



Det 6 rammeprogram
“ECO-BUILDING CLUB”
Kontrakt nr. TREN/07/FP6EN/S07.72691/038496



TEKNOLOGISK
INSTITUT



Eco-building clubs mål

- 1. Videreformidling af EU RTD&D resultater**
- 2. Fremme EU RTD&D resultater på markedet**
- 3. Fremme udbredelsen af RTD&D resultater ved en yderlig eftervisning af RTD&D resultaternes effekt i form af projekter**
- 4. Generel oplysning om energieffektivt byggeri**



Eco-Building Club

Projektets startdato: den 24. september 2007

Projektets slutdato: den 24. september 2009

Projektet Eco-Building International Club er finansieret af Europa kommissionen direktorat for energi og transport under det 6 rammeprogram



Konsortium



Deltag. nr.	Deltagere	Deltagernes korte navn	Land
1	Ente per le Nuove tecnologie, l'Energia e l'Ambiente (Coordinator)	ENEA	Italien
2	Istituto per la promozione dell'innovazione tecnologica	ISNOVA	
3	Federazione Industrie Prodotti, Impianti e Servizi per le Costruzioni	FINCO	
4	Centre for Renewable Energy Sources	CRES	Grækenland
5	EBHE / GREEK SOLAR INDUSTRY ASSOCIATION	EBHE-GSIA	
10	Greek Public Real Estate Corporation	GPREC	
6	Agence de l'Environnement et de la Maîtrise de l'Energie	ADEME	Frankrig
13	Association des Industries de Produits de Construction	AIMCC	
7	Zhejiang Energy Research Institute	ZERI	Kina
8	China Building Energy Efficiency Association	CBEEA	
9	Sofia Energy Centre	SEC	Bulgarien
11	Danish Technological Institute	DTI	Danmark
12	Hovedorganisationen for Dansk Industri	DI	



Deltagende lande:

Danmark

- **DTI** – Teknologisk Institut
- **DI** - Dansk Industri

Frankrig

- **ADEME** – Agenturet for miljø og energi management
- **AIMCC** – Association des Industries des Produits de Construction, Organisation a la DI?

Italien

- **ENEA** – Nationalt agentur for ny teknologi, energi og miljø.
- **ISNOVA** - Istituto per la promozione dell'innovazione tecnologica
- **F.IN.CO.** - Federazione Industrie, Prodotti, Impianti e Servizi per le Costruzioni

Kina

- **ZERI** - Zhejiang Energy Research Institute
- **CBEEA** – China Building Energy Efficiency Association

Bulgarien

- **SEC** - Sofias Energicenter

Grækenland

- **CRES** – Center for vedvarende energi ressourcer
- **EBHE** – Sammenslutning af den græske solenergi industrien.
- **GPREC** - Greek public real estate corporation



Eco-Building Club

De deltagende landes særinteresser

**Bulgarien, Grækenland, Frankrig, Italien, Danmark:
eksport af teknologier, netværk, samarbejdspartnere,
internationalt samarbejde**

**Kina: import af teknologier, samarbejdspartnere,
internationalt samarbejde**



Eco-Building Clubs mål

Fremme energieffektivt byggeri ved videndeling

Fokus områder:

- 1. Eco-buildings (materialer, komponenter, systemer, eco-building designkoncept osv.)**
- 2. Vedvarende energiløsninger til opvarmning og køling**
- 3. Polygeneration**



Eco-building clubs mål – videndeling

1. Videreformidling af EU RTD&D resultater

- **Eco-buildings**
- **Effektive og innovative bygningsmaterialer, komponenter, systemer**
- **Nye teknologier**, der stadigvæk er på demonstrationsstadiet eller tæt på kommerialisering såsom
 - Vedvarende energiløsninger til opvarmning og køling
 - small-scale polygeneration



Eco-building clubs mål - videndeling

Videreformidlingen af EU RTD&D resultater

Via hjemmesiden www.ecobuilding-club.net

- Teknologi ark
- Demonstrations ark



Eco-building clubs mål - videndeling

Eksempel på teknologi ark



PowerShade - 3D solar shading and transparent photovoltaic

- Results from the national PSO programme for R&D

Technology sheet

Technology

- Solar shading combined with PV

General Information:

- Technology developer: PhotoSolar ApS
- Location: Gregersensvej 1A, DK-2630 Taastrup (Denmark)
- Date of issue (year): 2008

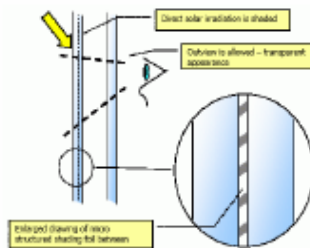
Aims and Objectives

The objective of the PowerShade technology is to create a highly transparent Photovoltaic module and efficient progressive solar shading module. The PowerShade has been developed to replace costly exterior shading devices with a fully glass integrated and highly transparent photo voltaic component.

The PowerShade modules serves two functions – reduction of the cooling need in the building, and green power production from the shaded off solar fraction.

A Short Description of the Technology

The shading principle employed in the PowerShade is simple and effective. It is based on geometric screening of the solar rays. This principle is also known from Venetian blinds, external shutters and solar shadings based on lamella systems.



With the PowerShade we have miniaturized the structures forming the shades – in fact we have made them so small that they become invisible to the human eye. The micro structured device enables a free view out of the window in typical viewing angle, while the solar rays from high angles are partly or completely screened off.

The shading performance of the micro structured module is similar to that of conventional exterior shadings – only it can be integrated into the glazing, reducing the cost of installation and cleaning and eliminating the need for maintenance of external devices mounted on the facade.

Results and Achievements

The electrical efficiency of the PowerShade is higher than that of other transparent photovoltaics with similar optical transparency. The higher efficiency is due to lack of area reduction due to 3D photo voltaic technology. The thermal efficiency of the PowerShade has been tested by Danish Technological Institute and found similar to exterior shading devices. Thus, the PowerShade module may replace exterior shading devices without compromising the indoor climate of the building.

The MicroShade and PowerShade are efficient shading devices designed to replace exterior shadings.



PowerShade - 3D solar shading and transparent photovoltaic

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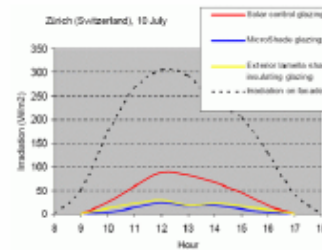
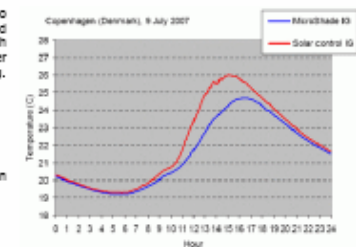


Figure 1 below shows the solar energy falling onto a facade of a building situated in Zürich on a clear summer day. The facade is facing south. The figure shows the amount of energy passing through the glass of the facade, for three different solar shading systems, i.e. a solar control glass insulating solution, a solution based on insulating glazing and exterior Venetian blinds, and a MicroShade insulating glazing.

Figure 2 shows the room temperature in two identical rooms. Both rooms feature a glazed area facing south. Room A is fitted with MicroShade insulating glazing, while the other room is fitted with a solar control type of glazing.



Possible application area:

PowerShade has been developed with focus on application in large area glass facade building.

Reference:

The PowerShade development was developed within the PSO Energy R&D programme.

The PSO Energy R&D programme has resources made available through electricity customers' bill. Since its establishment in the late 1990s an increasing amount of money is channelled through this programme. With a budget of around 100 million DKK a year (130 million in 2005) it has become of the same size as the Energy Research Programme 4. The PSO programme is defined as supporting research and development on environment-friendly energy production technologies. The PSO R&D programme was operated by the two electricity grid operators, but the Minister Economic and Business Affairs, - through the Energy Authority - has the overall political responsibility and must approve the areas prioritized in the programme.

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Web-site	www.photosolar.dk

European Project: Eco-Building International Club for advanced European sustainable energy technology dissemination in Europe and China

Project partners:

ENEA (IT), IZMOSKVA (RU), FINCO (TU), ADEME (FR), AMCO (PR), OTH (DK), CRESOR (CZ), BEHAG (DK), ZBE (CN), CSEEA (CN)



The project aims at promoting and widespread GreenBuilding, EU innovative Research and Technology Development and Demonstration results, as well as eco-sustainability of the main building sector, which includes:

- energy efficient building materials, components and systems not yet introduced into the building market or in their first market phase;
- innovative applications of existing and power supply technologies, contributing to the use of renewable energy sources, in building sector;
- best EU demonstration eco-building projects.



Eco-building clubs mål - videndeling

Eksempel på demonstrations ark – et typisk ark fylder mellem 3-5 sider.

Stenløse Syd Development Area

- EU-CONCERTO project CLASS 1

Demonstration Project Brochure

Innovative application

- High performance insulation materials
- efficient ventilation systems
- Biomass CHP
- Solar heating systems

General Information:

- Project developer (designer): The Municipality of Egedal
- Location (address, Country of technology developer): Stenløse Syd, Denmark
- Project starting date (year): 2004
- Project status: The low-energy houses of the first 2 phases have been or are under construction the constructions sites for the following phases are being sold at the moment.

Summary of project

Since 2004, the Municipality of Egedal in Denmark has decided to strengthen the energy requirements for a new settlement to be erected in the municipality. As the first phase, a new plot of land - Stenløse South - was sold by the Municipality in October 2004. 250 low-energy dwellings plus Kindergarten and senior dwellings would be built during this phase.

The objectives of this initiative were to gather experiences from the first phase of the Stenløse South development and contribute to the project with quality assessment. The gathered experiences comprise:

- 1) The municipal decision process.
- 2) The technical solutions.
- 3) The resulting energy consumption.
- 4) Economy.

Furthermore, the experiences will be compared to experiences from Sweden and Germany and the results disseminated.

Fig. 1 Demonstration site. Note the meanings of STORPARCEL and HUSPARCEL.

European Project "Eco-Building International Club for advanced European sustainable energy technology dissemination in Europe and China"

Project partners:

ENEA (IT), ISONOVA (IT), FINCO (IT), ADAME (FR), ALMOC (FR), DTI (DK), D. P.H., CRIB (GR), EB-EPIC, ORNICO (GR), DECOS, ZEBE (CN), GIESA (CN)

Stenløse Syd Development Area

- EU-CONCERTO project CLASS 1

Demonstration Project Brochure

Innovative application

- High performance insulation materials
- efficient ventilation systems
- Biomass CHP
- Solar heating systems

Description of project

Background

The Municipality of Egedal decided in 2004 to strengthen the energy requirements for a new settlement to be erected in the municipality. As of 1 October 2004 the municipality started the sale of a new plot of land - Stenløse South - the first phase comprising 250 dwellings plus Kindergarten and senior dwellings; and, in the meantime, decided to require that all buildings were constructed to a standard with a net energy load for room heating at 30-34 kWh/m².

After the phase 1, for phase 2 the Municipality decided to strengthen the requirements even further, as new energy requirements in the Danish building regulation have been put into force. At the same time the Municipality submitted an application for a grant from the EU-CONCERTO programme. The proposal was accepted for funding by the European Commission within the EC 6th Framework, under the project name/acronym: Class 1.

The first phase in July 2007

One kind of single family houses built in the first phase

Description of the development site and the project

In the years 2007-2009 a total of 442 dwellings will be designed and constructed with a heating demand corresponding to the new Danish low-energy standard referred to as "low-energy class 1" in a new settlement called Stenløse Syd. This requirement means that the heating energy consumption will be 50% below the new energy regulations introduced with the implementation of the EPBD (Energy Performance of Buildings Directive) in Denmark in 2006 (which are approx. 25% lower than the previous regulations).

The project aims at promoting and widening ad disseminating EU innovative research and Technology Development and Demonstration results, as well as eco-innovation culture in building sector, which include:

- energy efficient building materials, components and systems not yet introduced into the building market or in their first market phase;
- innovative applications of heat recovery and power supply technologies, combined with the use of renewable energy sources in building sector;
- best EU4 demonstration eco-building projects.



Eco-building clubs mål – videndeling

2. Fremme EU RTD&D resultaterne på markedet

Oprettelsen af forumet Eco-building club med en aktiv inddragelse af byggeriets parter

3. Fremme udbredelsen af RTD&D resultater ved en yderlig eftervisning af RTD&D resultaternes effekt

4. Oplysning om energieffektivt byggeri

Hjemmeside

Nationale workshops

International workshop I Paris



Eco-building club – stiftelsesgrundlag

- Klubben har en innovativ promoverings tilgang, hvor medlemmerne inddrages aktiv
- Medlemmernes er hovedaktører i forbindelse med at nå ud til markedet med RDT&D resultaterne



Eco-building club - medlemskab

Klubbens medlemmer

- Projektets deltagere
- Offentlige forsknings institutioner og universiteter
- Byggeriets parter:
 - Producenter af byggematerialer, komponenter og systemer
 - Udviklere af teknologiske løsninger
 - Ingeniører og arkitekter
 - Branche organisationer
 - Professionelle byggherre



Eco-building club - medlemskab

Mulighed for to typer af medlemskab

Passivt: Medlem af markedsdatabasen

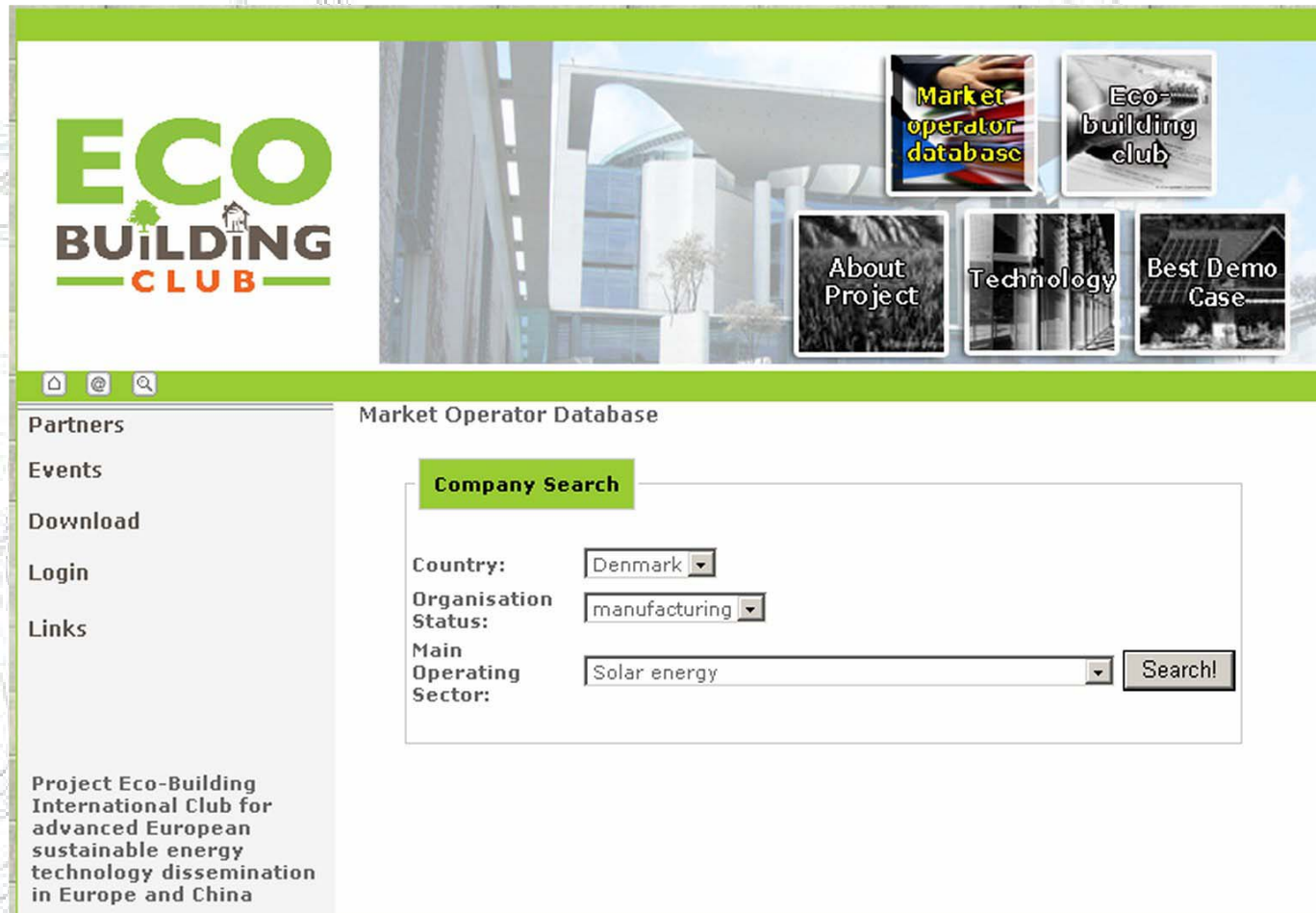
Aktivt: Medlem af Eco-Building Club

Medlemskabet i Eco-building club opnås ved en specifik godkendelses procedure



Eco-building club - medlemskab

Markedsdatabase



The screenshot displays the Eco-Building Club website interface. At the top left is the logo for ECO BUILDING CLUB. To the right is a navigation menu with icons for Home, Email, and Search. Below the logo is a navigation sidebar with links for Partners, Events, Download, Login, and Links. The main content area is titled "Market Operator Database" and features a "Company Search" section with three dropdown menus: "Country" (set to Denmark), "Organisation Status" (set to manufacturing), and "Main Operating Sector" (set to Solar energy). A "Search!" button is located to the right of the last dropdown. The footer contains the project description: "Project Eco-Building International Club for advanced European sustainable energy technology dissemination in Europe and China".

ECO BUILDING CLUB

Market Operator Database

Company Search

Country:

Organisation Status:

Main Operating Sector:

Partners

Events

Download

Login

Links

Project Eco-Building
International Club for
advanced European
sustainable energy
technology dissemination
in Europe and China



Eco-building clubs – Aktive medlemmers fordele

- Mulighed for **kvalificeret og direkte kontakter** til bygge- og energisektorens parter – også i andre lande
- Analyse af **markeds potentialet** for et nyt produkt/system - nationalt og internationalt
- **International introduktion** af virksomhedens profil og produkter via promovoring af projektaktiviteter på hjemmesidens database
- **Publikation af forundersøgelser** af virkelige projekter der tager afsæt i teknologier og demonstrationsprojekter beskrevet på ECO-building clubs hjemmeside



Eco-building clubs – aktive medlemmers bidrag

- **Vurdering af markedes interesse for innovative RTD&D resultater**
- **Identificering af hvilke lokale markeder RDT&D resultaterne med succes kan anvendes i**
- **Demonstration af RTD&D resultaterne fra forundersøgelsen ved praktisk anvendelse i byggeriet**





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