

**Summary Report  
of the  
Workshop  
An Energy and Carbon Rating Scheme for Residential  
Dwellings**

**28<sup>th</sup> July, 2016**

**King Mongkut's University of Technology Thonburi, (Bangkhuntien Campus)**



**Prepared by**

**ELITH-Thailand**

**The Joint Graduate School of Energy and Environment and School of Energy  
Environment and Materials,**

**King Mongkut's University of Technology Thonburi**

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## **Preface for the Workshop**

The Thai research partner in the project ‘Energy and Low-income Tropical Housing (ELITH)’ successfully conducted a seminar on the 24th March 2016 in Bangkok. The objective of the seminar was to disseminate results from the project to personnel from the National Housing Authority (NHA), personnel from the Electricity Generating Authority of Thailand (EGAT), academic faculty members from Architecture and Engineering schools, and personnel from international organizations and government agencies. Essentially, the Thai researchers informed the audience that the project results that culminated in a scheme for rating energy and carbon performance of residential units (that included detached houses and residential condominium units).

As it turned out, the Demand-side Management Office of EGAT took interest in the scheme and has proposed to NHA to initiate a pilot project to apply the scheme to residential units planned or constructed by NHA. Since EGAT has been carrying out an energy labeling program on electrical appliances, the pilot project would be a practical extension to its program. If successful, EGAT would extend the program to the general public.

In order to assist EGAT and NHA on this endeavor, and in order to further disseminate results from the project, the Thai research team planned and conducted the workshop on the rating scheme reported here.. The workshop included lectures and computer sessions that participants had the opportunity to run a computer program developed to assist in the examination and rating a residential unit. The schedule of the workshop appears in the following page.

Participants were informed to bring their own lap top computer and downloaded a trial version of the MATLAB program.

## **Workshop Agenda**

### **An Energy and Carbon Rating Scheme for Residential Dwellings**

**28<sup>th</sup> July, 2016**

**King Mongkut's University of Technology Thonburi, Bangkhuntien Campus**

#### **Opening**

- 08.30-09.00 Registration  
 09.00-09.05 Welcome by the Thai Project Principal

#### **Morning Session**

- 09.10-09.45 Framework of the Energy and Carbon Rating Scheme for Residential Dwellings  
 (Prof. Dr. Surapong Chirarattananon)  
 09.45-10.15 Potential reduction in electricity consumption and carbon emission by the  
 residential sector in Thailand (Asst. Prof. Dr. Pattana Rakkwamsuk)  
 10.15-10.30 Break  
 10.30-11.00 A description of the requirements on air flow and daylight illuminance, and the  
 energy and carbon performance rating methodology  
 11.00-11.30 Demonstration on the use of a computer program for design of windows to  
 comply with requirements on air flow and daylight illuminance  
 (Mr. Preecha Tummum and Pichet Lertboonkankit)  
 11.30-12.00 Demonstration on the use of the computer program for design of walls and roof  
 to improve energy and carbon performance  
 (Mr. Preecha Tummum and Pichet Lertboonkankit)  
 12.00-13.00 Lunch break

#### **Afternoon Session**

- 13.00-13:45 Participants were guided to practice using the computer program for design of  
 windows to comply with the requirements on airflow and daylight illuminance  
 (Mr. Preecha Tummum, Ms. Kasawan Ruangtinakorn and  
 Mr. Pichet Lertboonkankit)  
 13.45-14.30 Participants practiced further on the design of walls and roofs  
 (Mr. Preecha Tummum, Ms. Kasawan Ruangtinakorn and  
 Mr. Pichet Lertboonkankit)  
 14.30-14.45 Break  
 14.45-15.45 Guided tour of the daylight and solar measurement station, the experimental  
 houses and the campus  
 15.45 Closing

## Summary of the Workshop

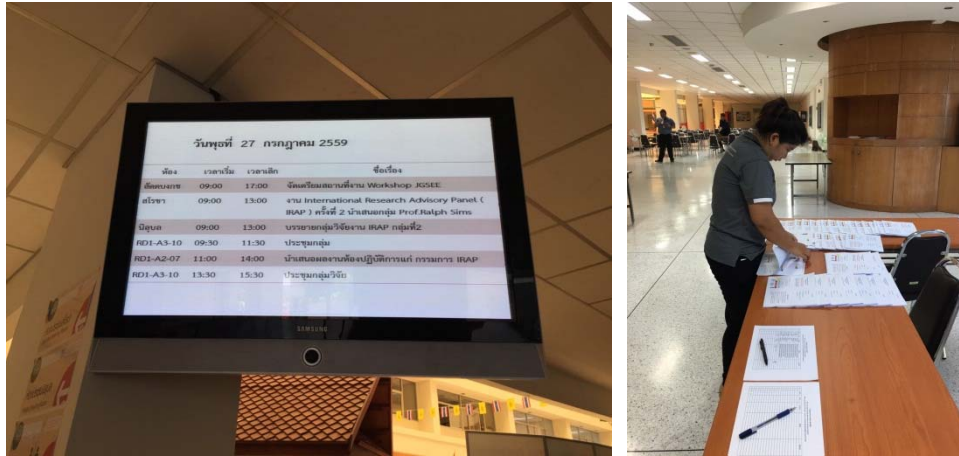
### An Energy and Carbon Rating Scheme for Residential Dwellings

28<sup>th</sup> July, 2016

King Mongkut's University of Technology Thonburi, Bangkhuntien Campus

#### Morning session

08:30-09:15 Registration



09.10-09.45 Framework of the Energy and Carbon Rating Scheme for Residential Dwellings (Prof. Dr. Surapong Chirarattananon)



09.45-10.15 Potential reduction in electricity consumption and carbon emission by the residential sector in Thailand (Asst. Prof. Dr. Pattana Rakkwamsuk)



10.15-10.30 Break

11.00-11.30 Demonstration on the use of a computer program for design of windows to comply with requirements on air flow and daylight illuminance (Mr. Preecha Tummua and Mr. Pichet Lertboonkankit)



11.30-12.00 Demonstration on the use of the computer program for design of walls and roof to improve energy and carbon performance (Mr. Preecha Tummua and Mr. Pichet Lertboonkankit)



12.00-13.00 Lunch break



### Afternoon Session

13.00-13:45 Participants are guided to practice using the computer program for design of windows to comply with the requirements on airflow and daylight illuminance (Mr. Preecha Tammu, Ms. Kasawan Ruangtinakorn and Mr. Pichet Lertboonkankit)



13.45-14.30 Participants practice further on the design of walls and roofs (Mr. Preecha Tammu, Ms. Kasawan Ruangtinakorn and Mr. Pichet Lertboonkankit)



14.30-14.45 Break

14.45-15.45 Guided tour of the daylight and solar measurement station, the experimental houses and the campus



15.45 Closing





### Name of participants

1	Mr.Supasin chatmaneevej	Electricity Generation Authority of Thailand (EGAT)
2	Mr.Napat techawutikorn	EGAT
3	Mr.wirachat Danviriyakun	EGAT
4	Mr.Wara kusontummarat	EGAT
5	Mr.watchara takaew	EGAT
6	Mr.Siwa Charuwan	EGAT
7	Ms.Supara Koirangub	EGAT
8	Mr.Sompob Srijad	EGAT
9	Ms.Sarochinee Wanna	EGAT
10	Mr.kachapan Dangdeelert	EGAT
11	Ms.Kritika Rasisuddhi	EGAT
12	Ms.Tunnie Srisakulchairak	United Nation Environment Programme (UNEP)
13	Ms.Sureeporn Suwannaworn	National Housing Authority (NHA)
14	Mr.Chaiwut Lippanichkun	NHA
15	Mr.Alumpon Yuwasawat	NHA
16	Mr.Nattachai Mattayom	NHA
17	Ms.Lalinee Mahamad	NHA
18	Ms.Angkana Vichit	NHA
19	Ms.Ketsara Chanphetkun	NHA
20	Ms.Tanaporn Dueangkom	NHA
21	Prof. Surapong Chirarattananon	Joint Graduate School of Energy and Environment (JGSEE)
22	Asst. Prof.Pipat Chaiwiwatworakul	JGSEE
23	Mr.Preecha Tammu	JGSEE
24	Ms.Thanyalak Taengchum	JGSEE
25	Mr.Pichet Lertboonkankit	JGSEE
26	Mr.Chakkit Leelapatree	JGSEE
27	Mr.Pan Piyasil	JGSEE
28	Dr.Nattapong Chayawatto	JGSEE
29	Ms.Vichuda Metthanan	JGSEE
31	Asst. Prof. Pattana Rakkwamsuk	School of Energy, Environment, and Materials (SEEM)
32	Ms. Kasawan Ruangtinakorn	SEEM
33	Mr.Songpon Bumpensanti	Asahi Glass Co.Ltd
34	Mr.Dumrong Bouyom	EnConLab, KMUTT

**AUTHORS**

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Project: Research Programme on Reducing Energy Consumption Cost and GHG Emission  
 for Tropical Low-income Housing:  
 Thailand Contribution

<b>Name</b>	<b>Position in the Project</b>
Prof. Dr. Surapong Chirarattananon	Principal Investigator
Asst. Prof. Dr. Pattana Rakkwamsuk	Co-investigator
Asst. Prof. Dr. Siriluk Chiarakorn	Co-investigator
Asst. Prof. Dr. Pipat Chaiwiwatworakul	Co-investigator
Asst. Prof. Dr. Surawut Chuangchote	Co-investigator
Mr. Preecha Tummu	Research Associate
Ms. Kasawn Ruangtinakorn	Research Assistant
Mr. Pichet Lertboonkankit	Research Assistant