

PROJECT DOCUMENT

Status: PUBLIC

final report

**Workshop:
Adaptation of CEN standards for defining a national
calculation methodology for
energy performance of buildings in Turkey
15th of August, 2009
ITU Faculty of Architecture / Istanbul**

Workshop organised by EVD Energy Management

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CENSE_WP6.4.10_N02

August 15, 2009

IEE-CENSE

*Leading the CEN Standards on Energy performance of buildings to practice
Towards effective support of the EPBD implementation and acceleration
in the EU Member States*

Supported by

Intelligent Energy  **Europe**

Contract EIE/07/069/SI2.466698

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Disclaimer:

CENSE has received funding from the Community's Intelligent Energy Europe programme under the contract EIE/07/069/SI2.466698.

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Moreover, if this is an interim report: the results are only preliminary and may change in the course of the project based on further feedback from the contributors, additional collected information and/or increased insight.

1 Executive summary

1.1 The CENSE project

The objective of the IEE CENSE project (2007-2010) is to accelerate the adoption and improved effectiveness of EPBD related building energy performance standards from CEN in the EU Member States.

The IEE CENSE project initiates a number of international/regional workshops:

- to present their work plan and the interim results on information on the CEN standards
- to get feedback from the Member States or other target groups on possible obstacles to use of the standards and on good practice examples
- to identify together the ways for an increased convergence

1.2 Aim and programme of the workshop

The Turkish Ministry of Public Works and Settlement mandated a team to develop the national calculation methodology and software for energy performance of buildings.

The 15th of August 2009 an international workshop was organised in ISTANBUL to exchange ideas and share experience, discuss common problems and local solutions with academicians, energy experts and software developers.

The workshop has focussed on two subjects: Calculation methodology and software tools.

1.3 Main discussion and results

The program of the workshop was structured as follows:

- **The general structure of the EU standards EN 15603 "Overall energy use"**
Johann Zirngibl, Convenor ISO TC 205/WG9, CEN TC 228/WG4, member of IEE - CENSE project, CSTB Paris
- **The processing of meteorological data**
Prof. Dr. İsmail Ekmekçi, Marmara University (Istanbul), Faculty of Engineering, Mechanical Engineering, Energy Division
- **The modelling heat transmission and solar heat gains of buildings**
Prof. Dr. Zerrin Yılmaz; Istanbul Technical University (Istanbul), Faculty of Architecture, Building Science Division
- **The calculation of cooling loads**
Prof. Dr. Birol Kılıç ; Başkent University (Ankara), Faculty of Engineering, Mechanical Engineering Division
- **Application of EN 15193 (Energy requirements for lighting) for Turkey**
Ass. Prof. Dr. Alpin Köknel Yener; Istanbul Technical University (Istanbul), Faculty of Architecture, Building Science Division
- **The importance of technical building systems EN 15316 series.**
Johann Zirngibl, Convenor ISO TC 205/WG9, CEN TC 228/WG4, member of IEE - CENSE project, CSTB Paris

1.4 Conclusions and recommendations

The Turkish team, mandated by the Ministry of Public Works and Settlement, will define:

- the Turkish methodology for calculating the energy performance of buildings, taking account local conditions,
- the related public software (for the end of 2009).

It is planned that this software will be implemented on Internet.

The Turkish authorities and the Turkish team, in charge of the calculation methodology and the software, are opened to use the European standards, to adapt them to the local conditions and to contribute to further developments of the standards.

But European standards are not easy to apply under their current version. To apply these standards in Turkish calculation method, it is necessary to start cooperation between the Turkish team and European experts immediately.

2 The CENSE project

The aim of the CENSE project (2007-2010) is to support the EU Member States (MS) and other target groups in achieving better awareness and more effective use of the European (CEN) standards that are related to the EPBD.

The main activities in the project are:

- 1) to communicate the role, status and content of these standards as widely as possible, and to provide guidance on their implementation;
- 2) to collect comments and examples of good practice from the MS, so as to remove obstacles to implementation, and to collect and secure results from relevant SAVE and FP6 projects;
- 3) to prepare recommendations to CEN.

As part of the second type of activities, the IEE CENSE project initiates a number of international/regional workshops.

More information on the project can be found in the Information Paper P86, *The CENSE project. Leading the CEN Standards on Energy performance of buildings to practice. A project (2007-2010) under the Intelligent Energy Europe programme*, one of a series of Information Papers that can be downloaded from the website (www.iee-cense.eu).

3 Aim and programme of the workshop

3.1 Main topic and objectives

The Turkish Ministry of Public Works and Settlement mandated a team to develop the national calculation methodology and software for energy performance of buildings.

The goal of the workshop was to discuss the adaptation of related CEN standards for defining a national calculation methodology for energy performance of buildings in Turkey, the problems encountered so far by other countries and the solutions found.

This workshop was expected:

- to **exchange** ideas,
- to **share** experience,
- to **discuss** common problems and local solutions.

The workshop has focussed on two subjects: Calculation methodology (see workshop agenda: sessions 1- 5) and software tools (session 6).

3.2 Programme of the workshop

Opening

Prof. Dr. Zerrin Yilmaz, Istanbul Technical University (Istanbul), Faculty of Architecture, Building Science Division

Session 1: Overall energy use - the importance of technical building systems **(EN 15603, EN 15316 series)**

Moderator: *Johann Zirngibl*, Convenor ISO TC 205/WG9, CEN TC 228/WG4, member of IEE - CENSE project, CSTB Paris

Session 2: Modelling heat transmission and solar heat gains

Moderator: *Prof. Dr. Zerrin Yılmaz*, Istanbul Technical University (Istanbul), Faculty of Architecture, Building Science Division

Session 3: Processing meteorological data

Moderator: *Prof. Dr. İsmail Ekmekçi*, Marmara University (Istanbul), Faculty of Engineering, Mechanical Engineering, Energy Division

Session 4: Calculation of cooling loads

Moderator: *Prof. Dr. Birol Kılıç*, Başkent University (Ankara), Faculty of Engineering, Mechanical Engineering Division

Session 5: Application of EN 15193 (Energy requirements for lighting) for Turkey

Moderator: *Ass. Prof. Dr. Alpin Köknel Yener*, Istanbul Technical University (Istanbul), Faculty of Architecture, Building Science Division

Session 6: Software tools

The full programme is given in **annex A**.

3.3 Profile of participants

The workshop was supported by Ministry of Public Works and Settlement, General Directorate of Constructive Affairs; Istanbul Technical University and Marmara University and the CENSE project.

The team mandated by the Ministry of Public Works and Settlement to develop the national calculation methodology and software is composed by:

- EVD Energy Management, one of the oldest and most experienced ESCOs in Turkey,
- an academic team of professors from Turkish universities with international reputation.

20 participants coming from 4 countries (mostly from Turkey and also Bulgaria, Germany and France). The majority of the participants are Professors, Engineers, and Architects.

See also **annex C**: List of participants

4 Main discussion and results

4.1 Context

Turkey covers 45 % of its consumed energy from national resources, 55 % of the needed energy is imported. By the year 2010, Turkey will meet only one third of its annual energy needs with its own resources. One third of the total consumption is generated by buildings. Giving priority to this area will result in significant level of energy saving and progress in protection of resources.

The legislation in Turkey on energy performance in buildings, in parallel with EPBD (Energy Performance of Buildings Directive), was announced by Ministry of Public Works and Settlement on 5th of December 2008, after the consultation process with relevant ministries, universities, and SME's.

According to the legislation, the national calculation methodology and software tool is to be published in December 2009.

4.2 Practical follow ups - opportunities

The Turkish team, mandated by the Ministry of Public Works and Settlement, will define:

- the Turkish methodology for calculating the energy performance of buildings, taking account local conditions,
- the related public software (for the end of 2009).

It is planned that this software will be implemented on Internet. By this approach the Ministry of Public Works and Settlement wishes to centralise the collection of data about certificates and minimum requirements in Turkey and to facilitate the benchmark on these data.

During the workshop the adaptation of related CEN standards for defining a national calculation methodology for energy performance of buildings in Turkey was discussed.

For the Turkish experts, one of the problems to be solved is the need to have a standardized building physics and energy systems model for a common data base. All standards, regulations etc. should communicate over a standard data base for all calculations.

In the longer run, perhaps in the second generation of standards, the performance should not be only based on the quantity, but on the quality of energy balances among supply and demand in a building (exergy approach).

5 Conclusions and recommendations

The Turkish authorities and the Turkish team, in charge of the calculation methodology and the software, are opened to use the European standards, to adapt them to the local conditions and to contribute to further developments of the standards.

European standards are not easy to apply under their current version. To apply these standards in Turkish calculation method, it is necessary to start cooperation between the Turkish team and European experts immediately.

Annex A - Workshop Programme

**Adaptation of EN 15603, EN 13790 and related EU standards
for defining a national calculation methodology
or energy performance of buildings in Turkey –
the problems encountered so far
Workshop organised by EVD Energy Management
August 15, 2009, ITU Faculty of Architecture, Istanbul**



Invitation for workshop organised by EVD Energy Management

August 15, 2009, ITU Faculty of Architecture, Istanbul

Context:

The most comprehensive legislation in Turkey on energy performance in buildings, in parallel with EPBD (Energy Performance of Buildings Directive), was released by Ministry of Public Works and Settlement in December 2008. According to the legislation, the national calculation methodology and software tool is to be published in December 2009.

EVD Energy Management, being one of the oldest and most experienced ESCOs in Turkey, is currently working on the national calculation methodology and software with the official approval of Ministry of Public Works and Settlement. A strong academic team consisting of professors from different universities is assisting EVD.

EVD kindly invites academicians, energy experts, software developers interested in, worked on or still working on the subject.

Goals:

What we expect from this workshop is:

- to **exchange** ideas,
- to **share** experience,
- to **discuss** common problems and local solutions.

Agenda

The workshop will focus on two subjects: Calculation methodology (as specific topics, in sessions 1-5, as open discussion sessions) and software tools (in session 6)

09:30 Opening

Prof. Dr. Zerrin Yılmaz

Istanbul Technical University (Istanbul), Faculty of Architecture, Building Science Division

09:45 Session 1: Overall energy use - the importance of technical building systems (EN 15603, EN 15316 series)

Moderator: Johann Zirngibl, Convenor ISO TC 205/WG9, CEN TC 228/WG4, member of IEE - CENSE project, CSTB Paris

Comments and discussions

10:45 Session 2: Modelling heat transmission and solar heat gains

Moderator: Prof. Dr. Zerrin Yılmaz

Istanbul Technical University (Istanbul), Faculty of Architecture, Building Science Division

Comments and discussions

11:45 Session 3: Processing meteorological data

Moderator: Prof. Dr. İsmail Ekmekçi

Marmara University (Istanbul), Faculty of Engineering, Mechanical Engineering, Energy Division

Comments and discussions

12:45 Lunch

13:45 Session 4: Calculation of cooling loads

Moderator: Prof. Dr. Birol Kılıç

Başkent University (Ankara), Faculty of Engineering, Mechanical Engineering Division

Comments and discussions

14:45 Session 5: Application of EN 15193 (Energy requirements for lighting) for Turkey

Moderator: Ass. Prof. Dr. Alpin Köknel Yener

Istanbul Technical University (Istanbul), Faculty of Architecture, Building Science Division

Comments and discussions

15:45 Coffee break

16:00 Session 6: Software tools

Participation:

Participation is free of charge. Due to limited seats, please inform us for your participation.

We are expecting the applicants to be relevant to or actively involved in the subject. If you wish to make a presentation please inform us as soon as possible so that we can make a room for you in the program.

For RSVP and presentations, please contact us at bilge.kobas@evd.com.tr.

This workshop is supported by Ministry of Public Works and Settlement, General Directorate of Constructive Affairs; Istanbul Technical University and Marmara University. Also CENSE project members are supporting this workshop. The aim of the project IEE-CENSE (October 2007 - March 2010) is to increase the awareness and effective use of the European (CEN) standards related to the EPBD



Annex B – Presentations

The CENSE presentation is available on the CENSE website www.iee-cense.eu

Annex C – List of participants

CENSE-Workshop EU standards for defining a national calculation methodology in Turkey

August 15, 2009

Istanbul, Turkey

Attendance list

name	organisation	position	country
Ergin Kaya	EVD	General Manager	Turkey
Marga Scheck	Internationale Projekt Consult GmbH	Senior Consultant	Almanya
Johann Zirngibl	CSTB, Energy Environment Development and Prospecting	Head of Division	Fransa
Alexander Davidov	Ministry of Economy and Energy, Directorate "Energy markets and restructuring"	Director	Bulgaristan
Prof. Dr. Zerrin Yılmaz	Istanbul Technical University, Faculty of Architecture, Building Science Division	Professor, Architect	Turkey
Prof. Dr. İsmail Ekmekçi	Marmara University, Faculty of Mechanical Engineering, Energy Division	Professor, Mechanical Engineer	Turkey
Prof. Dr. Birol Kılış	Başkent University, Faculty of Mechanical Engineering	Professor, Mechanical Engineer	Turkey
Prof. Dr. Ahmet Arısoy	Istanbul Technical University, Faculty of Mechanical Engineering	Professor, Mechanical Engineer	Turkey
Ass. Prof. Dr. Alpin Yener	Istanbul Technical University, Faculty of Architecture, Building Science Division	Professor, Architect	Turkey
Res. Ass. Feride Şener	Istanbul Technical University, Faculty of Architecture, Building Science Division	Research Assistant, Architect	Turkey
Res. Ass. Sezen Yıldırım	Istanbul Technical University, Faculty of Electrical Engineering	Research Assistant, Electrical Engineer	Turkey
Res. Ass. Şaban Pusat	Yıldız Technical University, Faculty of Mechanical Engineering	Research Assistant, Mechanical Engineer	Turkey
Bilge Kobaş	EVD	Assistant	Turkey

**CENSE-Workshop EU standards for defining a national calculation methodology
in Turkey**

August 15, 2009

Istanbul, Turkey

Attendance list

name	organisation	position	country
Burcu Çelik	Istanbul Technical University, Faculty of Architecture, Building Science Division	Architect	Turkey
Merve Atmaca	Istanbul Technical University, Faculty of Architecture, Building Science Division	Architect	Turkey
Gürkan Yavuz	Istanbul Technical University, Faculty of Mechanical Engineering	Mechanical Engineer	Turkey
Murat Bayram	Turkish Ministry of Public Works and Settlement	General Directorate of Constructive Affairs, Proxy	Turkey
Atakan Yiğit	Turkish Ministry of Public Works and Settlement	Civil Engineer	Turkey
Esra Tombak	Turkish Ministry of Public Works and Settlement	Architect	Turkey
Hakan Ergün	Turkish Ministry of Public Works and Settlement	Electrical Engineer	Turkey

Annex D – Evaluation Form

**Event title: EU standards for defining a national calculation methodology in Turkey
CENSE-Workshop 15th of August 2009, Istanbul, Turkey**

**Please tick the appropriate box. If you cannot answer a question then leave it blank.
Thank you! We value your opinion!**

Overall event evaluation	is of high actual priority	will have priority in the future	is irrelevant for me, but possibly interesting for others	is irrelevant at all
The subject of the workshop...				

Overall speaker evaluation Name	Very Good	Good	Average	Poor
Prof. Dr. Zerrin Yılmaz				
Johann Zirngibl				
Prof. Dr. İsmail Ekmekçi				
Prof. Dr. Birol Kılış				
Ass. Prof. Dr. Alpin Köknel Yener				

Actions and outcomes	100%	90%	75%	65%	50%	40%	25%	15%	0%
This event fulfilled my objectives									
I can apply what I learnt in this event									
Was there enough space for discussion									
Was the workshop moderated/coordinated effectively									
Was the announcement of the workshop well adressed									
Did the workshop clarify the relation between the EPBD and EU-projects									

The things I found most useful to me in this event were:

The things I found less useful to me in this event were:

Additional comments:

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