Introducing the Code Compliance Cookbook to Help You Comply with the 2018 WSEC-R

Dan Wildenhaus – May 2022
Agenda

1. BetterBuiltNW
2. Goals
3. Cookbook Beta Test
4. Feedback session
5. Hand off to Jonathan Jones of WSU Energy Program
   A. Insights on designing, building, and permitting in residential new construction
   B. Code Compliance Submittal Forms
   C. ERI, what if…?
   D. What else can the C3 do for you?
6. Questions and Answers
Dan Wildenhaus

- Former contractor
- Technical Advisor and Industry Liaison
- New and existing construction
- Training and consultation
  - BetterBuiltNW
  - EPS New Construction Program
- Resources
  - Case Studies and Research
  - Tools
  - News and Events
  - Training Opportunities and Resources

- Program information
  - Voluntary Home Certification Programs
  - New Construction Utility Programs
  - Partnerships with Organizations

- Features
  - Find a Professional
  - Find a Utility
  - Builder support – Energy Codes and beyond
Cookbook - Goals

Make code compliance an easier process.

Showcase trade-offs, options and unique considerations.

Identify resources and trainings.

Connect to builder and homeowner benefits.
Cookbook – Beta test

Example
Cookbook – Beta test

Example

Electric Air Source Heat Pump (ASHP) Home

Code Compliance Calculator Example*

Project Information
Example Medium Dwelling Unit
6 Total Credits with Option 1.4
Air Source Heat Pump

Messages/Results
Review required for custom entries: Doors-Vertical Glazing-Wall (above grade)

UA Reduction = 58.5, Proposed UA is better than baseline by 18%

UA-Reduction meets selected Option 1.4

Results - Comparison of Baseline and Proposed Design (Alternative Pathway Values)

<table>
<thead>
<tr>
<th>Component Performance, R</th>
<th>Baseline</th>
<th>Proposed Design</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>U</td>
<td>Area</td>
</tr>
<tr>
<td>Doors U</td>
<td>0.3</td>
<td>38</td>
</tr>
<tr>
<td>Overhead Glazing U</td>
<td>0.5</td>
<td>0</td>
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<tr>
<td>Vertical Glazing U</td>
<td>0.3</td>
<td>350</td>
</tr>
<tr>
<td>Flat/Vaulted Ceilings U</td>
<td>0.027</td>
<td>1,250</td>
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<tr>
<td>Walls (above grade) U</td>
<td>0.056</td>
<td>2,466</td>
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<tr>
<td>Floors over Crawlspace U</td>
<td>0.029</td>
<td>1,250</td>
</tr>
</tbody>
</table>

Baseline UA Total = 325.9

Proposed UA Total = 265.9

Required Credits = 6

Proposed Credits = 6 From tables 406.2 & 406.3

UA % Reduction = 18%

UA Reduction = 58.5

If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 406 are ≥ those required in Section R408, then the home meets the WSEC.

*Example shown above is based upon hypothetical areas and not valid for compliance. Each project must be input into the C3 calculator with as-designed surface areas to demonstrate compliance.
### Electric Air Source Heat Pump (ASHP) Home

#### Code Compliance Submittal Forms

**Helpful tip:** Many jurisdictions are familiar with or require prescriptive forms available from Washington State University Energy Program. The Code Compliance Calculator can produce the same or very similar information that may be considered an acceptable form of compliance documentation. Please work with your local jurisdiction to determine if the Prescriptive forms below must be filled out and submitted or if the C3 print outs will suffice.


#### Traditional Approach

<table>
<thead>
<tr>
<th>Required Reporting</th>
<th>Form/Submission</th>
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<tbody>
<tr>
<td>Baseline - R402.1.1</td>
<td>Prescriptive Worksheet</td>
</tr>
<tr>
<td>Fuel Normalization - R406.2</td>
<td>Prescriptive Worksheet</td>
</tr>
<tr>
<td>Energy Credits - R406.3</td>
<td>Prescriptive Worksheet</td>
</tr>
<tr>
<td>Ventilation Sizing</td>
<td>Compliance Cert or AHJ form</td>
</tr>
<tr>
<td>Heat System Sizing</td>
<td>Sizing Worksheet</td>
</tr>
<tr>
<td>Glazing Schedule</td>
<td>Glazing Schedule</td>
</tr>
<tr>
<td>Duct Leakage Results</td>
<td>Sizing Worksheet or Compliance Cert</td>
</tr>
<tr>
<td>Air Tightness Results</td>
<td>Compliance Cert</td>
</tr>
</tbody>
</table>

#### Code Compliance Calculator - C3 Approach

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<td>Energy Credits - R406.3</td>
<td>C3</td>
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<td>C3 and Compliance Cert</td>
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<td>Glazing Schedule</td>
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Coined by: [BetterBuiltNW](http://www.betterbuiltnw.com)
Questions?
Thank You

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https://www.linkedin.com/in/danwildenhaus/
Now to hand it off to Jonathan Jones!