



Energy efficiency measures in the Existing Building Stock : Towards an energy efficient building stock in 2020

Wednesday November 22 2006

Chairmen :

A. Dubler

Architects' Council Europe & President of International Council of French Architects

P. Wouters

Belgian Building Research Institute



Programme

- Welcome
 - A. Dubler, Architects' Council Europe
- Introduction
 - P. Wouters, BBRI
- Roadmap for future actions regarding the energy performance of existing buildings
 - X. Loncour, BBRI
- Energy Saving measures in existing buildings in Denmark
 - S. Aggerholm, SBI
- Building Blueprint – endorsement schemes for buildings energy efficiency improvements in the EU25
 - F. Klinckenberg, Klinckenberg Consultants representing EURIMA
- Vision of the industry,
 - Francis Da Silva, Saint-Gobain
- Q&A with the different speakers





- Découvrir l'architecture

[you are here: home](#) > [développement durable](#)

■ L'Ordre s'engage


- **Echangez vos opinions et expériences sur le forum consacré au développement durable**

■ En vue

Cette **quatrième lettre d'info**, revient sur la tenue du son congrès de l'Habitat social, à Bordeaux les 19, 20 et 21 septembre derniers, et sur ses réponses aux enjeux du développement durable, qui reprennent, avec une forte résonance, plusieurs volets de notre charte d'engagement en faveur du développement durable...

>> Consultez toutes les lettres d'information des architectes au coeur du développement durable

■ Les formations à venir

- > Qualité environnementale et développement durable (6 JOURS) - en 3 modules :
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 - > Qualité environnementale et développement durable (6 JOURS) - en 3 modules :
 - QEB
-  Consultez Toutes les formations Développement durable dans toutes les régions

-  Annuaire des architectes
- Outils et documents
- Actualités
- Formations
- Concours
- Petites annonces
- Développement durable
- Forums
- Liens utiles
-  Espace architectes



Votre région

Rechercher
par thème

OK



architectes
au cœur du
développement
durable




ORDRE DES
ARCHITECTES

Lettre *d'information*

AGENDA

- **ECOBUILDING Performance -
Performance énergétique et
développement durable des bâtiments**

8 et 9 novembre 2006 – Paris, Porte de
Versailles (France)

 www.ecobuilding-performance.com

- **Salon de l'Habitat sain et des énergies
renouvelables**

10 novembre 2006 – Nantes (France)

 www.exponantes.com

- **Passion Bâtiment - Amélioration**

ÉDITORIAL

N° 4 — novembre 2006

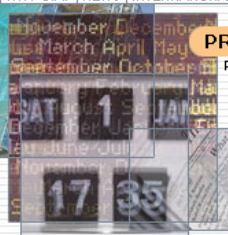
Avec la tenue de son congrès à Bordeaux, du 19 au 21 septembre dernier, la réponse de l'Habitat Social aux enjeux de développement durable a fait pleinement son entrée dans le débat des prochaines échéances électorales.

Et c'est bien sous cet angle qu'il est demandé aux politiques de se prononcer : rendre pleinement au logement social sa mission initiale, à savoir le logement des plus démunis, mais également dans un contexte économique rendant difficile l'accession à la propriété, celui des revenus modestes ou des professions intermédiaires. Michel Delebarre le rappelle d'ailleurs, dans son discours de clôture : « la production de 100 000 à 120 000 logements sociaux par an, (...) c'est une réalité qu'il (...) faut programmer pour les prochaines années ».

Et si l'Habitat Social se situe clairement dans une démarche de développement durable – qu'il s'agisse de la



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 Update: 3/10/06
 français / english

PRESS RELEASE

Paris, 2 October 2006



"Renewable Energy Sources and Bioclimatic Architecture to shelter People affected by natural Disasters"

The Technical Chamber of Greece and the UIA Work Programme on architecture and renewable energy sources (ARES) announce the launch of an international ideas competition that invites architects to develop new construction methods and practices for efficient shells and settlement units that will satisfy the urgent housing needs engendered by different geographic, topographic, ecological, social, or political crises.

Architects from around the world are invited to submit viable solutions for inhabitants that can be set up quickly and economically, and respect the environment and natural resources.

The goal of the competition is to collect innovative ideas and examples of bioclimatic shelter typologies that utilise renewable energy sources and can be exploited in different locations, climates, and cultures. Propositions should seek to generate, on the short and medium term, a vast urban and social restructuring.

A total of 70 000 Euro will be awarded to the various winners. The eleven-member, international jury will award three prizes of 20 000, 15 000, and 10 000 Euro, as well as five honourable mentions of 5 000 Euro each.

To be announced in Naples on the occasion of World Habitat Day and the World Day of Architecture, the competition will be officially open on 1 November 2006, and registrations will be accepted until 31 January 2007. Submissions must be sent no later than 29 June 2007.

The competition website will also open on 1 November at the following address:

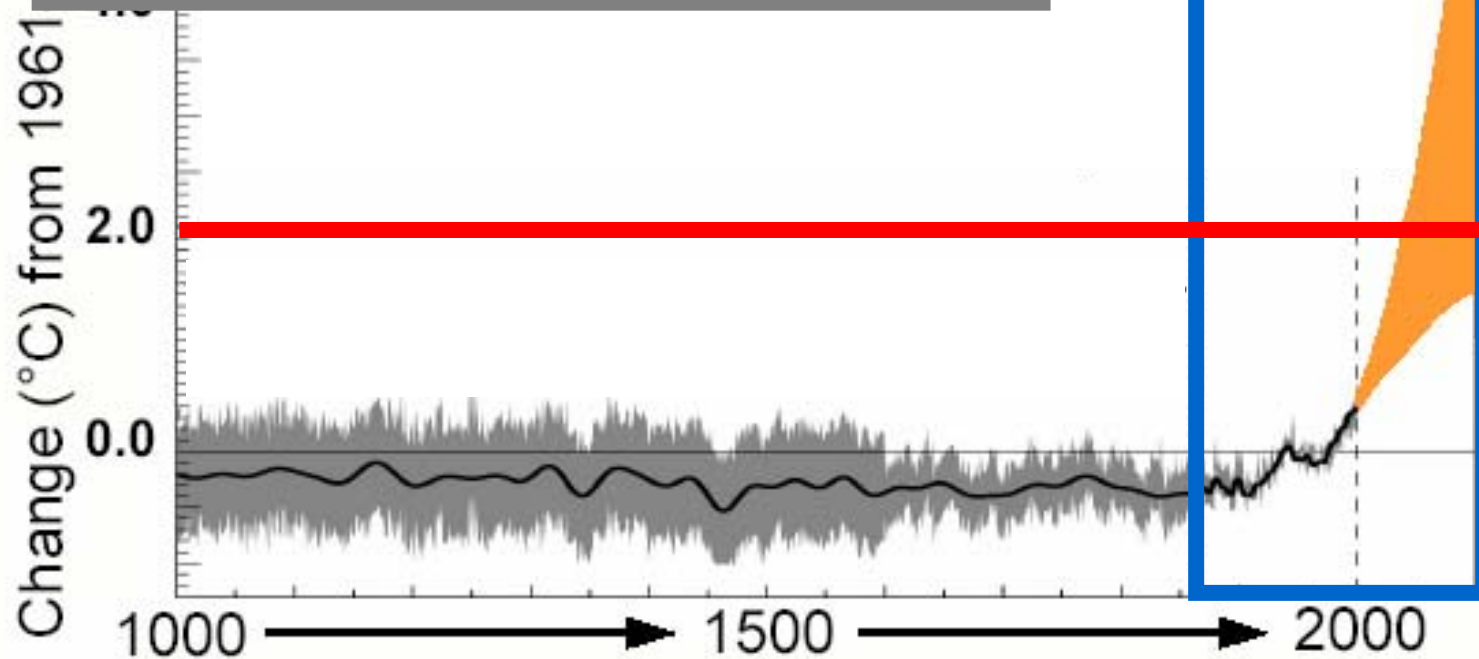
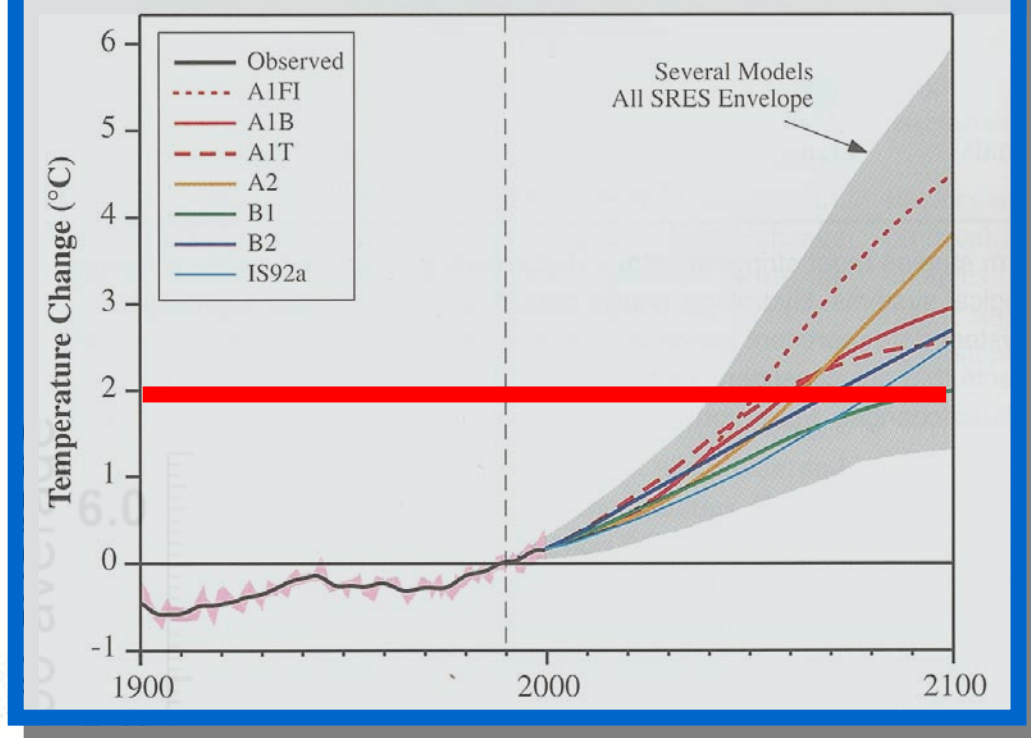
<http://www.arescompetition.com>

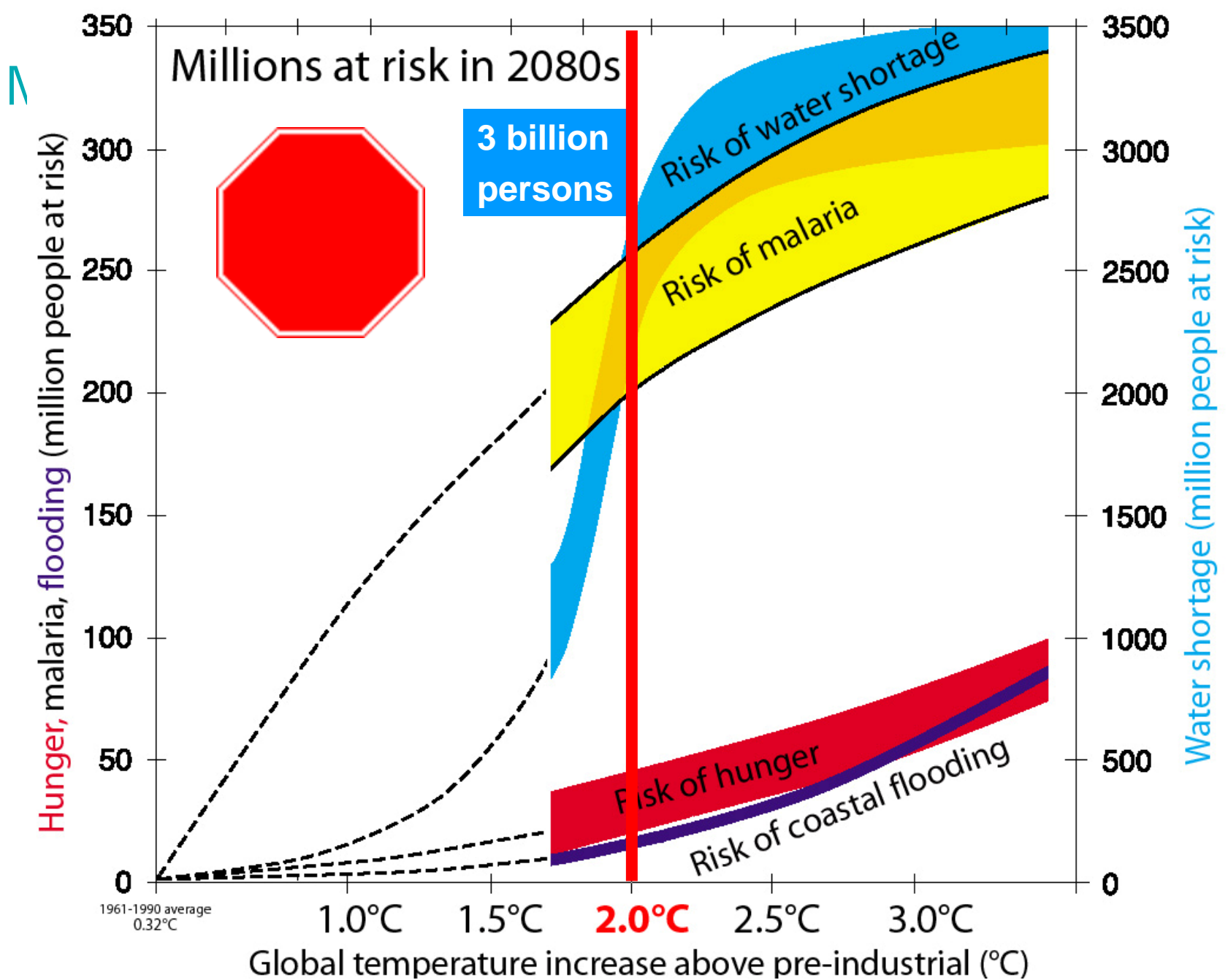
For more information:

Technical Chamber of Greece (TEE)



**Why to worry about
(existing) buildings?**



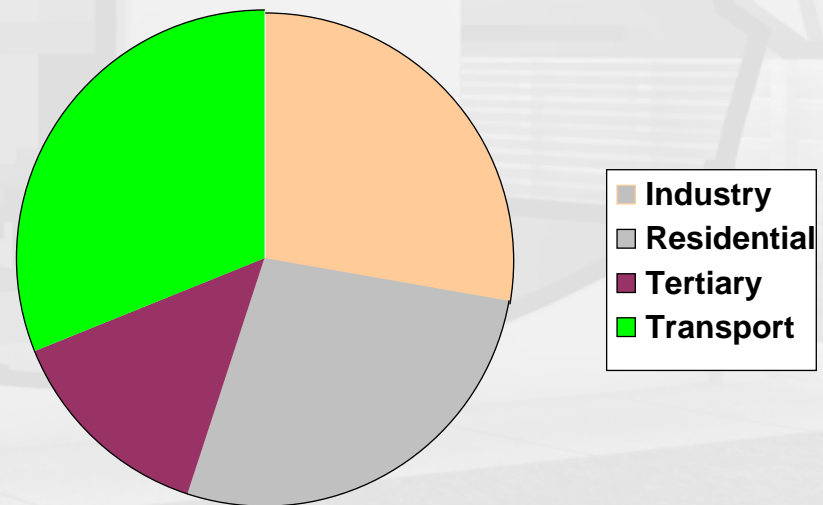


Source : Parry & al. (2001) "Millions at risk", graph adapted by M. Meinshausen, Nov. 2004

Importance of the building sector

- ❖ Buildings account for 40-45% of CO₂ emissions
 - 2/3 domestic
 - 1/3 commercial
- ❖ Buildings are the single largest end users of energy in the EU
- ❖ Space heating and cooling represents:
 - 70% in homes
 - 50% in commercial buildings

Origins of CO₂ emissions



Importance of the building sector

❖ Action Plan for Energy Efficiency: Realising the Potential (COM(2006)545 final)

- Estimated full potential of cost effective energy use savings potential
 - Residential sector 27%
 - Commercial buildings sector 30%

Example of long term approach



Existing buildings

Given the rate of renewal of the housing stock, most emissions come from older buildings.

By end 2004, a legislative framework will be put in place to introduce building codes applicable to renovation and rehabilitation⁽ⁱ⁾ work.

Major renovation work will be subject to stringent performance objectives closely resembling prevailing regulations for new buildings.

Significant requirements will be imposed for renovation work of smaller scope when the work envisioned includes the replacement of equipment that affects energy consumption. In a similar way to thermal regulations for new buildings, the regulations governing older buildings will be updated every five years, with the overall aim of achieving a fourfold decrease in building-related greenhouse gas emissions by the year 2050.

Air conditioning

The topic of air conditioning is discussed in the chapter on Sustainable Air Conditioning.

Wherever possible, we must avoid using air conditioning, preferring passive cooling solutions and giving greater consideration to summer comfort in building design.

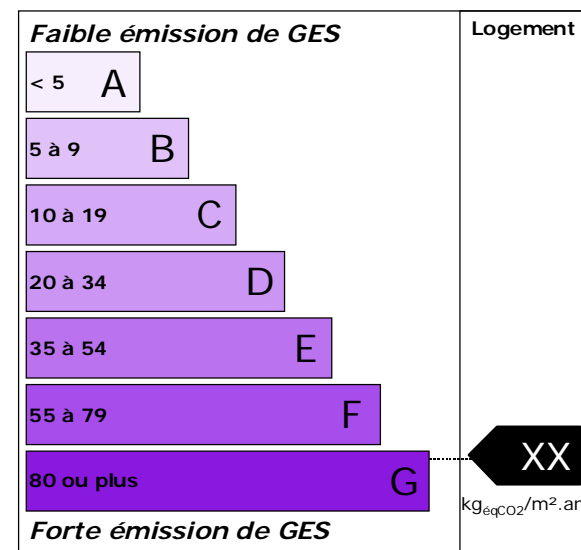
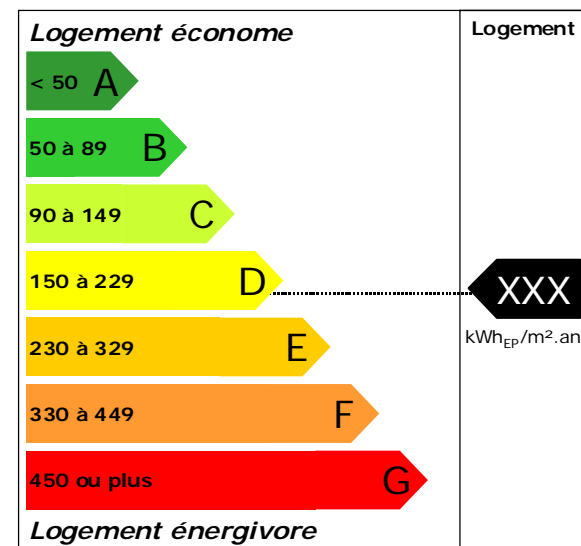
In new constructions, air conditioning must be used only when absolutely essential. Whatever the circumstances, the use of air conditioning shall not increase energy consumption, implying that architectural and technical designs must keep energy use for air conditioning as low as possible. Regulations applicable to new construction will include stipulations on major renovation work to existing tertiary buildings.

« Factor 4 », an ambitious strategy implemented in France

- **To cut by a factor of 4 total GHG emissions between 2005 and 2050**
 - 3 % reduction per year over 45 years on all economic sectors
- **Official target already introduced in**
 - National Strategy for a Sustainable Development (June 2003)
 - Climate Change Programme (July 2004)
 - Programme Law for Energy Policy Orientations (July 2005)
- **Building sector : already identified as a key-actor for reaching this goal**
 - large possibilities to use conventional and renewable energy sources
 - possible mixing of different energy sources in the same building
 - possible conversion of energy sources during the building lifetime
 - user behaviour not subject to radical change
 - retrofitting possible in different steps over many years
 - energy efficient buildings more valuable on the market

A priority in France : the existing building stock

- Absolute necessity to enhance the global energy performance
- Built pre-mandatory stock could represent in 2050 between 60 to 75 % of the total building stock
- Actual retrofit trend insufficient to reach the Factor 4 goal
 - 100 % buildings to be totally retrofitted but now only 11 % partly retrofitted each year
 - 200 €/m² < cost for complete retrofitting < 400 €/m² but now only 25 €/m² in average
- Extensive actions to be implemented, based on energy labelling
 - at the organisational level
 - at the technological level
 - at the financial level
- **Mandatory retrofitting for all buildings in the future ?**
- To be accompanied by strong evolutions in the designing of new buildings
 - passive buildings
 - “energy positive” buildings





Flemisch Region : Strategic objectives

(under discussion)

The general strategic objective for an energy renovation programme in the dwelling sector, is formulated as follows :

- **“There will be in the Flemish Region in 2020 no longer energy wasting dwellings”**

Flemish Region : Operational objectives (under discussion)

- ❖ The energy renovation programme will achieve the following objectives:
 - All dwellings have in 2020 **roof and attic insulation**;
 - All single glazing will in 2020 be replaced by at least **high efficiency glazing**;
 - All **central heating systems** have in 2020 a water side seasonal efficiency of at least 90%;
 - All **individual heating furnaces** have in 2020 a seasonal efficiency of at least 90%
- ❖ In addition, the energy renovation programme will support:
 - Insulation of opaque facade components
 - Insulation of floor insulation;
 - Replacement of electrical resistance heating.
- ❖ The programme also aims to limit the use of active cooling.

Major challenge :
upgrading existing building stock
where in principle no measures are
normally foreseen



Hotels

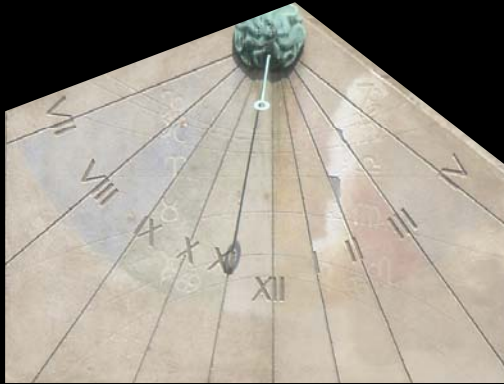
Existing office buildings





**Large existing
social housing**





**Existing
Individual
dwellings**