

Rapid Validation for Thermal Performance

Buildings and Habitats object Model (BHoM)

Façade Configurator Web App and BHoM LOD100 Thermal
Calculation Toolkit

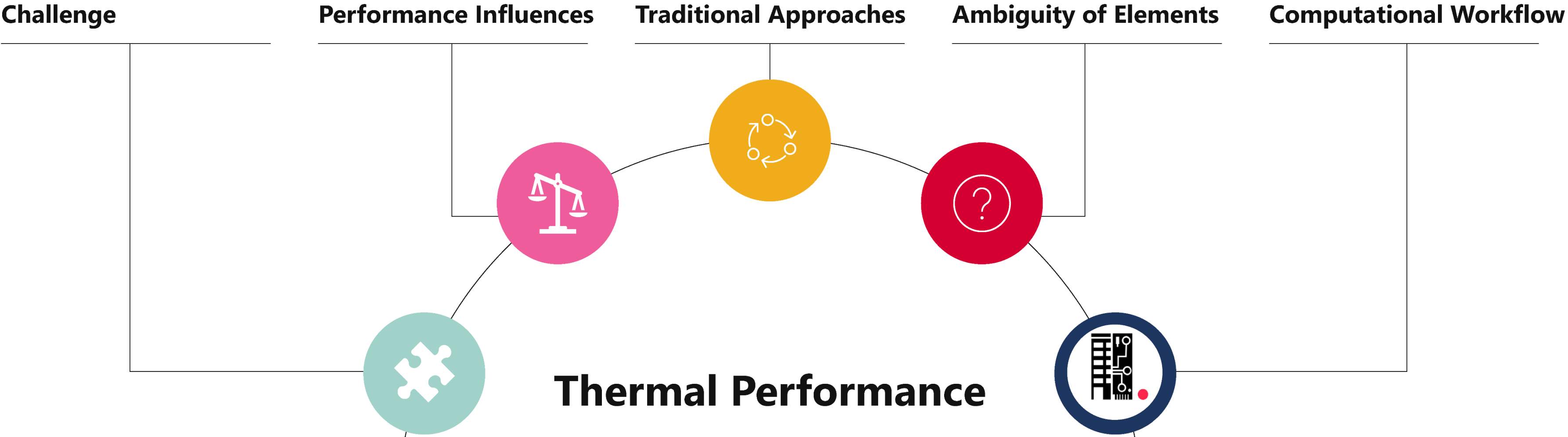
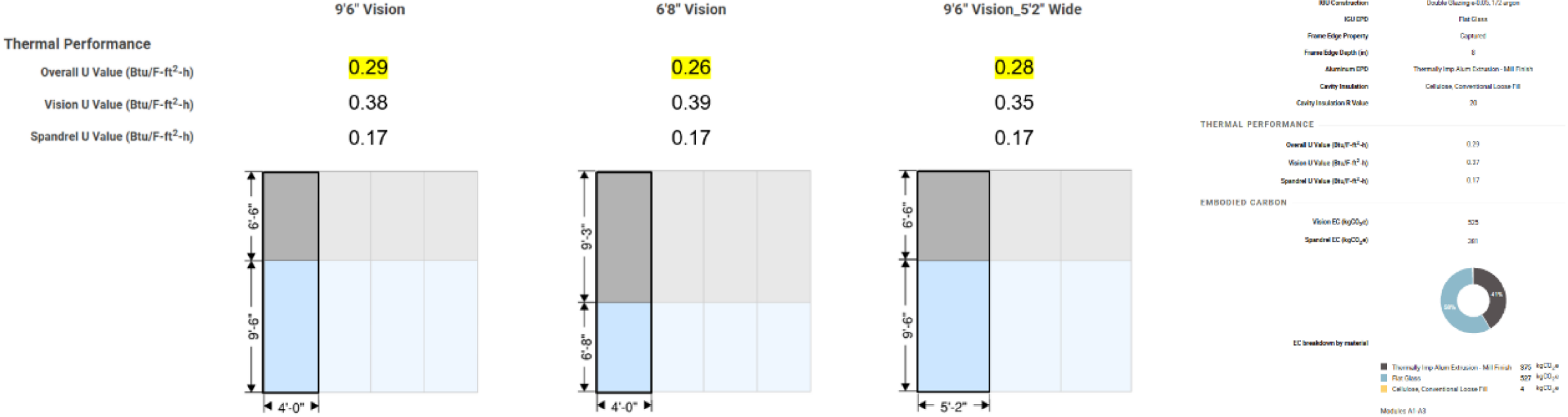


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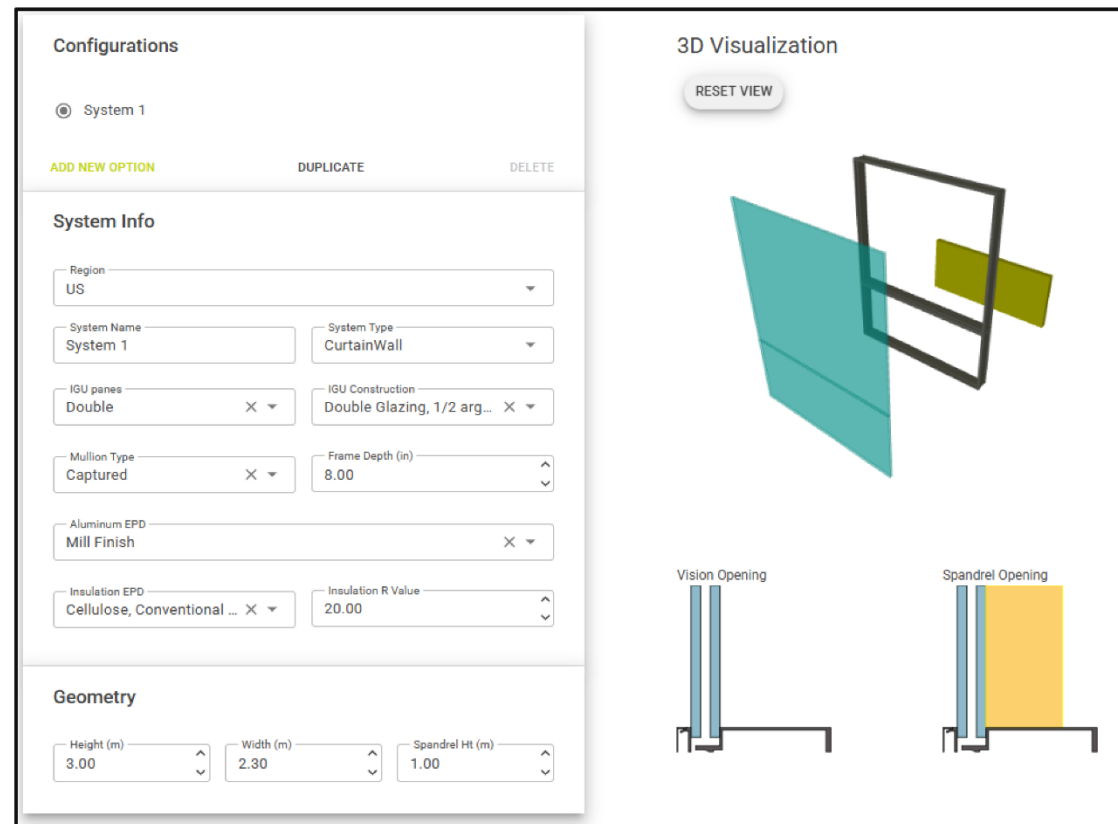
Rapid Validation of Thermal Performance

The Challenge



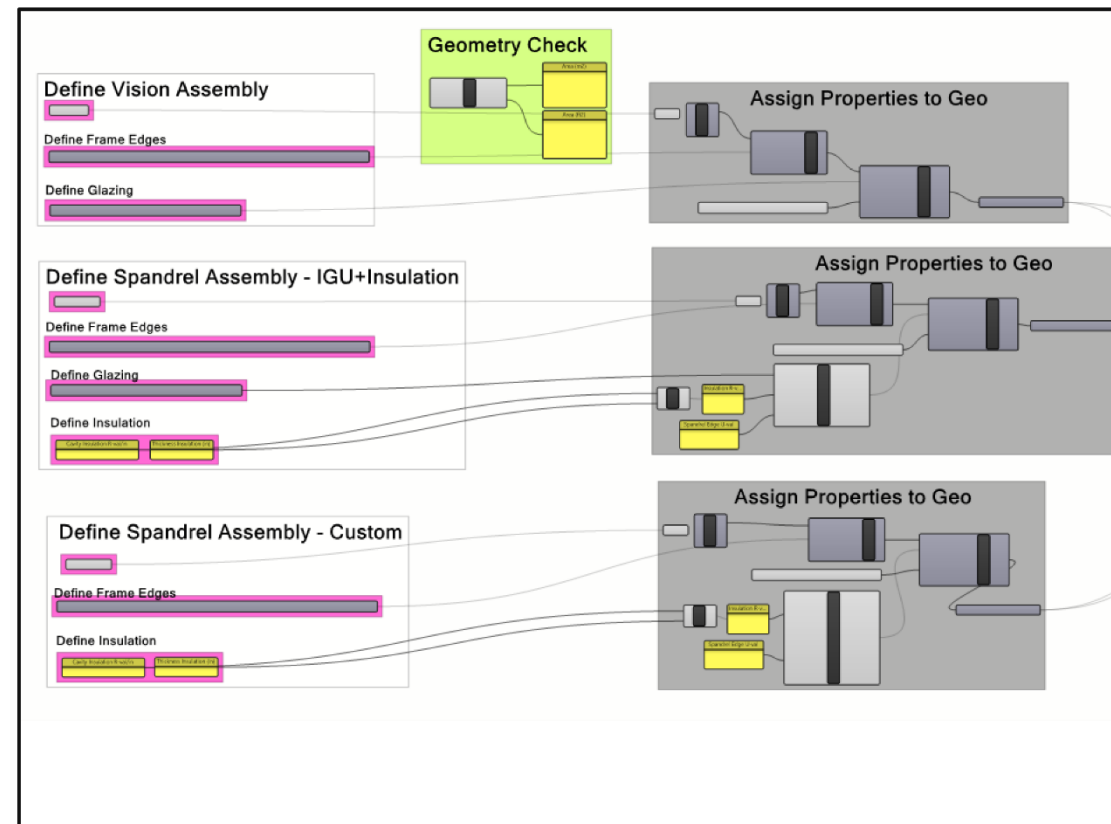
BHoM Thermal Calculation Tools

Façade Configurator Web App



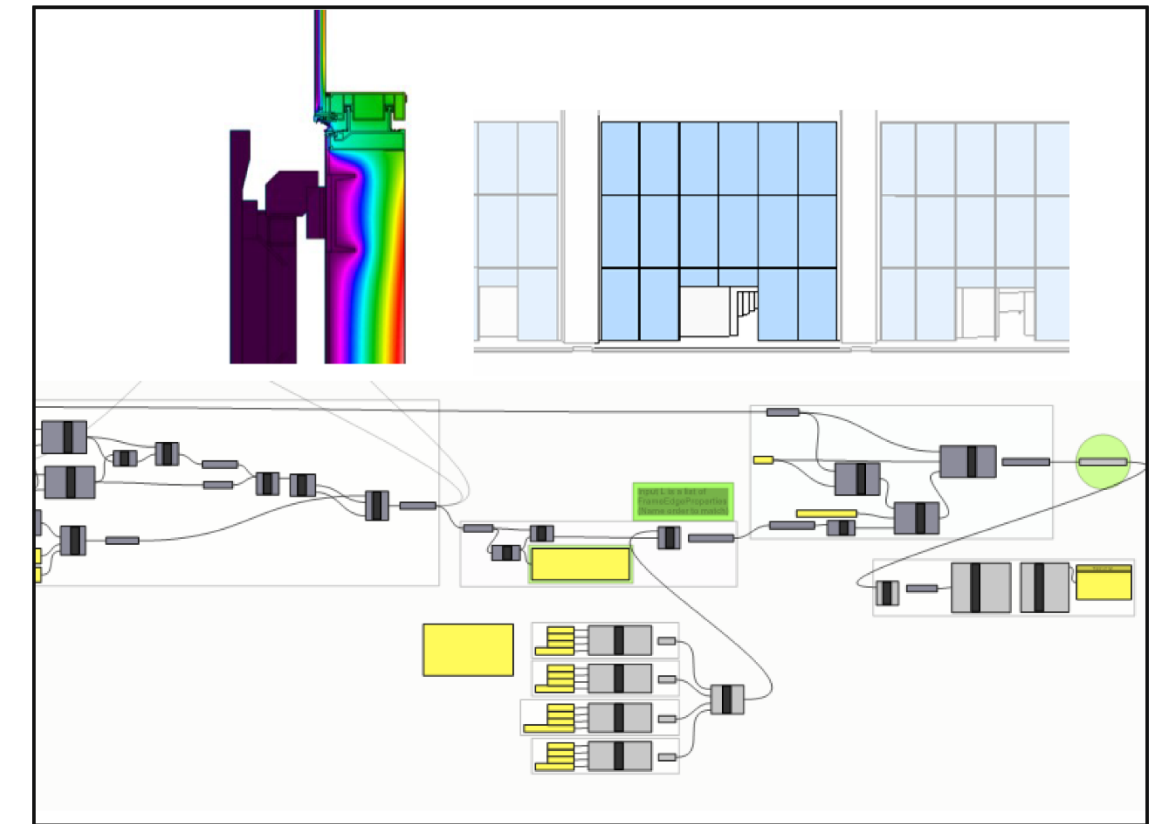
- **No Code Tool**
- Simple Geometry Only
- Best For: Quick Checks

Façade Early Design Toolkit



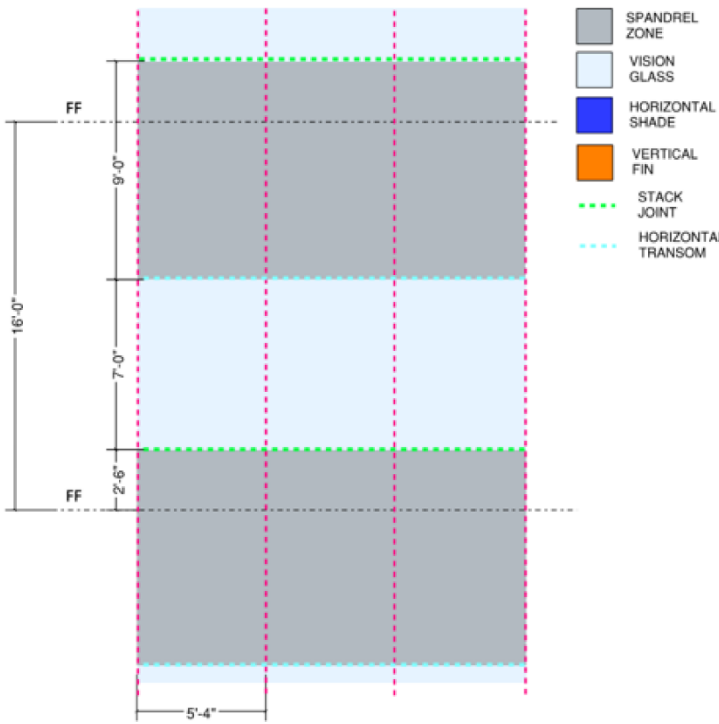
- **Easy to Use Script**
- Variety of Geometry
- Best For: SD Level Calcs

Full Thermal Workflow



- Detailed Workflow
- Complex Geometry
- Best For: DD/CA Level Calcs

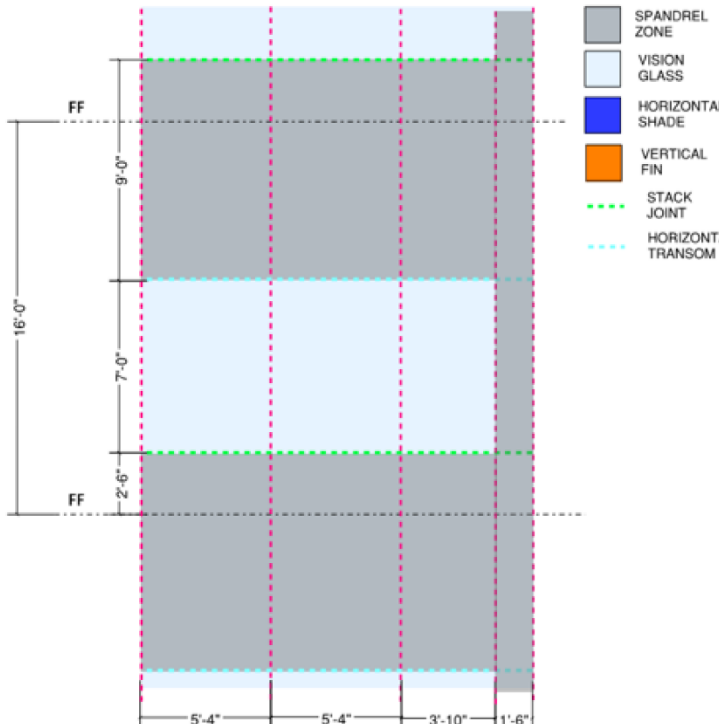
Contradicting Common Assumptions



Higher WWR

U-values (Btu/F-h-ft2)			
	BOD ¹	Enhanced Spandrel ²	TGU + Enhanced Spandrel
Vision	0.29	0.29	0.22
Opaque	0.18	0.12	0.12
Overall ³	0.23	0.19	0.16

Better Preforming Spandrel



Lower WWR

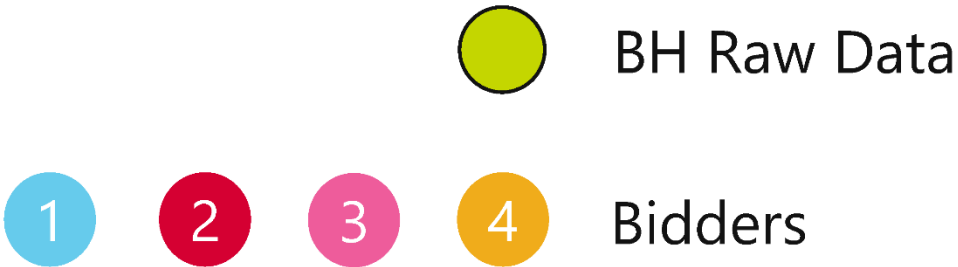
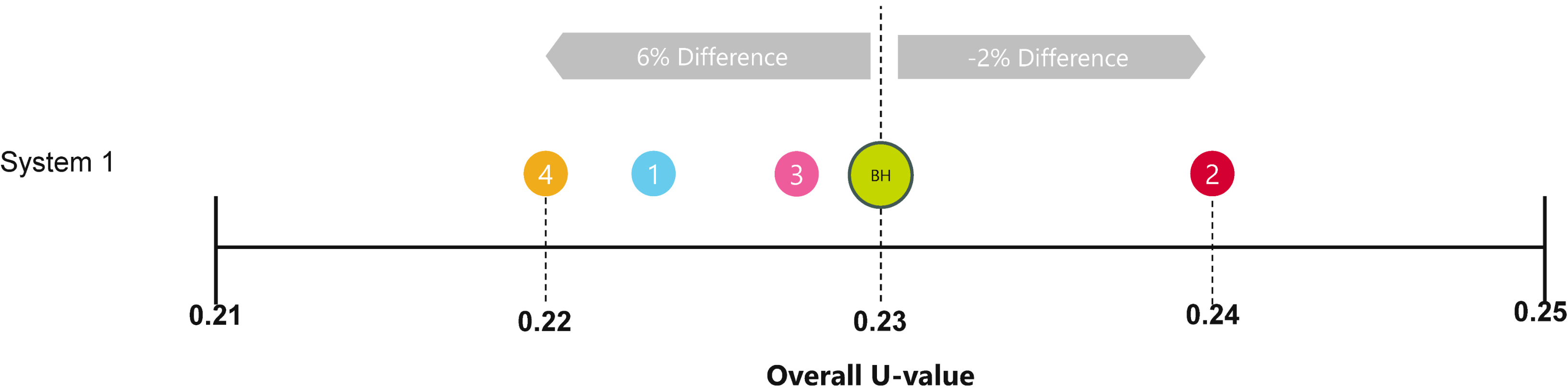
U-values (Btu/F-h-ft2)			
	BOD ¹	Enhanced Spandrel ²	TGU + Enhanced Spandrel
Vision	0.29	0.29	0.23
Opaque	0.23	0.14	0.14
Overall ³	0.25	0.20	0.18

Worse Preforming Spandrel

¹ BOD: Double IGU with Roomside Low-e, 6" insulation
² Enhanced Spandrel: 6" insulation + 1" mullion wrap
³ Estimates do not account for unique conditions (inner and outer corners, reveals, transitions)

Validation and Accuracy

Bidder Data Spread



When Computational Analysis Adds Value

