

ENVELOPE



Envelope Concept

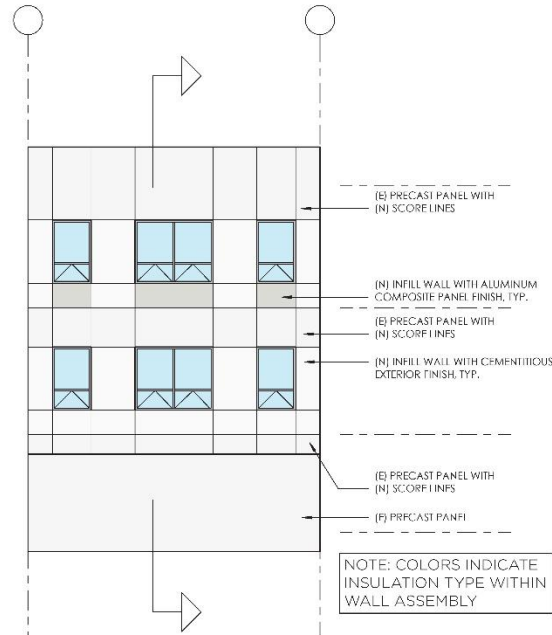


Envelope Concept



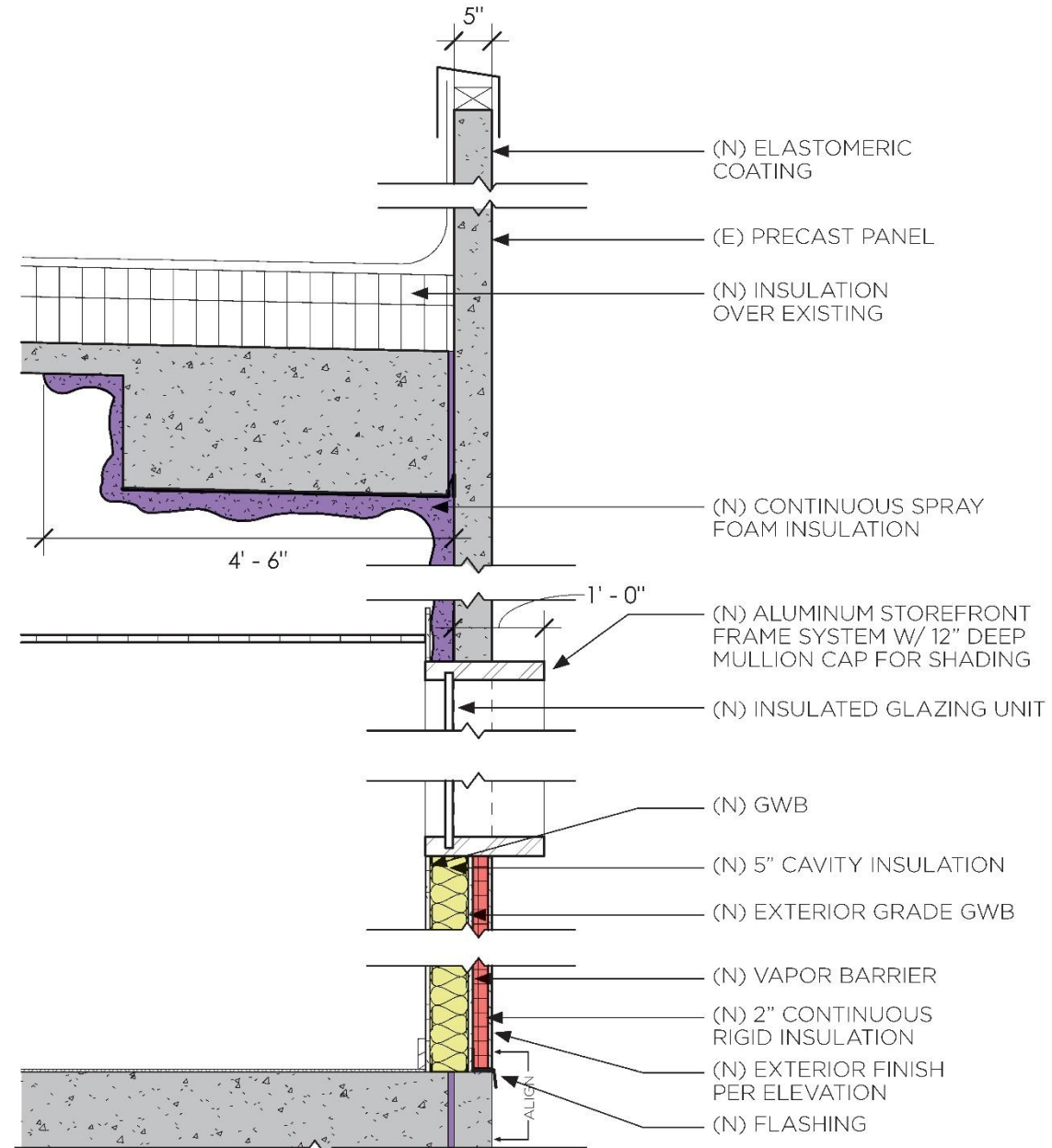
Option A | Minimal Intervention

NO CUTTING OF PRECAST



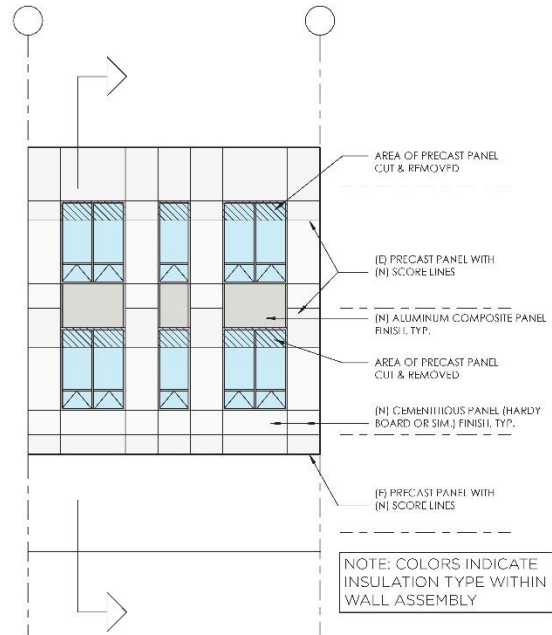
LEGEND

- CONTINUOUS XPS INSULATION: R-10 (R-5/IN)
- BROKEN BATT INSULATION: R-13 (5")
- CONTINUOUS SPRAY FOAM INSULATION: R-19 (5")



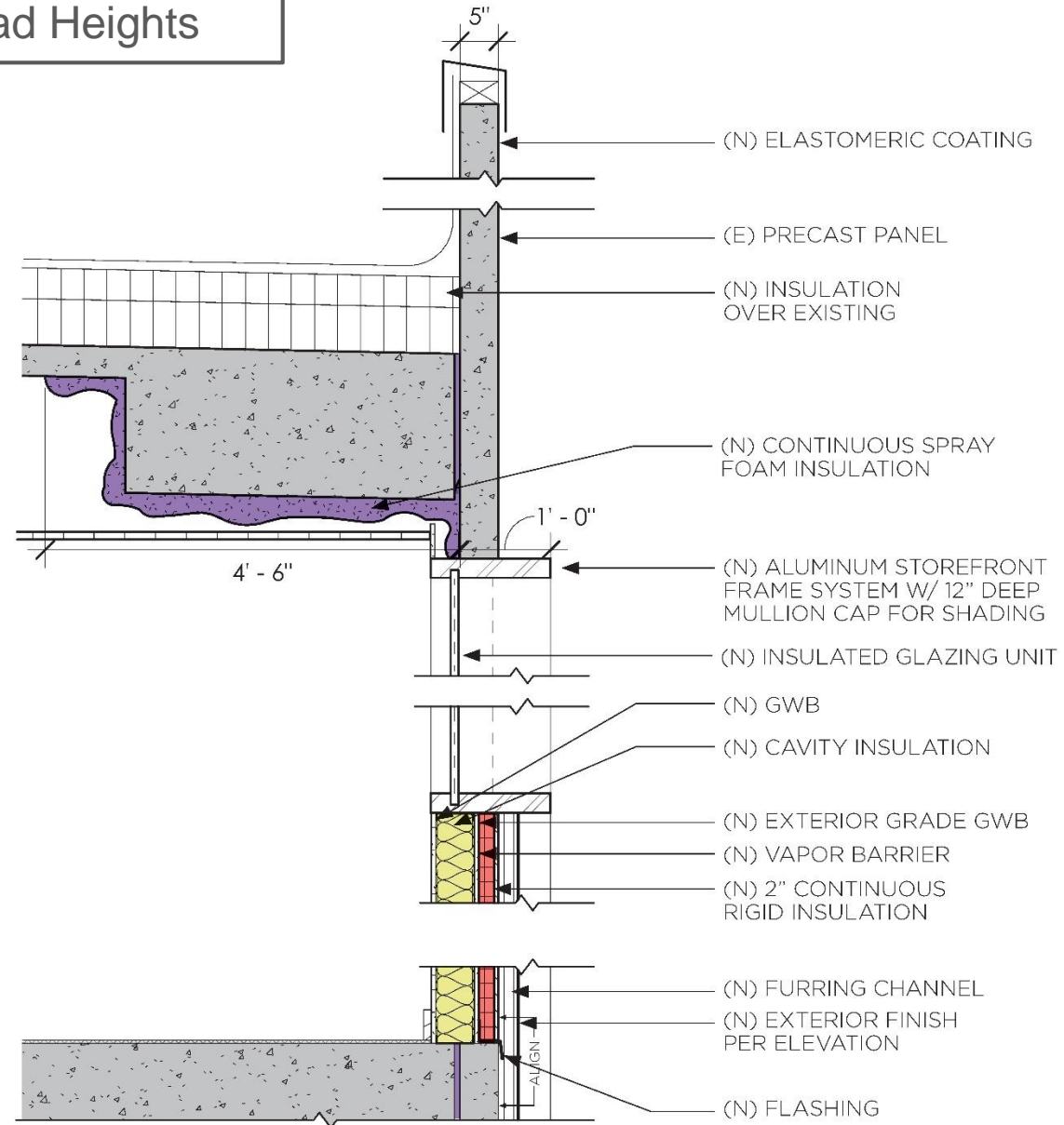
Option B | Minimal Intervention, Raised Head Heights

CUT PRECAST, RAISE HEAD HEIGHTS



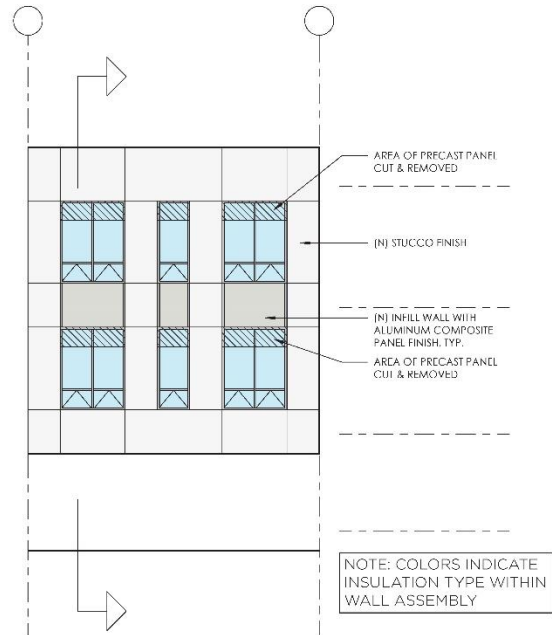
LEGEND

- CONTINUOUS XPS INSULATION: R-10 (R-5/IN)
- BROKEN BATT INSULATION: R-13 (5")
- CONTINUOUS SPRAY FOAM INSULATION: R-19 (5")



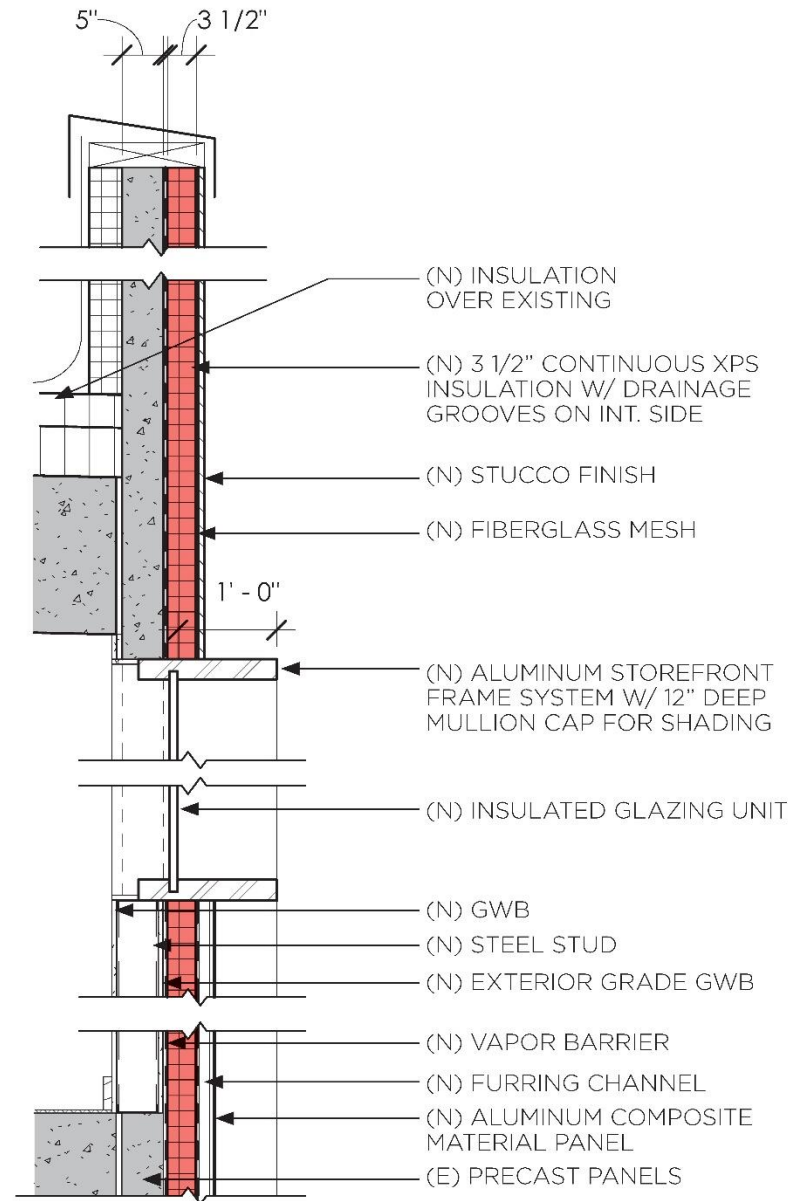
Option C | Insulate from Exterior | EIFS

STUCCO OVER (E) PRECAST



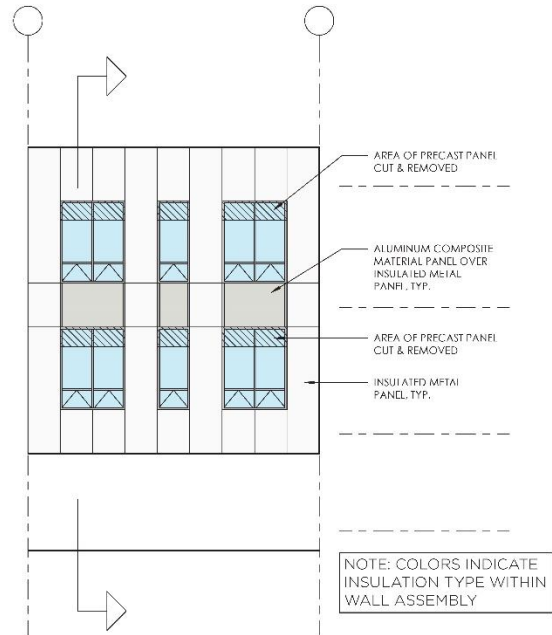
LEGEND

■ CONTINUOUS XPS INSULATION: R-17 (R-5/IN)



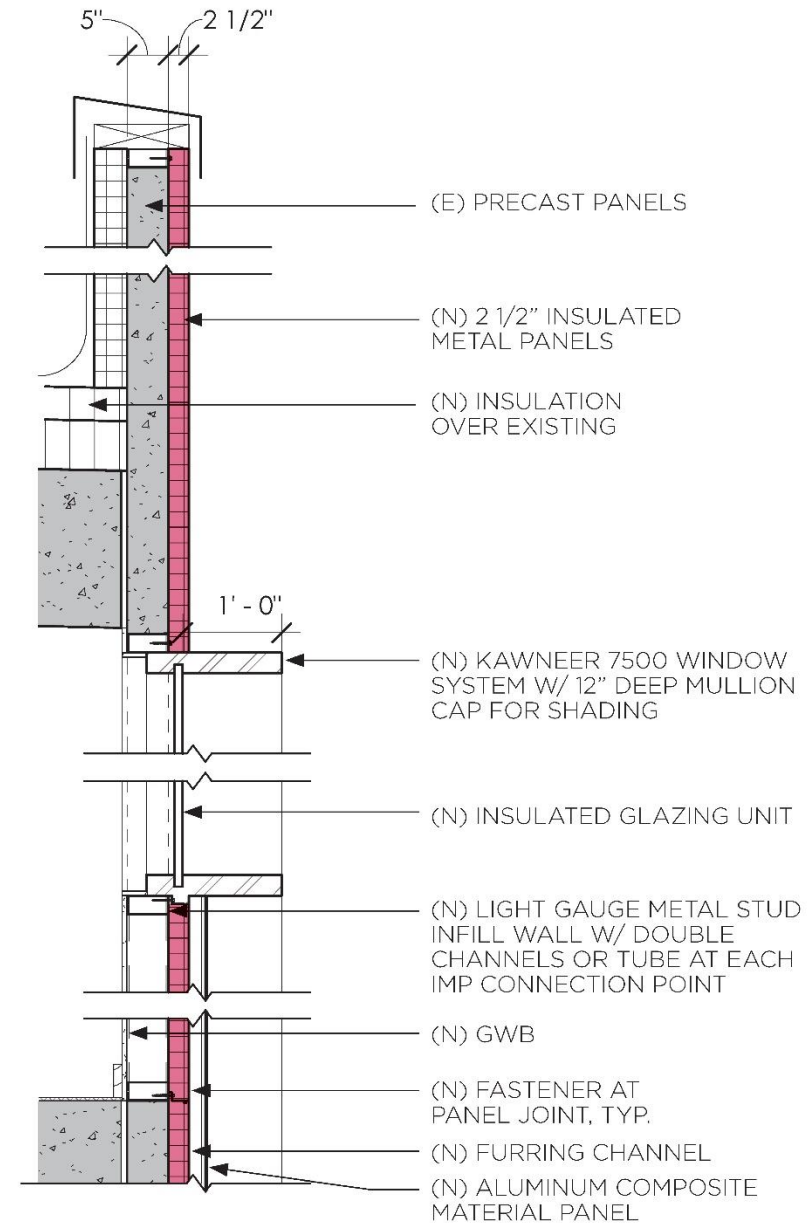
Option D | Insulate from Exterior, Insulated Metal Panel

INSULATED METAL PANEL OVER (E) PRECAST



LEGEND

 CONTINUOUS INSULATED METAL PANEL



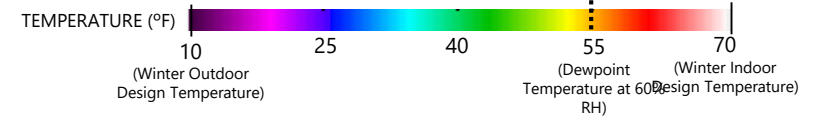
ASHRAE HQ **Envelope Updates**

4.17.2019

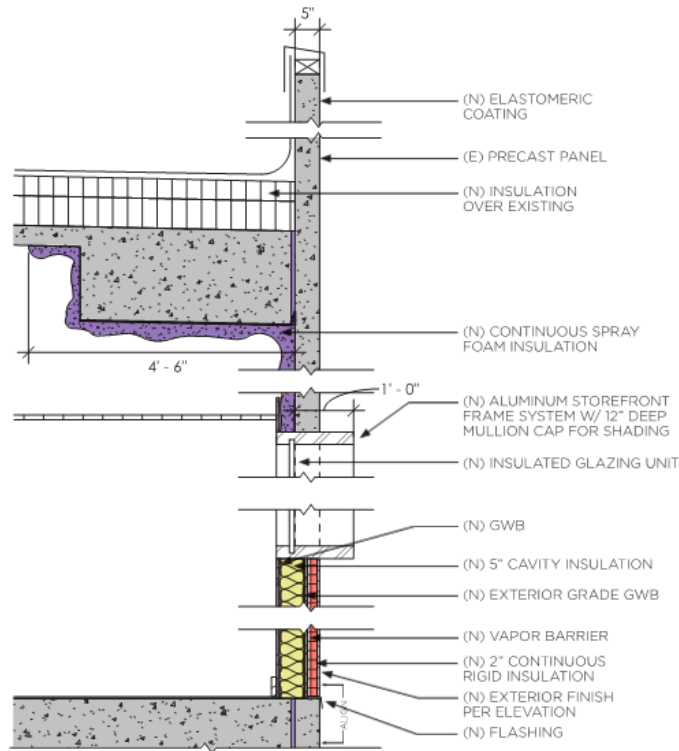
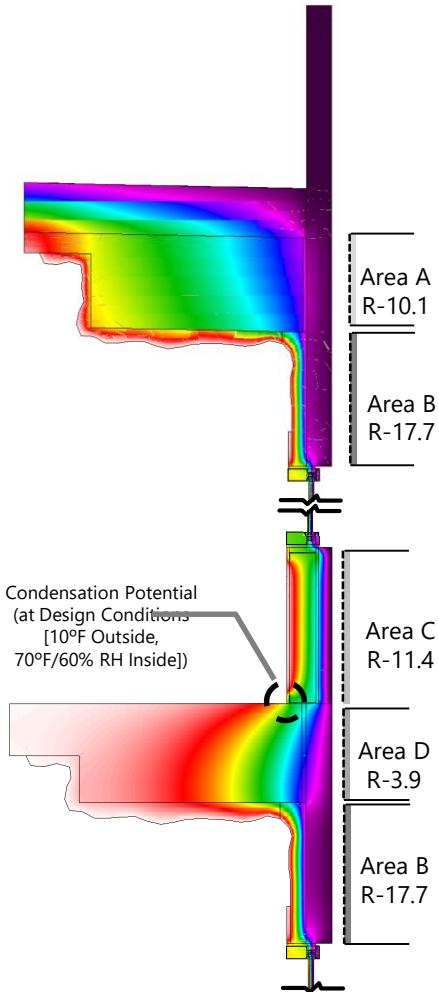


THERM Analysis: Wall Assembly R-value

Impacts of Insulation: Option A vs. Option C/D

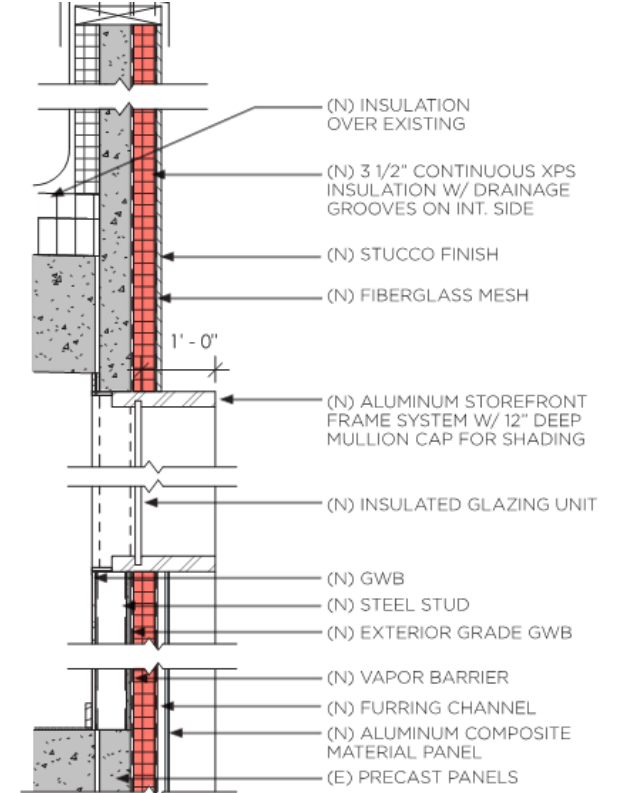
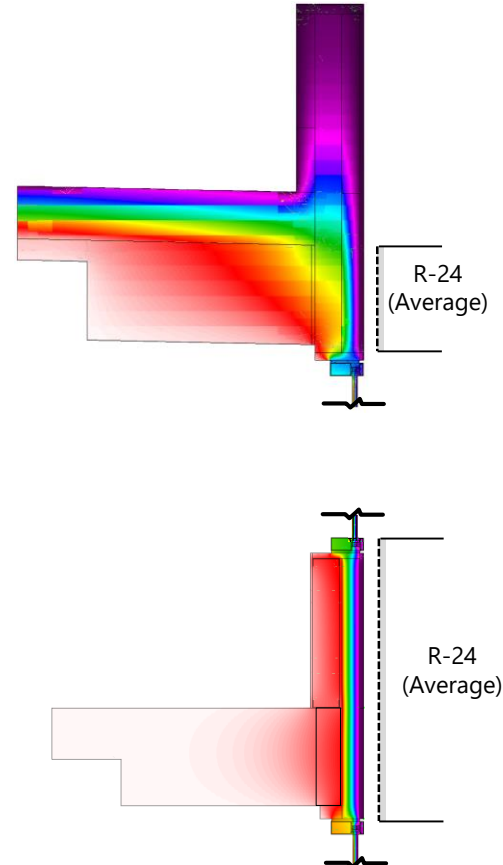


Option A: Insulate From Interior, Maintain Precast



Average R-Value: **R-10**

Option C & D: Continuous Exterior Insulation Over Precast



Average R-Value: **R-24**

Envelope Targets and EUI Impacts

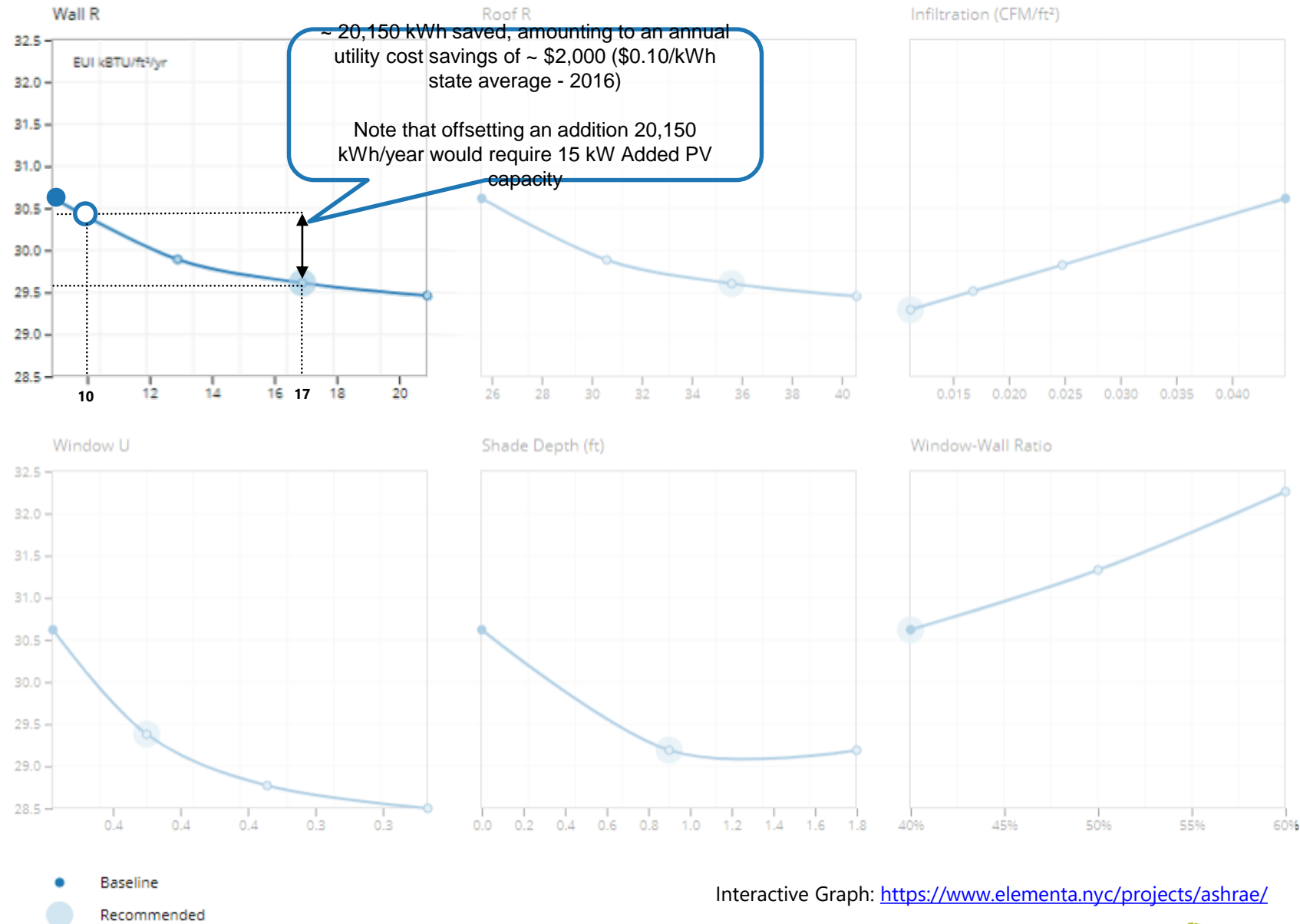
Insulation EUI Impacts

A wall assembly of **R-17** has been targeted by the design based on an analysis of diminishing Energy Use Intensity (EUI) savings shown at right.

Envelope **Option A**, can achieve an estimated assembly R-value of **R-10**

Envelope **Options C & D**, can achieve an estimated assembly R-value of **R-17 or better** with continuous exterior insulation as drawn. This amounts to an EUI savings for the building of approximately 1 kBtu/sf/yr when compared to envelope Option A (refer to sensitivity graph at right).

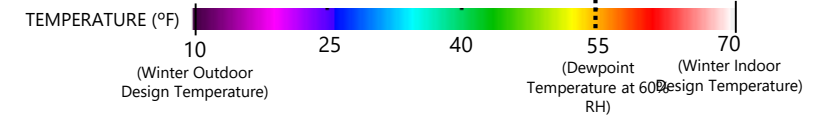
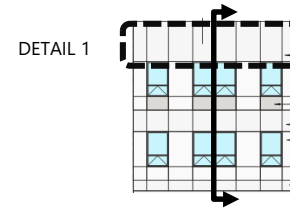
ASHRAE NZE AEDG recommends R-15.6 for Climate Zone 3!



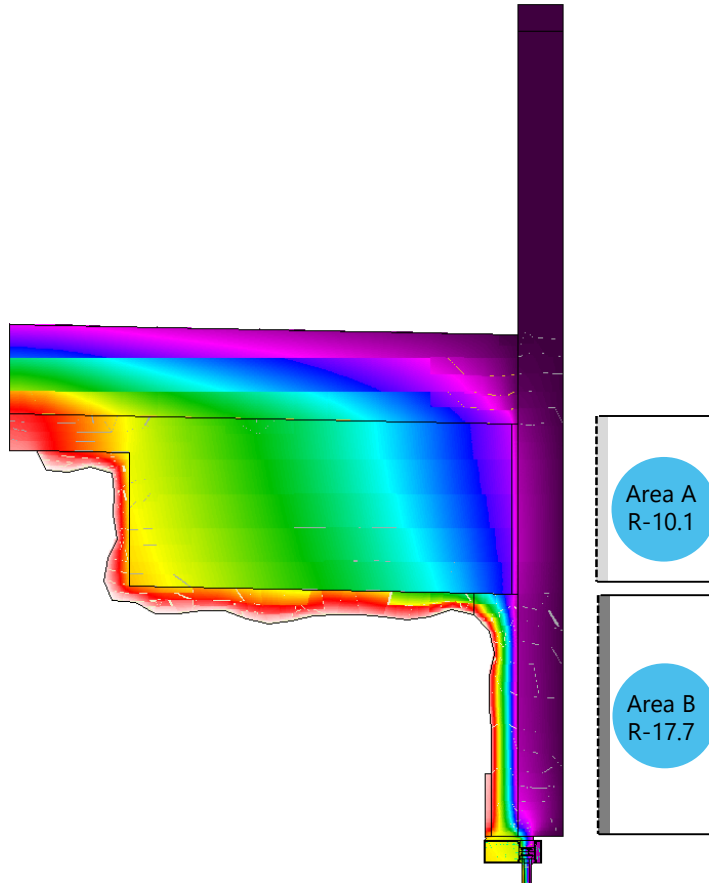
Interactive Graph: <https://www.elementa.nyc/projects/ashrae/>

THERM Analysis: Option A, **Detail 1**

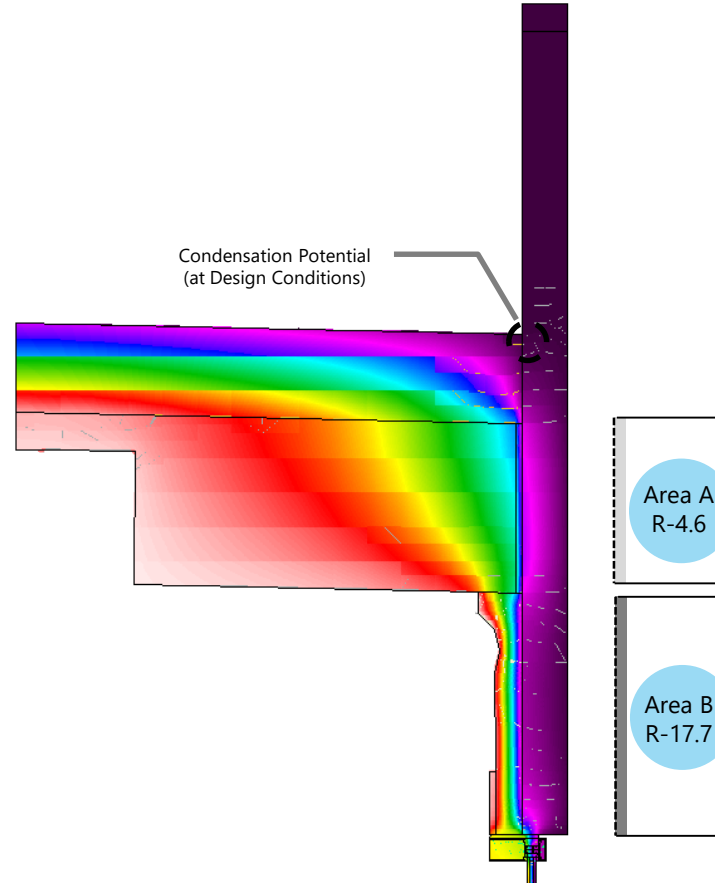
Analysis Details



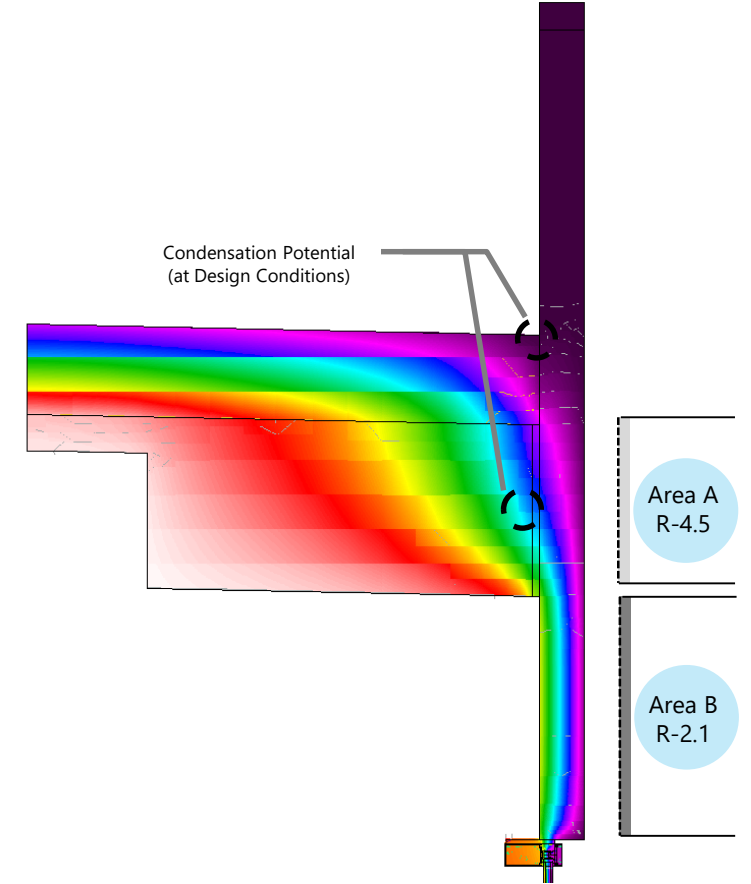
Option 1: Proposed Insulated Slab



Option 2: Partially Insulated Slab Underside

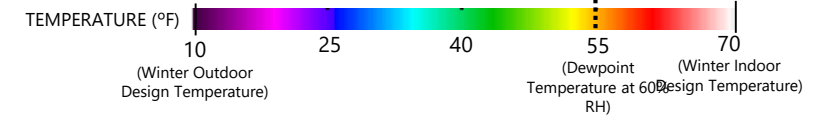
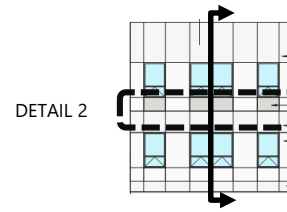


Baseline (Uninsulated Existing Condition)

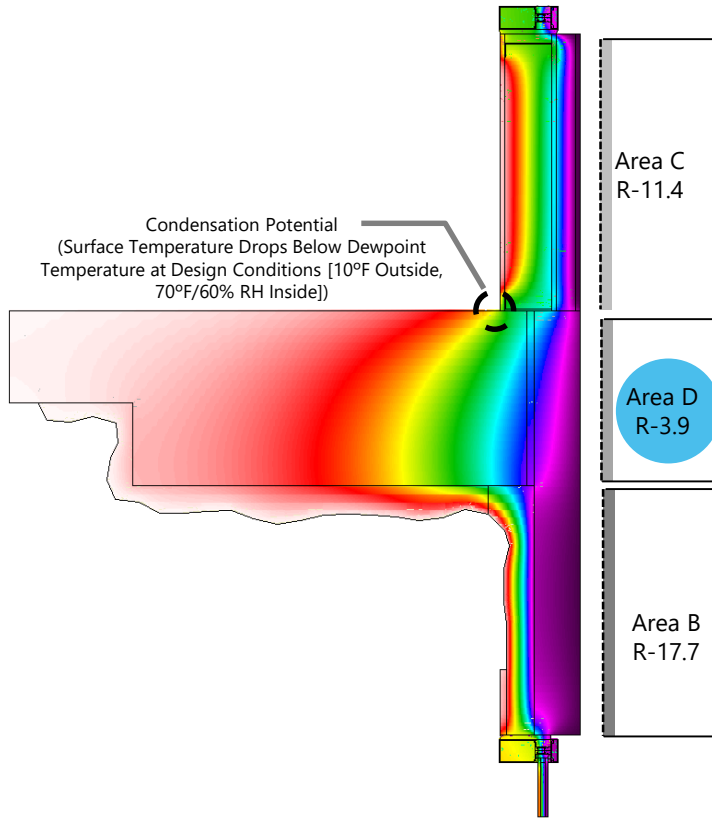


THERM Analysis: Option A, **Detail 2**

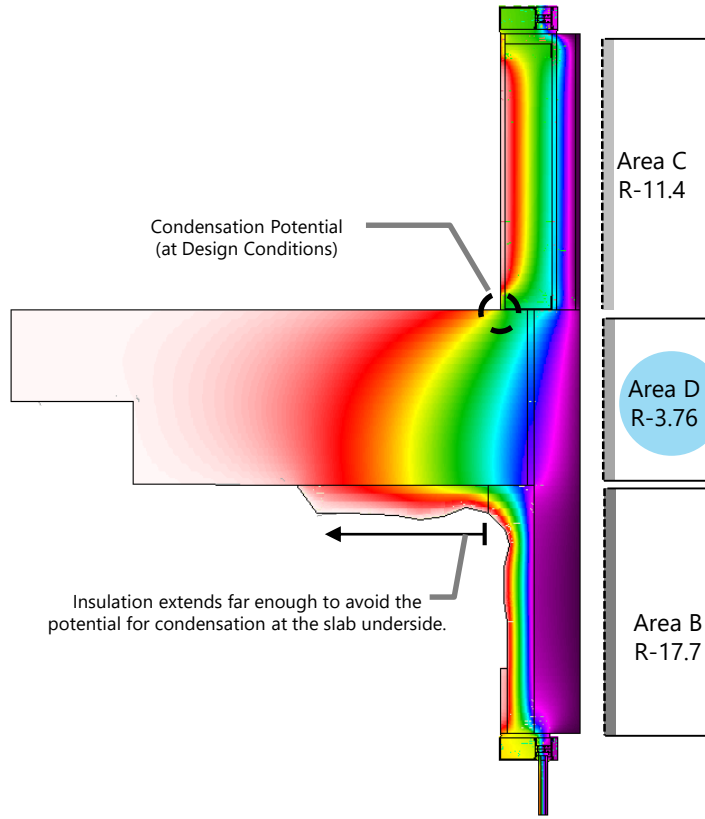
Analysis Details



Option 1: Proposed Insulated Slab



Option 2: Partially Insulated Slab Underside



Option 3: Uninsulated Slab Underside

