



## INVITATION

Venue: Bangkok International Trade & Exhibition Centre-BITEC, Bangkok, Thailand

Date: Workshop June 3-4, 2011 Simulation Training June 4-5

### APEC Building Materials and Component Testing and Rating Centre Workshop Purpose and Agenda

#### PURPOSE:

**Define and mobilize work on the APEC Building Materials and Component Testing and Rating Centre (Sb-2).**

The workshop is organized to bring together public, private and academic sector stakeholders involved in developing a model Building Envelope Energy Efficiency Centre, which can then be replicated in other Asia-Pacific Economic Cooperation (APEC) economies. Key decision makers from the APEC economies are invited as observers to provide their input and insights during the working sessions. The workshop will include discussions on policy, technology, component rating, infrastructure needs and building code implementation.

As part of the APEC, Energy Smart Communities Initiative (ESCI) and APEC Leaders meeting deliverable, this workshop is organized to support the establishment of a Building Envelope Energy Efficiency Centre, which will provide third party verifiable data to consumers and businesses. Accurate and reliable performance data are essential to promote international trade in energy-efficient building materials – such as windows, insulation and cool roofs with high albedo. An accurate labeling program helps in the implementation of codes and provides verifiable compliance in the marketplace, adding credibility and buyer confidence in product performance claims by suppliers. Demand increase will spur global investment in local manufacturing plants, creating local production jobs. Product and raw material needs can be satisfied via trade between the APEC countries and other investing countries, which also stand to benefit from equipment orders and the service side of clean energy development. The collaboration creates an interdependent growth opportunity, which may never have occurred without the trust factors put in place by the Building Envelope Materials and Component Testing and Rating Centre.

This fundamental infrastructure and related capacity building activity is a prerequisite to effective voluntary and mandatory energy-efficient building envelope policy adoption. This workshop directly supports the Energy Smart Communities Initiative (ESCI) and the project is a major activity of the Smart Buildings-Materials Testing and Rating Centres (SB-2) activity. This project also builds upon the recently completed APEC Cooperative Energy Efficiency Design for Sustainability (CEEDS) –Phase 2 “Building Energy Codes and Labeling” project.

### WORKSHOP OBJECTIVES

**The outcome and action plan will be presented at the APEC Leader’s meeting in Hawaii November 2011**

- Initiate plans for the successful establishment of a APEC Building Materials and Component Testing and Rating Centre which will serve as a replicable template that in other APEC economies
- Demonstrate the practicality of energy-efficient building envelope components available now and discuss Centre’s role in driving credible entry for *newer* materials that go through the certification process
- Provide guidance on the fundamental infrastructure and related capacity building activities necessary for effective voluntary and mandatory energy-efficient building envelope adoption
- Basic Training - Using Simulation Tools -- THERM, WINDOWS and OPTICS

## WORKSHOP AGENDA

DAY 1:	June 3
0730-8:15	Registration
<b>8:30-9:15</b>	<b>Opening and Welcome Speeches</b>
	8:30-8:45 Dr.Norkun Sitthiphong Permanent Secretary, Ministry of Energy Thailand 8:45-9:00 Julie Chung, Counselor for Economic Affairs U.S. Embassy Bangkok 9:00-9:15 Dr.Bundit Foongthammasarn, VP. KMUTT
<b>9:30-10:30</b>	<b>Status and Need of implementing Energy Efficiency Building Codes in Thailand--This fundamental infrastructure and related capacity building activity is a prerequisite to effective voluntary and mandatory advanced building envelope design with integrated energy-saving components.</b>
<b>SESSION 1</b>	9:30 – 9:45 Speaker #1 Mr. Marc LaFrance Organization: <u>US.DOE- US-DOE, Technology Development Program Manager</u> Title: US-DOE Policies and R&D Integrated to Promote Energy Efficiency in the Building Envelope  9:50 – 10:05 Speaker #2 Mr. Sarat Prakobchat Organization: <u>Department of Alternative Energy Development and Efficiency</u> Title: Implementing Energy Efficiency Building Codes in Thailand  10:10 – 10:25 Speaker #3 Dr. Pattana Rakkwamsuk Organization: <u>KMUTT (Dean, School of Energy, Environment and Materials King Mongkut's University of Technology Thonburi</u> Title: R&D and Past Experiences in Establishing Energy Efficiency Rating For Building Envelope Materials to Serve Mandatory and Voluntary Programs in Thailand  10:25-10:35 Discussion: Question and Answers:
<b>10:35-10:45:</b>	<b>TEA/COFFEE BREAK</b>
<b>10:45-12:40:</b>	<b>Energy Centres in APEC Economies---Speakers will discuss their experiences with building envelope product testing.</b>
<b>SESSION 2</b>	10:45 – 11:00 Speaker #4 (Japan): Michiya Miura Deputy Director Organization: Ministry of Economy, Trade and Industry (METI) Title: Status and Needs of Building Envelope Energy Performance Testing in Japan

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<p><b>SESSION 2 continued</b></p>	<p>11:05 – 11:20    Speaker #5 (Singapore) Alice Goh and Professor Lee          Organization: <u>Singapore Building and Construction Authority and Singapore Green Building Council (SGBC)</u>          Title: Status/Need for Building Envelope Energy Performance Testing</p> <p>11:25 – 11:40    Speaker #6 (Indonesia): Mr. Fitriyan Imaduddin          Organization: <u>PT Energy Management Indonesia</u>          Title: Current Status of Energy Policy Needs of Building Codes in Indonesia</p> <p>11:45 – 12:00    Speaker #7 (Viet Nam): Mr. Hoang Minh Duc          Organization: <u>Vietnam Institute Building Science and Technology – Ministry of Construction</u>          Title: Status/Need for Building Envelope Energy Performance Testing</p> <p>12:05 – 12:15    Discussion: Question and Answers</p>
<p><b>Lunch Break: 12:25 - 13:45</b></p>	<p><b>LUNCH SPEAKER: THAILAND MINISTER OF INDUSTRY</b></p>
<p><b>14:00 – 15:15:</b></p>	<p><b>Energy Rating in the USA –Third-Party Rating Systems implemented through an APEC Building Materials and Component Testing and Rating Centre will verify accurate labeling of products and materials, help in the implementation of codes and develop trust factors in the procurement and use of advanced building envelope materials, including insulation, windows and cool roofs.</b></p>
<p><b>SESSION 3:</b></p>	<p>14:00 – 14:15    Speaker #8(USA): Dr. Cary Bloyd          Organization: <u>Pacific Northwest National Laboratory (PNNL)</u>          Title: Overview of Factory-Built Windows Infrastructure</p> <p>14:20 – 14:35    Speaker #9 (USA): Mr. Bipin Shah          Organization: <u>WinBuild, Inc.</u>          Title: Effective Implementation of Energy Efficiency Programs via Rating Councils in the USA</p> <p>14:40 – 14:55    Speaker #10 (New Zealand): Laura Christen, Policy Advisor and Chair APEC Expert Group on Energy Efficiency and Conservation          Organization: <u>Energy Efficiency and Conservation Authority</u>          Title: New Zealand Experiences with Building Envelope Product testing and APEC activities to promote energy-efficient buildings</p>

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	<p>15:00 – 15:15 Speaker #11 (Australia): Ms. Tracey Gramlick Organization: <b><u>Australian Window Association</u></b> Title: Energy Rating Programs &amp; Labelling for Fenestration in Australia</p> <p>15:20- 15:30 Speaker #12 (USA): Ms. Sherry Hao Organization: <b><u>Cool Roof Rating Council, USA</u></b> Title: Energy Ratings for Cool Roof</p>
<p>15:35 – 18:10:</p>	<p><b>Representatives from building material and fenestration industry share their viewpoints about a APEC Building Materials and Component Testing and Rating Centre’s role in accelerating market acceptance and increasing the demand for knowledgeable construction trades people, plus other factors that spur on the economic and energy saving benefits.</b></p>
<p><b>SESSION 4:</b></p>	<p>15:35 – 15:50 Speaker #13 –Mr. Perry Eckert S.C. Dip App .Sci Organization: <b><u>Nutech Paint Pty Ltd. (Australia)</u></b> Title: Acrylic Cool Roof Coatings—Do they Perform in Harsh Environments?</p> <p>15:55 – 16:10 Speaker #14 –(Thailand) Mr. Tetsuya Hiramatsu and Mr. Songpol Bumpensanti Organization: <b><u>AGC Flat Glass</u></b> Title: Energy Saving measures and policies (Products Strategy) in southeast Asia.</p> <p>16:15 – 16:30 Speaker #15 –(U.S.) Mr. Gregory King Organization: <b><u>3M Renewable Energy Division</u></b> Title of Remarks: 3M Window Film Innovation</p> <p>16:35 – 16:50 Speaker #16 – (Thailand) Mr. Bibekananda Maiti, Regional Sales Director Organization: <b><u>Guardian Industries Corp</u></b> Title: Recent Advances in Fenestration Products for Subtropical Climates</p> <p>16:55 – 17:10 Speaker #17 – (Thailand) Mr. Tanasak Sakariganon Organization: <b><u>SCG Building Materials Co., Ltd. Holding company</u></b> Title of Remarks: ECO Building Materials</p>
<p>18:30</p>	<p><b>EVENING RECEPTION/ DINNER TOGETHER</b></p>

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## WORKSHOP AGENDA

DAY 2	JUNE 4, 2011
<b>9:00 – 12:30:</b>  <b>SESSION 1:</b>	<b>Round Table Sessions (By invite only – Thailand and APEC)-</b> Establishment of Building Material Testing and Rating Centre Strategic Planning <ul style="list-style-type: none"> <li>• Key steps and deliverables by November 2011</li> <li>• Establishment of Energy Efficiency Centre Strategic Planning</li> </ul>
<b>OPTIONAL ACTIVITIES</b>	
<b>Time</b> <b>10:00-1:00</b> <b>(reservation required at winbuild.ning.com)</b>	<b>EnCon Building Site visit:</b> The building incorporates energy efficiency design techniques and is equipped with several advance building envelope technologies. During the tour, the speaker will provide more information about the level of performance , including – Air-conditioning energy efficiency ratio (EER) ratings, OTTV and RTTV, Wall insulation level R-xx, Windows double pane lowE, etc. The decision making process of selecting different technologies to achieve the level of energy efficiency will also be highlighted.
<b>June 4-5</b>  <b>13:30 – 17:00</b>	<b>Building Simulation Training Introductory Workshop in Modeling of Building Envelope Components - Window &amp; Door System Using ISO 15099 Procedures (limited to 25 technical participants).</b>
<b>June 4</b>  <b>13:30 – 15:30</b>	Basic Training - Using Simulation Tools -- THERM, WINDOWS and OPTICS
<b>SESSION 2:</b>	<b>Introduction to NFRC Program and Basics: Simulation Requirements: (rules for modeling)</b> <ul style="list-style-type: none"> <li>• NFRC Standards 100, 200 and 300</li> <li>• Spectral data files</li> <li>• Procedure for approval of spectral data files for International Glass Data Base (IGDB)</li> <li>• Brief introduction to OPTICS program for Laminates and Applied films.</li> <li>• Install software</li> </ul>
<b>Time 15:30 – 15:45</b>	<b>COFFEE/TEA BREAK</b>
<b>SESSION 3:</b>	<b>WINDOW 6.3:</b> <ul style="list-style-type: none"> <li>▪ Program Structure / Libraries</li> <li>▪ Glass Library – Updating and/or Importing New glazing from IGDB Library, Importing from User data based (Laminates and Applied film)</li> </ul>

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<p><b>15:45-1700</b></p>	<ul style="list-style-type: none"> <li>▪ Choosing correct spectrum</li> <li>▪ Gas Library – make new records for gas mixtures</li> <li>▪ Environmental Conditions Library – use NFRC 100-2001, How to create new Boundary condition per country code requirements.</li> <li>▪ Glazing System Library –             <ul style="list-style-type: none"> <li>○ Creating IGU,</li> <li>○ Defining LowE surface (flip),</li> <li>○ Slope glazing modeling.</li> </ul> </li> <li>▪ Frame and Divider Library – Importing files from THERM, CR details, Absorptance</li> <li>▪ Window Library – Total U-factors, SHGC/VT 0/1, CR. Discuss area weighted formula for different configurations (WINDOW manual)</li> <li>▪ Assemble a whole fixed window</li> <li>▪ Review Results, with and without dividers. Selection of divider patterns.</li> </ul>
<p><b>DAY 3</b></p>	<p><b>JUNE 5, 2011</b></p>
<p><b>June 5</b></p> <p><b>9:00 – 13:30</b></p> <p><b>SESSION 1:</b></p>	<p><b>TECHNICAL TRAINING CONTINUED: THERM 6.3:</b></p> <ul style="list-style-type: none"> <li>▪ Walk through - Menu / Toolbar / Status Bar</li> <li>▪ Defining Frame File Properties</li> <li>▪ Results and Reports</li> <li>▪ Modeling Aluminum thermally broken Fix cross section, head, jamb, sill.</li> <li>▪ Glazing System Import</li> <li>▪ Importing multiple IGU and running results.</li> <li>▪ Frame Cavities –             <ul style="list-style-type: none"> <li>▪ Internal Air cavity rules</li> <li>▪ External Air cavity rules</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>▪ Gravity vectors, emissivity, temperatures</li> <li>▪ Defining Boundary Conditions</li> <li>▪ U-factor tags</li> <li>▪ SHGC tag for SHGC and VT</li> <li>▪ CR requirements</li> <li>▪ Obtain all indices value, U-factor, SHGC, VT and CR for Aluminum fix cross-section</li> </ul>
	<p><b>CMAST Program</b>          Demonstration of the new NFRC simulation program CMAST used for commercial product certification.</p>

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