

Highly Insulating Windows: Resolving the Weakest Link

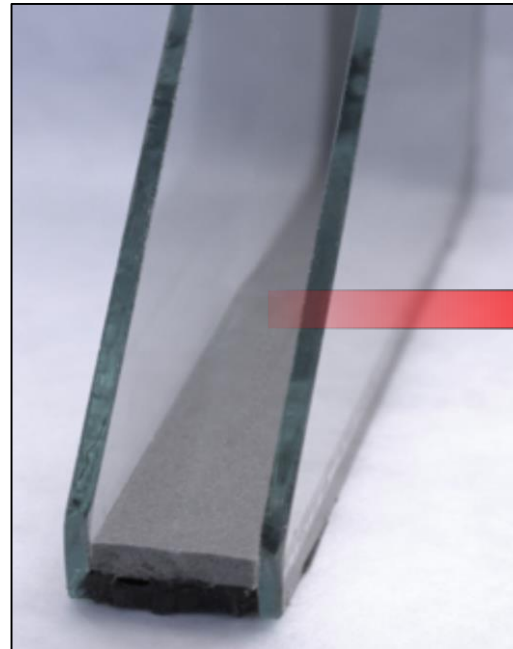
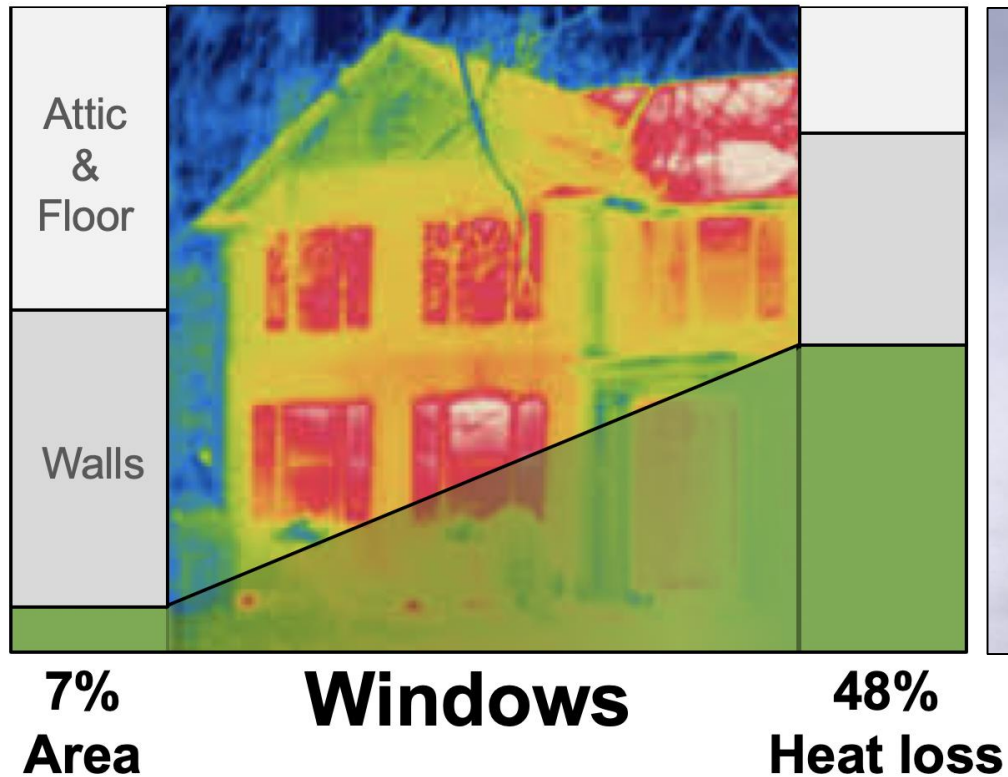
Robert Hart, Lawrence Berkeley National Laboratory



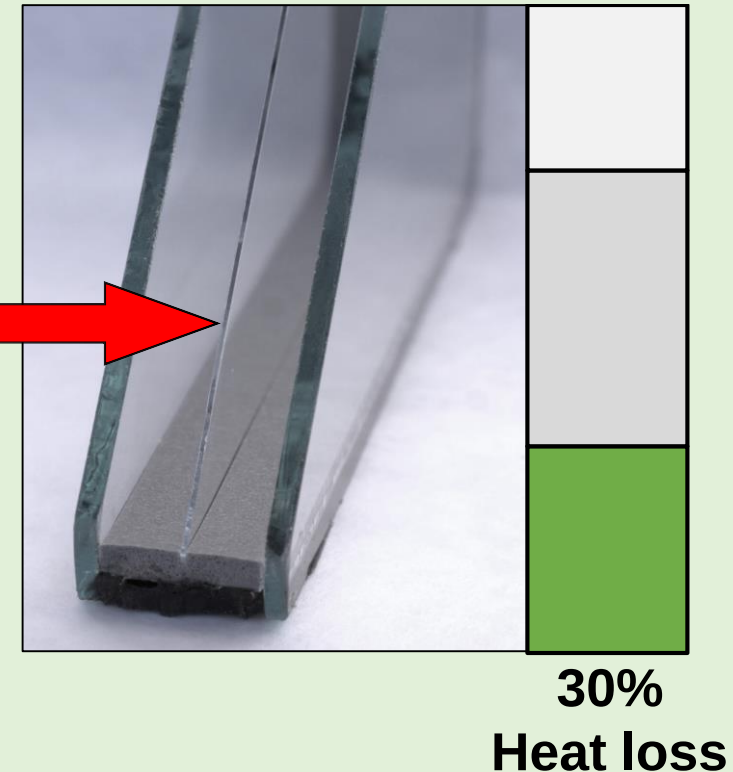
HIGHLY INSULATING WINDOWS

Resolving the weakest link

Typical double-pane



Thin-triple



foresee™

Xin Jin, National Renewable Energy Laboratory



foresee™



5%–18% energy
saved in the lab

~1 Quad annual
national savings

Bridge occupants
and buildings

Unique tool for
GEB research



Unique Building Identifier (UBID)

Mark Borkum, Pacific Northwest National Laboratory



Unique Building Identifier (UBID)

Nora Wang and Mark Borkum



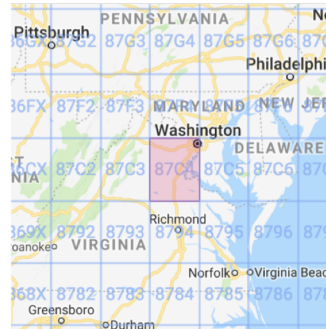
d=0: 00000000+000-0-0-0-0

87C4VW7W+JWH-12-15-9-9

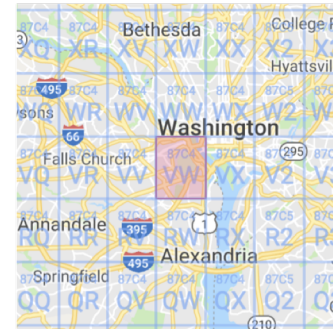
Location Extent



d=2: 87000000+000-0-0-0-0



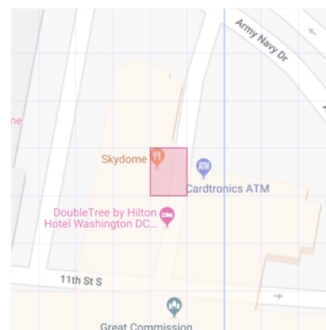
d=4: 87C40000+000-0-0-0-0



d=6: 87C4VW00+000-0-0-0-0



d=8: 87C4VW7W+000-0-0-0-0



d=10: 87C4VW7W+JW0-0-0-0-0



d=11: 87C4VW7W+JWH-0-0-0-0-0

Fig 1: Open Location Code (OLC) grid cells at increasing grid resolution level (denoted “d”).

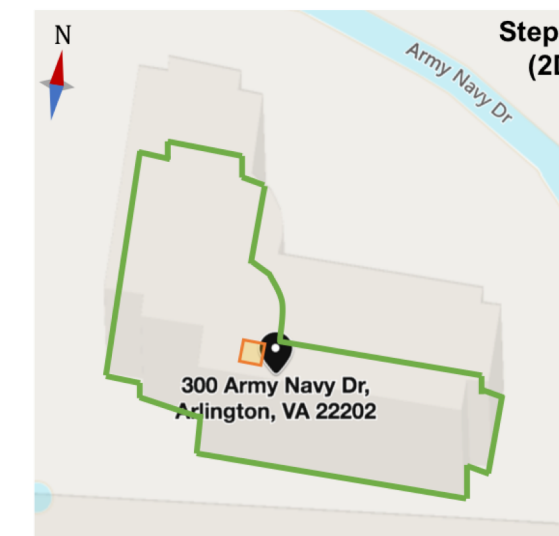


Fig 2: Application of methodology for UBID encoding operation to building footprint for 2019 BTO Peer Review venue.

Beyond Efficiency

Heather Goetsch, AAAS ST&P Fellow (BTO)



Beyond Efficiency



Heather Goetsch
AAAS ST&P Fellow, Building Technologies Office

Reference: Azari, R. and N. Abbasabadi. “Embodied energy of buildings: A review of data, methods, challenges, and research trends” *Energy & Buildings* 168 (2018) 225-235.