BEST 4  April 12-14, 2015 Kansas City

Introducing the BEST 4
on behalf of the Technical Committee

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“Knowledge about building, called, for convenience, building science, is valuable largely because it is useful in predicting the outcome of the result of some building situation. ..... Rational design is possible only when there is a capability to establish, each time a choice is made, the probability of a particular result.”

The difference between learning building science at Uni or learning when applying it in the practice is like

The difference between the almost-right word and the right word is really a large matter -- it’s the difference between the lightning bug and lightning.

Mark Twain [Samuel Longhorne Clemens]
The focus of the BEST conferences

2015 Performing Architecture
(synchronized form and function)

2012 High performance buildings:
Combining Field Experience With Innovation
(innovation in the field practice)

2010 Change of the design paradigm
(process leading to the outcome)

2008 Energy efficiency and durability
on cross-roads (CRITICAL issues)
Time for some reflections:

- This conference is not to only to deliver you some practical information but also a highlight some changes in the built environment.

- Expectations change—a house with the garage in suburbs from 1960’s is now replaced by a city dwelling with amenities: public transportation and green space.

- We want a higher living comfort for the same cost of living.
Think out of the box – bioclimatic and HVAC integrated with the enclosure

Sunny and shaded sides
Convective cooling and ventilation – Eastgate Center, a large building in Zimbabwe uses 10% of energy for it only recirculates the cool air

We have 2 papers on this

Termite mound in Mexico
## Application of BEES 3.0 to review alternatives

<table>
<thead>
<tr>
<th>Cladding</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brick w mortar</td>
<td>0.0580</td>
<td>6.60</td>
<td>2723</td>
<td>41.4</td>
</tr>
<tr>
<td>Vinyl siding</td>
<td>0.0023</td>
<td>2.28</td>
<td>927</td>
<td>23.5</td>
</tr>
<tr>
<td>3-coat stucco</td>
<td>0.0026</td>
<td>2.63</td>
<td>1377</td>
<td>8.95</td>
</tr>
<tr>
<td>AAC w flying ash</td>
<td>0.0018</td>
<td>2.63</td>
<td>830</td>
<td>7.99</td>
</tr>
</tbody>
</table>

A = overall environmental impact
B = cost, C = global warming effect
D = embodied energy
Predictions for next generation: water to water HP, more thermal mass

- Water to water heat pump gives you both heating and cooling as needed
- Large surface low temperature hydronic heating and cooling wins – it provides temperature control, thermal mass and lower cost of heat distribution
- Hydronic heating and cooling will also be located in walls – it is easier to panelize it and better for indoor climate
Predictions for the next generation: thermal mass better coupled with ventilation

- A light weight concrete or masonry with continuous exterior thermal insulation may be a preferred type of wall.
- More moisture buffering is likely.
- With solar heating or cooling combined with PV, some form of a glazed and ventilated exterior panels are becoming the preferred type of cladding.