2015 SIPA Conference

Modeling & Marketing for Energy Codes

March 31, 2015
REBRANDING
Then: Architectural Energy Corporation

Now: NORESKO

Acquired: 2008

Rebranded: 2014
BUILDING ENERGY
THE BIG ENERGY USE PICTURE

WORLD ENERGY CONSUMPTION
- OTHER 40%
- OECD Europe 15%
- CHINA 20%
- RUSSIA 6%
- U.S. 19%

U.S. ENERGY CONSUMPTION
- TRANSPORTATION 29%
- COMMERCIAL 19%
- RESIDENTIAL 22%
- INDUSTRIAL 30%

U.S. BUILDINGS SECTOR
- PETROLEUM 5%
- COAL 35%
- NATURAL GAS 34%
- NUCLEAR 16%
- RENEWABLES 9%

RESIDENTIAL ENERGY END-USE

U.S. ENERGY CONSUMPTION

TRANSPORTATION 29%
COMMERCIAL 19%
RESIDENTIAL 22%
INDUSTRIAL 30%

SPACE HEATING 45%
WATER HEATING 18%
SPACE COOLING 9%
LIGHTING 6%
COOKING 4%
ELECTRONICS 5%
REFRIGERATION 4%
COMPUTERS 2%
ADJUST TO SEDS 4%
OTHER 3%
Residential Energy Codes Improving FASTER...
Relative to 2006 IECC (International Energy Conservation Code) Baseline

MEETING THE 2015 IECC

- Prescriptive
- UA
- Performance
- EIR (energy rating index)
DESIGNING ENERGY EFFICIENCY

- The earlier you start in energy efficiency the more impact & savings

- Envelope
- HVAC
- Appliances
- Renewables
- Hot Water
- Lighting
- Controls
Join SIPA Mar 30 - Apr 1 in Tucson

21 of the leading suppliers to the Structural Insulated Panel manufactures will expo their latest technology to this growing industry.

MORE
## 2015 IECC ENERGY RATING INDEX REPORT

**Property**
- S I P A
- Tucson, AZ 85750

**Organization**
- AW
- Amber Wood

### Annual Energy Consumption

<table>
<thead>
<tr>
<th></th>
<th>HERS Reference Home (MBTU)</th>
<th>Rated Home n4UEL (MBTU)</th>
<th>Rated Home Cost ($)/yr</th>
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<tbody>
<tr>
<td>Heating</td>
<td>22.4</td>
<td>0.0</td>
<td>0</td>
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<tr>
<td>Cooling</td>
<td>55.8</td>
<td>18.3</td>
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<td>Water Heating</td>
<td>12.8</td>
<td>2.2</td>
<td>23</td>
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<tr>
<td>Lights &amp; Appliances</td>
<td>34.8</td>
<td>32.7</td>
<td>766</td>
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<tr>
<td>Photovoltaics</td>
<td>0</td>
<td>-5.2</td>
<td>-146</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>125.8</strong></td>
<td><strong>46.9</strong></td>
<td><strong>923</strong></td>
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</tbody>
</table>

### Annual Estimates

- **Electric (kWh):** 9754
- **CO2 Emissions (Tons):** 6
- **Natural gas (Therms):** 47
- **Energy Savings ($)**: 1295

*Based on standard operating conditions
**Based on U.S. DOE designation of a HERS Index of 130 as the 'Typical Existing Home'
2015 IECC Energy Cost Compliance

Property:
SPA
Tucson, AZ 85750

Weather:
Tucson, AZ
SPA Home
SPAHome.png

Organization:
AW
Amber Wood

Builder:
SPA Builder

Annual Energy Cost

<table>
<thead>
<tr>
<th></th>
<th>2015 IECC</th>
<th>As Designed</th>
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<tbody>
<tr>
<td>Heating</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Cooling</td>
<td>283</td>
<td>175</td>
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<tr>
<td>Water Heating</td>
<td>103</td>
<td>22</td>
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<tr>
<td>SubTotal - Used to Determine Compliance</td>
<td>486</td>
<td>196</td>
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<tr>
<td>Lights &amp; Appliances</td>
<td>784</td>
<td>766</td>
</tr>
<tr>
<td>Photovoltaics</td>
<td>-0</td>
<td>-146</td>
</tr>
<tr>
<td>Service Charge</td>
<td>120</td>
<td>120</td>
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<tr>
<td>Total</td>
<td>1391</td>
<td>936</td>
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2015 IECC Building UA Compliance

Property:
SPA
Tucson, AZ 85750

Weather:
Tucson, AZ
SPA Home
SPAHome.png

Organization:
AW
Amber Wood

Builder:
SPA Builder

Insulation Levels

<table>
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<tr>
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<th>2015 IECC</th>
<th>As Designed</th>
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<tr>
<td>Shell UA Check</td>
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<tr>
<td>Ceilings:</td>
<td>33.0</td>
<td>22.1</td>
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<tr>
<td>Above-Grade Walls:</td>
<td>69.0</td>
<td>17.4</td>
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<tr>
<td>Windows and Doors:</td>
<td>96.0</td>
<td>79.5</td>
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<tr>
<td>Slab Floor:</td>
<td>58.4</td>
<td>16.4</td>
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<tr>
<td>Overall UA (Design must be equal or lower):</td>
<td>256.4</td>
<td>135.5</td>
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</tbody>
</table>
Compared walls ONLY

2x6 R-19 vs. 9” SIPs
- 80% MMBtu/yr reduction
- 67% Wall cost reduction

Additional savings from HVAC reduction
REM/DREIGN

HERS® RATING, ENERGY STAR®, DOE ZERO ENERGY READY HOME
IECC COMPLIANCE

Used by Home Energy Rates, Architects, Builders,
Contractors, and Weatherization Experts.

Coming Soon
REM/Rate™ Enterprise Web Application
REM/Rate™ Enterprise Web Application is
a fully operational web calculation tool soon

Free 90-day trial
REM/Rate™ Desktop
REM/Rate™ Software is used by
organizations which conduct Home Energy
Rating Systems (HERS®) Ratings. HERS®

Free 90-day trial
REM/Design™ Desktop
User-friendly and highly-sophisticated,
REM/Design™ software calculates heating,
cooling, domestic hot water, lighting and
<table>
<thead>
<tr>
<th>Wall Thickness</th>
<th>Fiberglass</th>
<th>Cellulose</th>
<th>EPS SIP</th>
<th>XPS SIP</th>
<th>NEO SIP</th>
<th>PIR SIP</th>
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<tr>
<td>4.5” Whole Wall</td>
<td>R-10</td>
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<td>R-15</td>
<td>R-18</td>
<td>R-17</td>
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<tr>
<td>Center of Cavity</td>
<td>R-14</td>
<td>R-16</td>
<td>R-16</td>
<td>R-20</td>
<td>R-18</td>
<td>R-24</td>
</tr>
<tr>
<td>6.5” Whole Wall</td>
<td>R-14</td>
<td>R-16</td>
<td>R-22</td>
<td>R-28</td>
<td>R-25</td>
<td>R-32</td>
</tr>
<tr>
<td>Center of Cavity</td>
<td>R-20</td>
<td>R-24</td>
<td>R-23</td>
<td>R-30</td>
<td>R-26</td>
<td>R-36</td>
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<tr>
<td>8.25” Whole Wall</td>
<td>R-18</td>
<td>R-20</td>
<td>R-29</td>
<td>R-36</td>
<td>R-33</td>
<td>R-42</td>
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<tr>
<td>Center of Cavity</td>
<td>R-25</td>
<td>R-30</td>
<td>R-30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.25” Whole Wall</td>
<td>R-23</td>
<td>R-26</td>
<td>R-35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center of Cavity</td>
<td>R-31</td>
<td>R-38</td>
<td>R-38</td>
<td></td>
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</tbody>
</table>
Sales
Marketing
Old Thoughts from a Model on Selling

- What sells?
  - Comfort
  - Value

- Why?
  - Selling is emotional

www.sips.org/gallery
THE NEW ANSWER

Solution
Modeling can provide solutions for:

- Comparing SIPs with Traditional walls
- Enclosure installation variations
SOLUTIONS FOR BUILDER/ARCHITECT

Modeling can provide solutions for:

- Code compliance
- Above-code program certification
- Enhanced home design
- QA/QC installation
- Code-proof walls
Modeling can provide solutions for:

- Comfort
- Value
- Investment
- Dinner party conversation

www.sips.org/gallery
THE INNOVATIVE ANSWER . . .

UX/UI

. . . User experience/user interface
THE WORLD OF UX/UI

Courtesy of Dan Saffer
UX: User Experience
- How a product “feels”
- The nucleus of the brand
- “Best” user experience

UI: User Interface
- How the product is laid
- Cohesive style guide

http://www.alarm.com/
CONNECTING THE DOTS

SIPA
- Comparing SIPs with Traditional walls
- Enclosure installation variations

Builder/Architect
- Code compliance
- Above-code program certification
- Enhanced home design
- Code-proof walls

Homeowners
- Value
- Investment
- Dinner party conversation

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QUESTIONS?

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