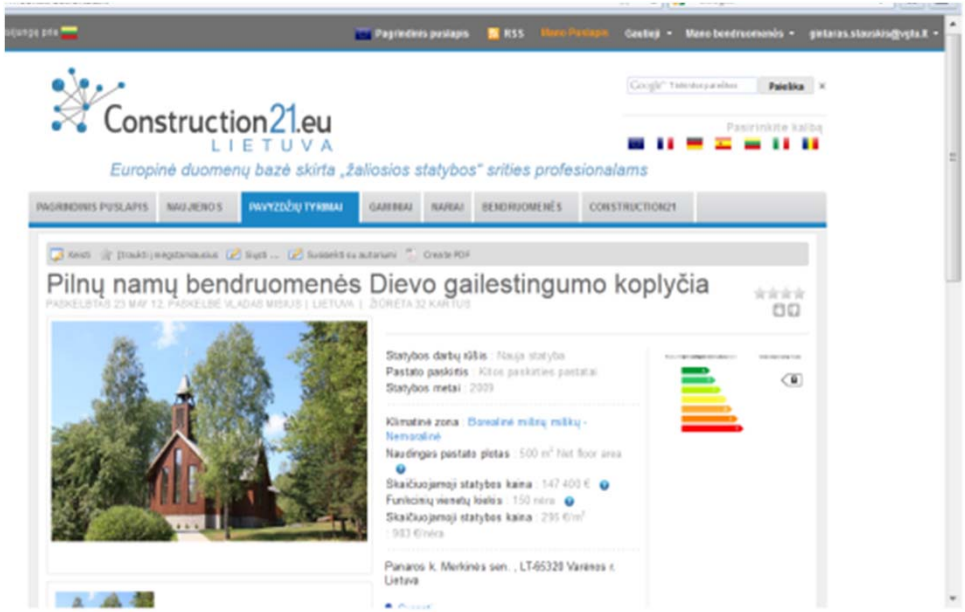
100 case studies already in the database

- **May 2013: 500 case studies:**
  - France: 85
  - Spain: 85
  - Germany: 85
  - Romania: 85
  - Lithuania: 65



- **June 2012: 93 Case Studies**
  - France: 37 CS
  - Spain: 8 CS
  - Germany: 7 CS
  - Romania: 17 CS
  - Lithuania: 13 CS
  - Italy : 11 CS

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Véronique Pappe
Project manager of Construction21.eu
at French Institute for Energy Performance in Buildings

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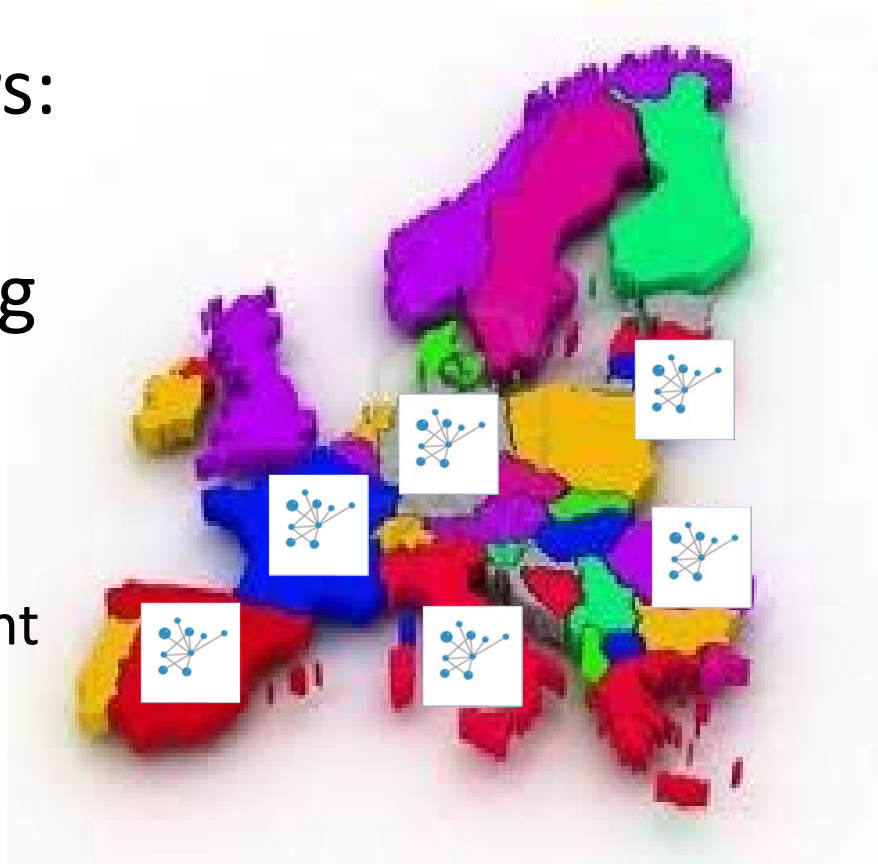
June 2012 : opening to new countries

- Selection of new partners: national organization(s) involved in green building
- Integration process
  - Creation of a new platform
  - Training to website management
  - Assistance to mobilize national stakeholders



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To know more about Construction21.eu

- Questions?

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To contact Construction21.eu

- Consense : common booth with World Green Building Council

HALL 2 - stand 2E12

- 2nd conference : “How social media will revolutionise the building industry towards sustainability?”

Interface conference Room C4.1.1 - Wednesday 20th of June – 9.00

- Contact us! **Project manager : Véronique Pappe**

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