Residential Component Based Calculation

April 2016
Agenda

• Summarize Work - 2016 initiatives
• Whitepaper
• Filtering Trendlines and Data
• Creating Rules
• Next Steps
Summarize Work as of April 4, 2016
Whitepaper

• Draft available on RCBC webpage
• Describes filters to generate trendlines
• Charts demonstrating filtering
• Number of models comparison
Filtering Trendlines

- COG groupings per NFRC 100
- Gap Size
- Spacers
- # of lites
- Laminates
- Interior low-e location (4, 6, etc.)
- Frame differences
  - Reinforcement
  - Foam
  - Sightlines
- True divided lite

Same level of precision to keep everyone on the same playing field
Filtering Data

• Use trendline filters
• Explained in whitepaper
• Demonstrate with graphs
Fixed – Wood / Al Clad

Max Error 0.0067
Min Error -0.0183
Max Error 0.0100
Min Error -0.0169
Fixed – Wood / Al Clad

– Remove all grids (G, S)
– Group Gap Size
– Group Spacers
– # of lites – only DG
– Group Interior low-e location (Surface 4)
Fixed – Wood / Al Clad

A1 Spacer 0.640 Gap w/o SRF 4 - 10 Options

Max Error: 0
Min Error: 0
Max Error: 0
Min Error: 0

as of April 4, 2016
Fixed – Wood / Al Clad

SS Spacer 0.325 Gap w/ SRF 4 - Options 5

Max Error: 0.0007
Min Error: -0.0008
Max Error: 0.0004
Min Error: -0.0013

as of April 4, 2016
Fixed – Wood / Al Clad

SS Spacer 0.325 Gap w/o SRF 4 - Options 3

Max Error 0
Min Error 0
Max Error 0
Min Error 0

as of April 4, 2016
Fixed – Wood / Al Clad

SS Spacer 0.522 Gap w/ SRF 4 - Options 12

Max Error 0.0022
Min Error -0.0024
Max Error 0.0017
Min Error -0.0030

as of April 4, 2016
Fixed – Wood / Al Clad

SS Spacer 0.522 Gap w/o SRF 4 - Options 8

Max Error: 0.0001
Min Error: -0.0001

Max Error: 0.0001
Min Error: -0.0002
Fixed – Wood / Al Clad

SS Spacer 0.640 Gap w SRF 4 - Options 22

Max Error 0.0030
Min Error -0.0018
Max Error 0.0019
Min Error -0.0029

as of April 4, 2016
Fixed – Wood / Al Clad

SS Spacer 0.640 Gap w/o SRF 4 - Options 18

Max Error: 0
Min Error: 0
Fixed – Wood / Al Clad (summary)

• Current methodology
  – Total options = 371
  – # of options simulations = 92

• RCBC methodology
  – Total options = 371
  – # of options simulations = 16

Note: Summary ignores grids
Simulation Manual

• Recommendations:
  – Trendline filtering
  – Calculation details
NFRC 100 / 200

• Provides technical guidelines
• To be determined
  – Relationship to Simulation Manual
  – Filtering
  – Grouping
Grids

• Moving forward with:
  – Query CPD data to demonstrate band of range w/ & w/o grids
  – Perform simulations

• Recommended Options:
  – Grid size = 1" only - Good compromise (0.75 / 1.5)
  – Still use <12" o.c. (NFRC default)

• Guidelines to investigate:
  – Keep >3mm rule
  – Different space ranges
    • <3mm – add-on U-factor; or
    • >1.5mm<3mm - add-on U-factor
    • <1.5mm - 0.03 add-on U-factor

as of April 4, 2016
Next Steps

2016
• More Research
• Simulation Manual
• Develop NFRC 100 / 200 language

2017
• Finalize research
• Determine application / tool
• Implementation decisions

as of April 4, 2016
Thank you

Questions / Comments