



# **Sustainable Building in France:**

## **Progress Report**

**SB'08 Melbourne**

# Sustainable Building in France

## Summary

---

- The new legal framework
- HQE approach
- Role on the International Scene
- The Economic Drivers
- Certification / Standardisation
- Research Programme
- Education & Training
- Outlook

# Revised Governmental Approach: The Grenelle Environment Roundtable

---

- Full series of policy debates launched by MEEDDAT (Ministry of Ecology, Energy, Sustainable Development and Regional Planning) with the stakeholders (public bodies, local authorities, employers, trade unions, NGOs)
- **Main objectives:**
  - 2050: GHGs reduced by 75%
  - Next 10 years: - 40% energy consumption, - 50% GHGs
  - 2010: Low-Energy Building (“BBC” Label) < 50 kWh/m<sup>2</sup>/yr in average for public and corporate buildings
  - 2012: “BBC Label” for all buildings by the end of the year
  - 2020: -38% energy consumption for existing buildings
  - 2012: Territorial Climate Plan for cities with 50,000+ population
  - 2012: New “Eco-neighbourhoods” and “Ecopolis” project

# The HQE<sup>®</sup> (high environmental quality) approach the 14 issues and SMO

## Site and Construction

- 1 - Relation between buildings and their immediate surroundings
- 2 - Integrated choice of construction products and systems
- 3 - Low-impact construction site

## Operation

- 4 - Energy management
- 5 - Water management
- 6 - Waste management
- 7 - Maintenance of performances

## Comfort (*of users*)

- 8 - Hygrothermal comfort
- 9 - Noise and acoustics
- 10 - Visual comfort
- 11 - Odours

## Health (*of users*)

- 12 - Health conditions in spaces
- 13 - Indoor air quality
- 14 - Water quality

## SMO:

Environmental management system of the building project

# HQE

---

- Origins: The HQE association was created in 1996.
- Stakeholders: Organisation's representatives on commissioning bodies, expert agencies, architects and engineers, materials producers, contractors...
- Regional networks of resource centres, e.g.: Arene, Ecobat-Mediterranean Region...
- Initial building projects: regional high schools, primary schools, social housing programmes...

# Actors and Partnerships on the International Scene : R&D

---

- 1. involvement in the first EU projects addressing environment in construction, the Brite Euram 1470 (LCA frame) for Building products.
- 2. Participation to EU projects and networks like
  - CRISP: sustainability indicators;
  - PRESCO: practical recommendations;
  - SHE and SUREURO: new and existing social dwellings
  - LENSE: sustainability assessment tool
  - HQE2R and TISSUE: sustainable neighborhoods and cities
  - STAND-INN: how standardization can help SD
- SMART-ECO : a vision of sustainable building in 2030 in Europe, and how to spread it over.

## Actors and Partnerships on the International Scene : Standardization

---

- o publication in 2001 by AFNOR of the National standard for EPD (Environmental Product Declaration), based on LCA and ISO 14000 series
- o France : chair of ISO/TC59/SC17 « Sustainability in Building Construction » since 2003 :
  - o Publication of 2 standards (general principles; EPD's) and
  - o 2 technical specifications (indicators, environmental assessment of building)
  - o beside WG on buildings, and now also a WG for civil works.
- o Actively participation to the CEN TC350 «Sustainability in Construction works » (documents are progressing also on EPD's, building life cycle, and Environmental assessment of Buildings), and work is beginning on the economic and social aspects.

## Actors and Partnerships on the International Scene : International networking

---

- o Early 90's, within **International Council on Building (CIB)** : publication by a French expert of a report called « Agenda 21 for Building », result of the work of one of its many working Commissions putting together international experts on all topics of the building sector, and especially SD
- o Participation to *iISBE network (general secretary hosted by CSTB...)*
- o More recently a new consortium called **SB Alliance**, started from a cooperation between France (members CSTB Qualitel) and UK, already 20 countries members. Research based, assessment oriented network and its first work is the elaboration of a common core set of sustainability indicators.

# Incentives tools for SB

---

## Main economic drivers:

- Fiscal allowances for private owners or lower VAT
- Preferential credits for social housing by the CDC Bank or energy house refurbishment by private banks or regional councils
- Energy subsidies devoted to “HQE®” certified projects
- Socially responsible investment in the real estate sector
- Density bonuses
- Domestic carbon project (sponsored by the CDC public-sector bank) ...

# Adoption of New SB Technologies and Techniques: The Contribution of Research programmes

- **Prebat** : research and experimental program on energy buildings launched in 2005
- **Objectives:**
  1. for renovation of existing building, heating consumption < 50 kwh/m<sup>2</sup>/year, 80 kwh/m<sup>2</sup>/year for all uses
  2. For new buildings: zero-energy demonstration projects in 2010
  3. For both new and existing building: producing positive energy building
- **Priority : building stock** (market forecast: ca. 20 billions €/yr, 90 % of the energy target reduction during the next 30 years)
- Cross-disciplinary studies (like **socio-economic aspect**) with addition of modeling, simulation and tools
- **“demonstration” structures** to increase availability of large-number of high performance, perfectly-instrumented buildings

# HQE Building certification systems



**TERTIARY BUILDINGS certification**

NF BÂTIMENTS TERTIAIRES DÉMARCHE HQE

NF BÂTIMENTS TERTIAIRES

**DETACHED HOUSES certification**

NF MAISON INDIVIDUELLE DÉMARCHE HQE

Since 2006

NF MAISON INDIVIDUELLE

Since 2000

**NEW HOUSING certification**

HABITAT & ENVIRONNEMENT

Since 2003

NF LOGEMENT DÉMARCHE HQE

Since 2007

QUALITEL

Since 1985

NF LOGEMENT

Since 2004

**EXISTING HOUSING certification**

PATRIMOINE HABITAT & ENVIRONNEMENT

PATRIMOINE HABITAT

Since 2005

# Association QUALITEL



- Set up in 1974, its mission is to improve quality of dwellings through certification.
- Represents all the players in the residential building chain
- **Multicriterion quality approach: requirements on technical, environmental, management and services quality.**
- **Member of the HQE Association.**
- **Founding Member of SB Alliance.**
- **More than 1.600.000 dwellings assessed by QUALITEL.**
- **Certification process: Management and Environmental Audit, Technical Assessment, Diagnosis, in site verification.**
- **A certification offer suited to each housing sector.**

NEW HOUSING certification	EXISTING HOUSING certification	DETACHED HOUSES certification
 <b>HABITAT &amp; ENVIRONNEMENT</b> Since 2003	 <b>NF</b> LOGEMENT Since 2007	 <b>NF</b> MAISON INDIVIDUELLE Since 2006
 <b>QUALITEL</b> Since 1985	 <b>NF</b> LOGEMENT Since 2004	 <b>NF</b> MAISON INDIVIDUELLE Since 2000

## Some Assessment Key-numbers

- **H&E: > 95.000 dwellings**
- **PH&E: > 18.000 dwellings**
- **NF MI HQE: > 4000 houses/ year**
- ...

# CSTB / Certivéa certification for non-residential buildings



- Certification mark : « NF bâtiments tertiaires – démarche HQE® »
- Voluntary approach
- Official since february 2005
- For new (or restructured) offices and schools
- 3 phases are covered and audited : brief, design, construction
- Environmental management system is audited
- The environmental assessment is made by the actors themselves and checked by the auditor
- Versions : 2005, 2006, 2008 (to be published)



# CSTB / Certivéa certification for non-residential buildings

- **Currently: about 200 projects are certified (at least for the design phase)**
  - 2/3 private - 1/3 public
  - 4/5 offices - 1/5 schools
  - 15 buildings are certified on the 3 phases,
- **Recent developments with new reference frameworks:**
  - healthcare buildings : June 08
  - shopping centres, hotels, logistics : experimental
  - operation phase for non-residential buildings : experimental
  - integration of recent Energy performance labels
  - adaptation to Brasil (AQUA)
  - system of points for the « very good » level of performance
  - Passeport of key indicators (higher requirements on energy)
- **Next step:**
  - harmonisation towards « NF *type-of-building* – démarche HQE® »
  - consistency with SB Alliance Core System of indicators and common assessment principles

# Status of Education and Training

---

- Key issues for the professionals:
  - To conceive a **global and integrative design** (and not split off in architecture, building envelopes and then components and facilities...)
  - To implement **quality control** approaches on building sites and on all the building service life (“commissioning” ...)
  - SB subjects integrated on initial and continuing training by Architecture schools, Engineering schools and Universities
  - Main challenge is still the training of **construction operators/ contractors**

# Conclusion / Outlook

Stronger requirements



Generalization : more buildings types