




# Building the Future of Building Products

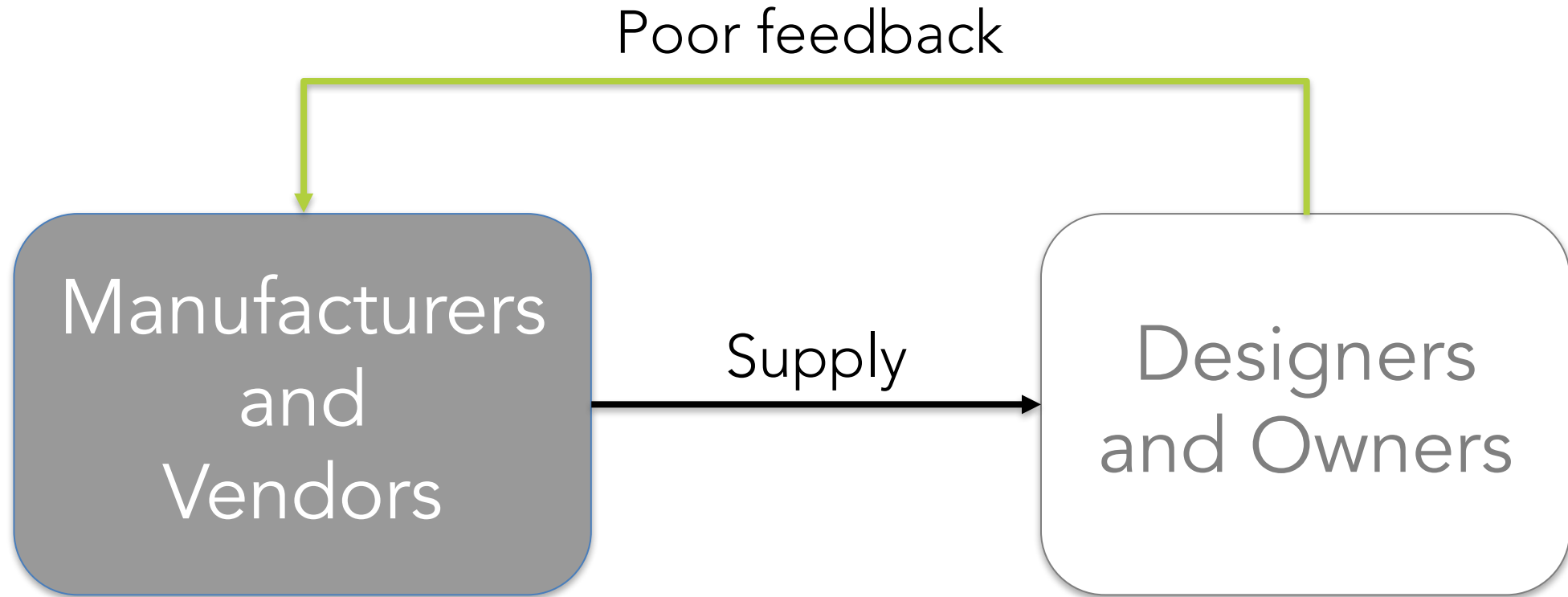
Sean Brennan  
Research at Urban Green Council

“The best way to  
predict the future  
**is to invent it.**”

Alan Kay

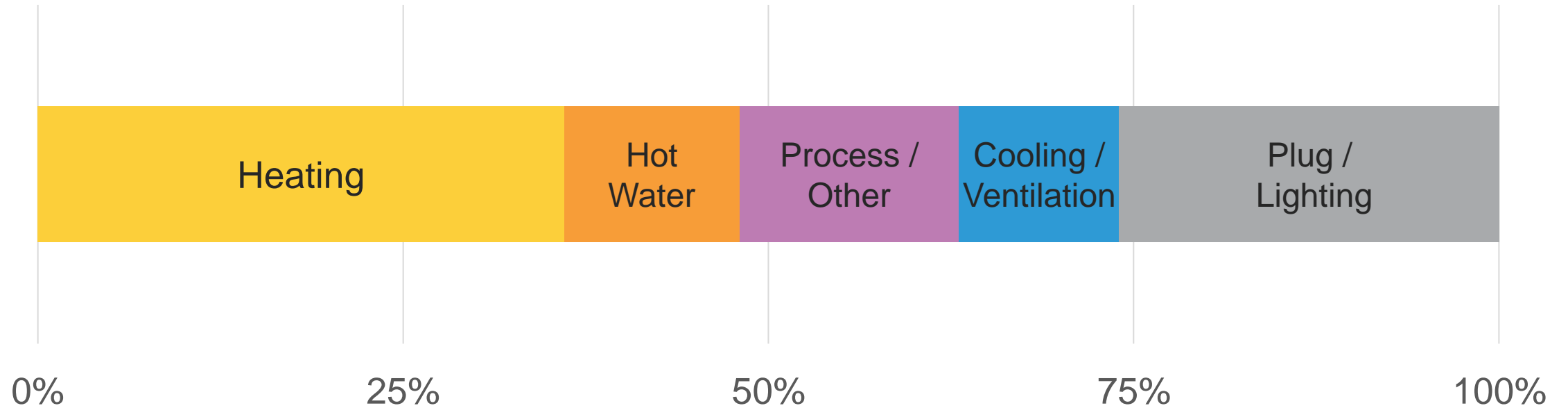
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1. Why are we looking at products?
  2. How did we find them?
  3. What can we do?

# WHAT'S MISSING?



# URBAN GREEN | WHERE TO LOOK

## NYC Large Building End Use Breakdown



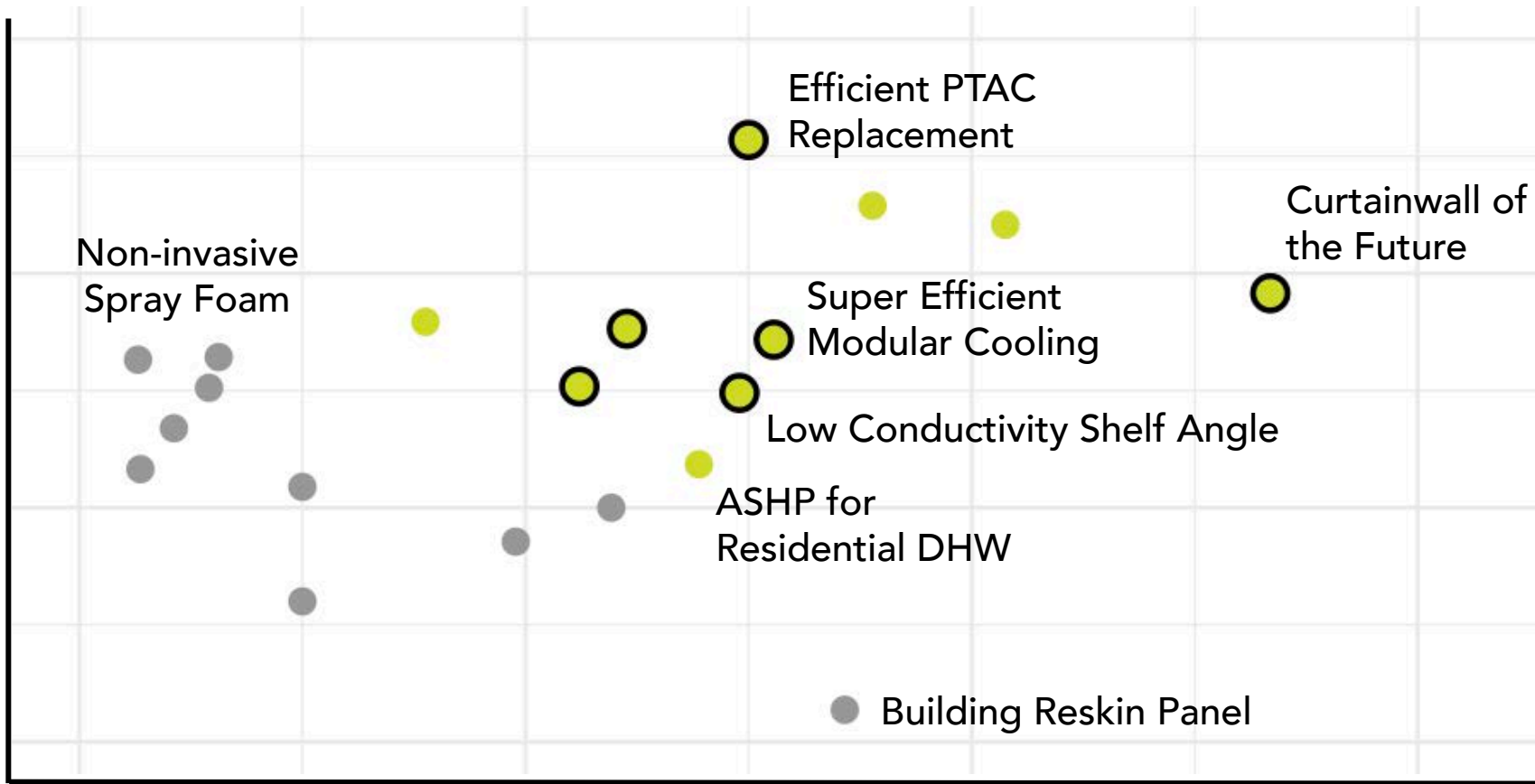
Proportion of annual source energy city-wide [LL87]



1. Ask design crowd for needs
2. Focus on what is feasible
3. Analyze the impact

# KEY PRODUCTS - SURVEY

Feasible



Final

Focus Group

Survey

Functional

## Envelope

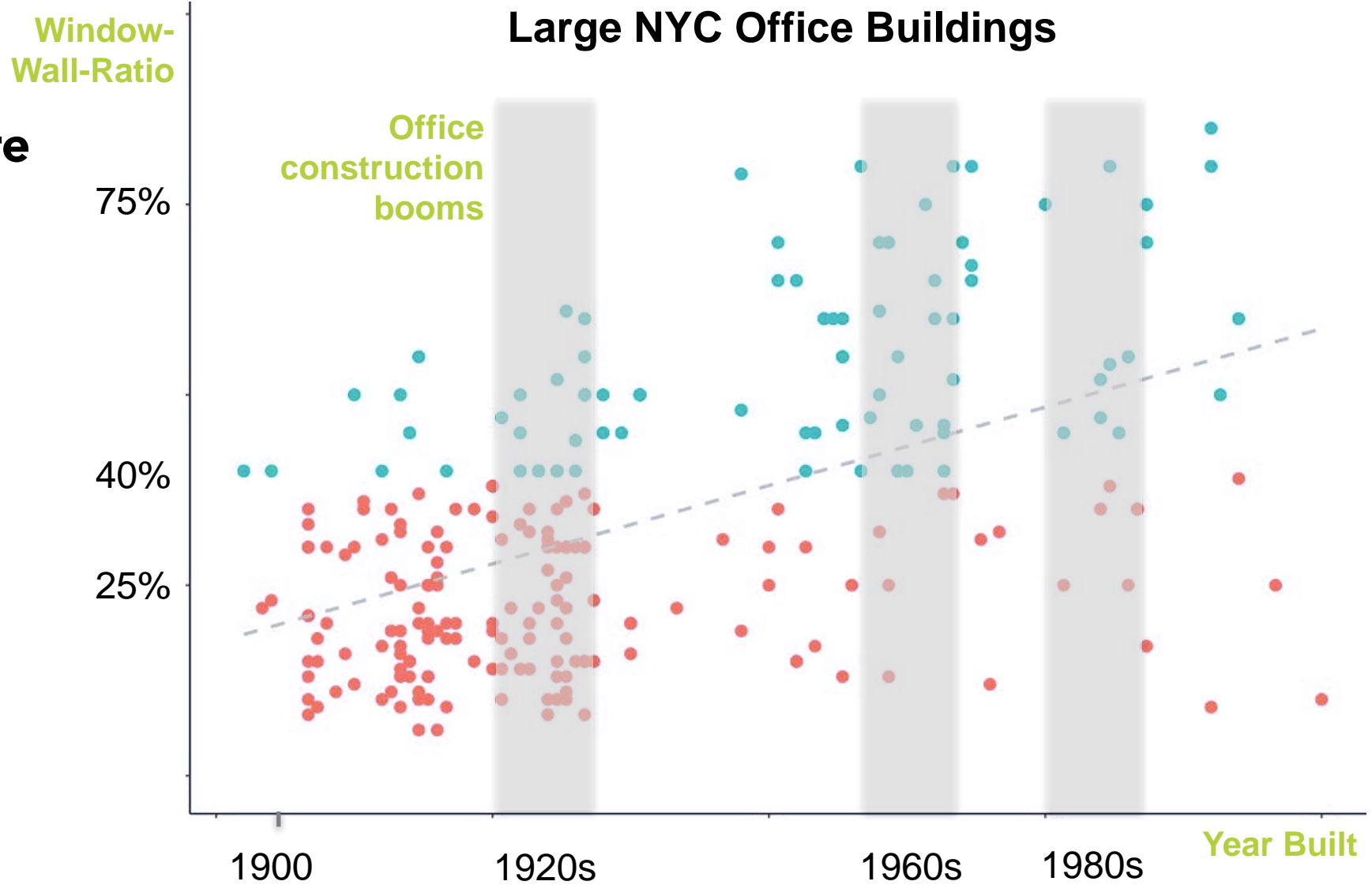
1. Curtain Wall of the Future
2. Low Conductivity Shelf Angle for Masonry

## HVAC

1. Replacement for PTACs
2. Super-efficient Modular Cooling Unit

## Curtainwall of the Future

- Demand growing - 95% designers needed
- Triple pane - 30 to 50% cost premium
- Cut site energy **13%**
  - UF 0.24 curtainwall





## Split heat pump to replace PTACs

- Over 120,000 units in NYC big buildings
  - 5% of multifamily, 13% of hotels
- Useful openings – let's put efficient equipment in them with ventilation
- Lowered site energy by **4%**,
  - Source energy by 14%



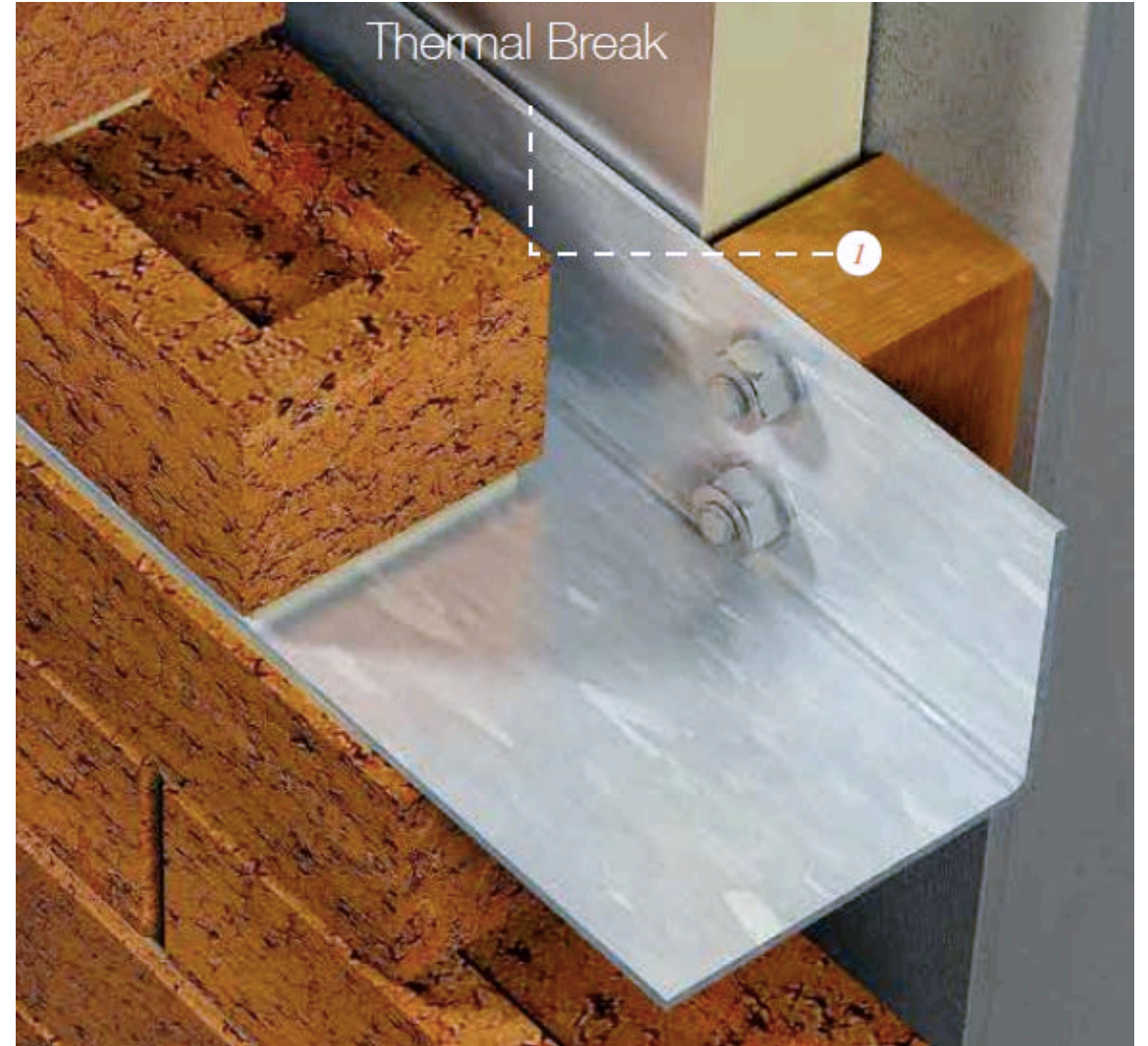
## High-efficiency modular cooling

- Almost 30% of large NYC offices served by DX AHUs
- Low-efficiency compressors often fail, break fix replace
- Cut site energy by **3.5%**
  - Cooling cut in half



## Low Conductivity Shelf Angle

- Thermal breaks
  - Wider insulation - more torsion
  - Bracket alignment difficult
- Interchangeable, strong and low conductivity best solution
- Reduces site energy **3%**




## BARRIERS

- Existing buildings:
  - Majority of demand comes from unplanned replacement
- New Construction
  - Energy efficiency gets cut first

## SOLUTIONS

- Educate owners on new products and lifecycles
- Offset costs with incentives and bulk orders

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1. Designer to manufacturer feedback loop is messy
  2. HVAC products need training
  3. Envelope products need demonstrations
  4. Manufacturers need guaranteed markets