

PASSIVE HOUSE: Building Inherent Value



FINCH CAMBRIDGE

- Owner/Developer: Homeowners Rehab
- 98 affordable family units
- Opening April 1 2020

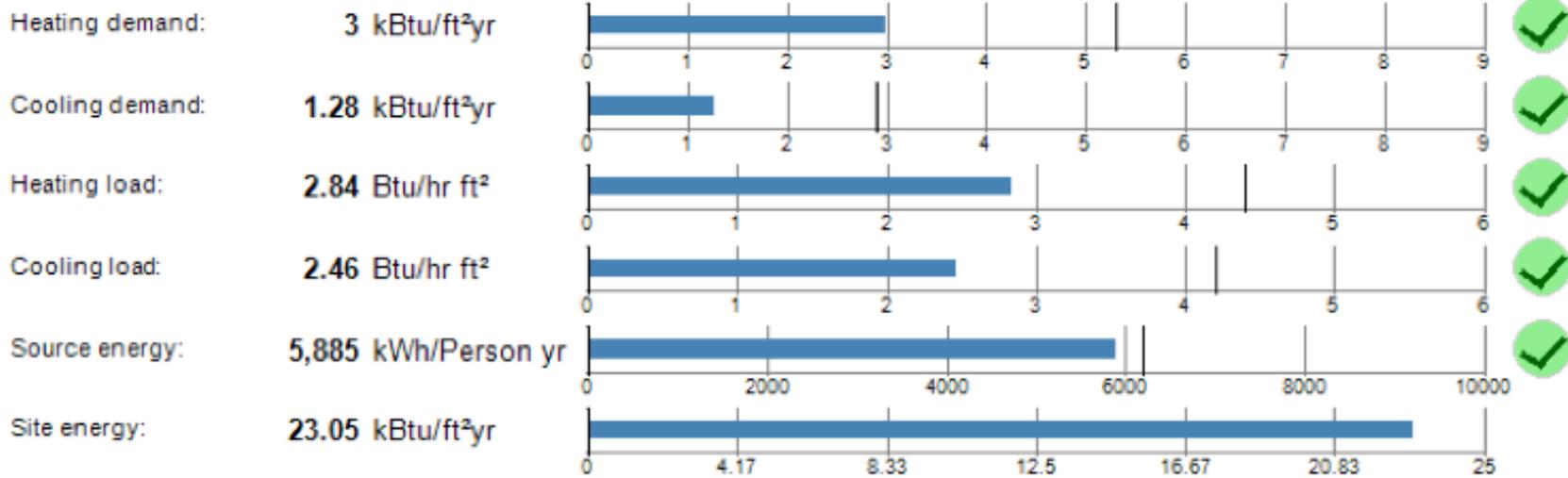


Surge in Interest in Passive House in MA



- **Fall 2018: Mass CEC Passive House Design Incentives**
 - 8 Passive House Affordable Projects (543 units)
- **Summer 2019: MassSave Passive House Incentives:**
 - 540 units (28 Buildings) Have Applied Many communities requiring or heavily encouraging Passive House as part of special permit process
- **Municipal Policy Shifts:**
 - Toward Net Zero and/or All-Electric

Passive House Performance



	National Median EUI for Multifamily Buildings* (kBtu/ft²/yr)	Finch Cambridge EUI (kBtu/ft²/yr)
Site EUI:	59.6	23.1
Source EUI:	118.1	56.2
EUI: (kBtu/ft²/yr)		

* Comparison EUI results came from the National Median EUI (Energy Use Intensity) through the Energy Star Portfolio Manager:
<https://portfoliomanager.energystar.gov/pdf/reference/US%20National%20Median%20Table.pdf>

What Does Successful Execution Require?

Builder as Partner:

Attention to the CRAFT of building

Communication/Collaboration

- Prominently post Airtight Building signs for duration of project
- Assign one person responsibility for maintaining the air barrier
- Discuss the air barrier with all subs prior to commencement of their work

CAUTION
THIS BUILDING HAS A
CONTINUOUS AIR BARRIER

CUIDADO
ESTE EDIFICIO TIENE UNA
BARRERA HERMÉTICA

PRECAUCIÓN
ESTE EDIFICIO TEM
BARREIRA DE AR CONTINUA

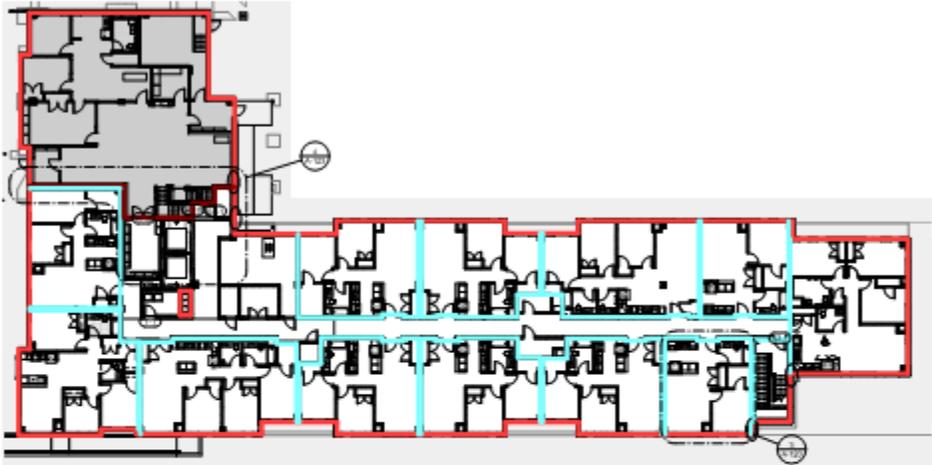


NO HOLES!

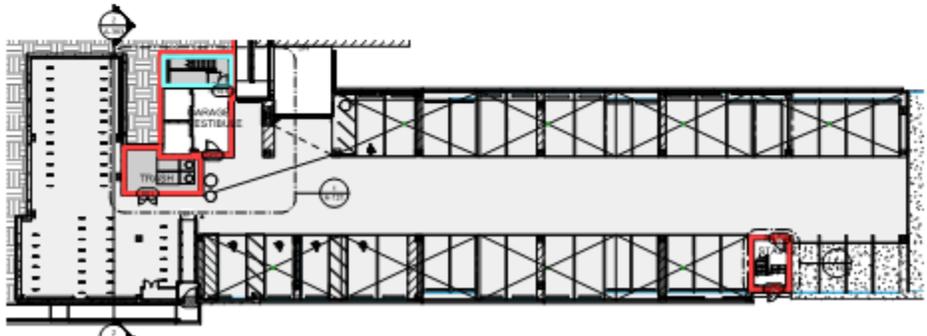
¡NO HACER HUECOS!

NÃO FAÇA FUROS!

Graphic Communication



2 GROUND/ FIRST FLOOR COMPARTMENTALIZATION
1/16" = 1'-0"

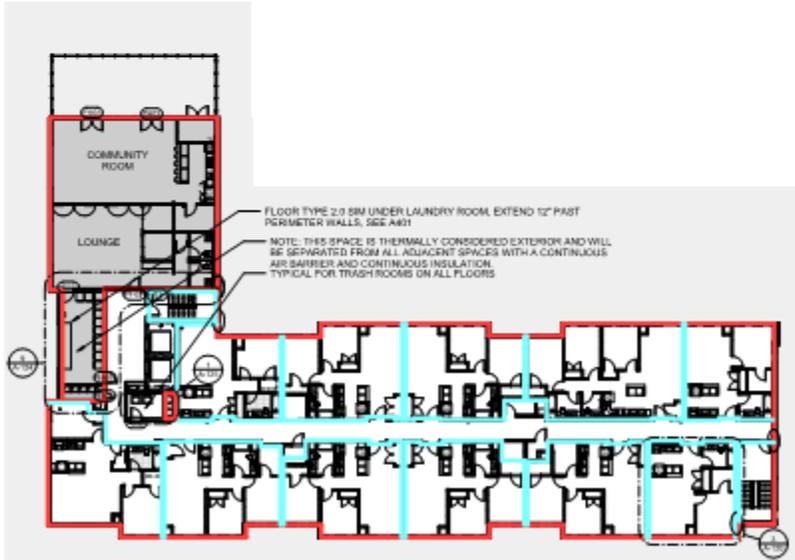


1 Garage Level Compartmentalization
1/16" = 1'-0"



3 TYPICAL UNIT COMPARTMENTALIZATION
3/16" = 1'-0"

TYPICAL AT EVERY UNIT ON ALL FLOORS

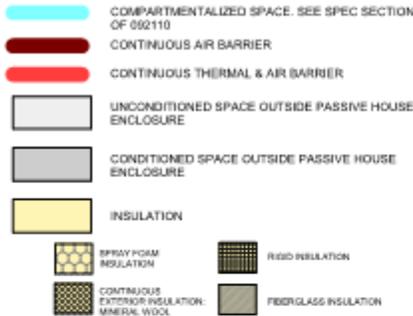


4 Level 6 Compartmentalization
1/16" = 1'-0"

Graphic Communication

COMPARTMENTALIZATION LEGEND

NOTE: DRAWINGS A-119 THRU A-133 & A-303 SHOULD BE PRINTED IN COLOR

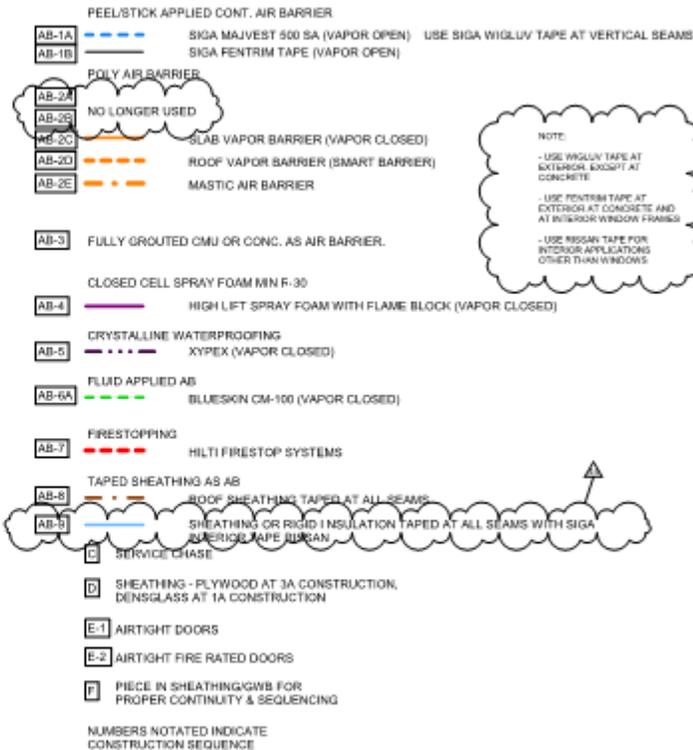


COMPARTMENTALIZATION NOTES

- PROVIDE SEALANT BETWEEN GWB AND TOP/SILL PLATES AS WELL AS BETWEEN STUD FRAMING AND GWB AT OPENINGS (DOORS, WINDOWS, HVAC UNITS, ETC.). SEAL PERIMETER OF ELECTRICAL/TELE-DATA BOXES (OUTLETS, LIGHTS, SWITCHES, ETC.) IN WALLS AND CEILINGS. ELECTRICAL BOXES ARE TO BE AIR SEALED. BOXES AND SEALING OF BOX PENETRATIONS SHALL BE AS SPECIFIED.
- AT DEMISING WALLS (UNIT-TO-UNIT, UNIT-TO-CORRIDOR, AND UNIT-TO-COMMON AREA), PROVIDE INTERIOR AIR BARRIER (AIRSEALING). PROVIDE SEALANT AS SPECIFIED BETWEEN SILL PLATE/TP PLATE AND GWB, TYPICAL.
- SEE 2/A-706 FOR DETAIL OF DEMISING WALL AT EXTERIOR WALL.
- SEE DETAIL 2 & 3 ON A806 FOR DETAIL AT FLOOR.

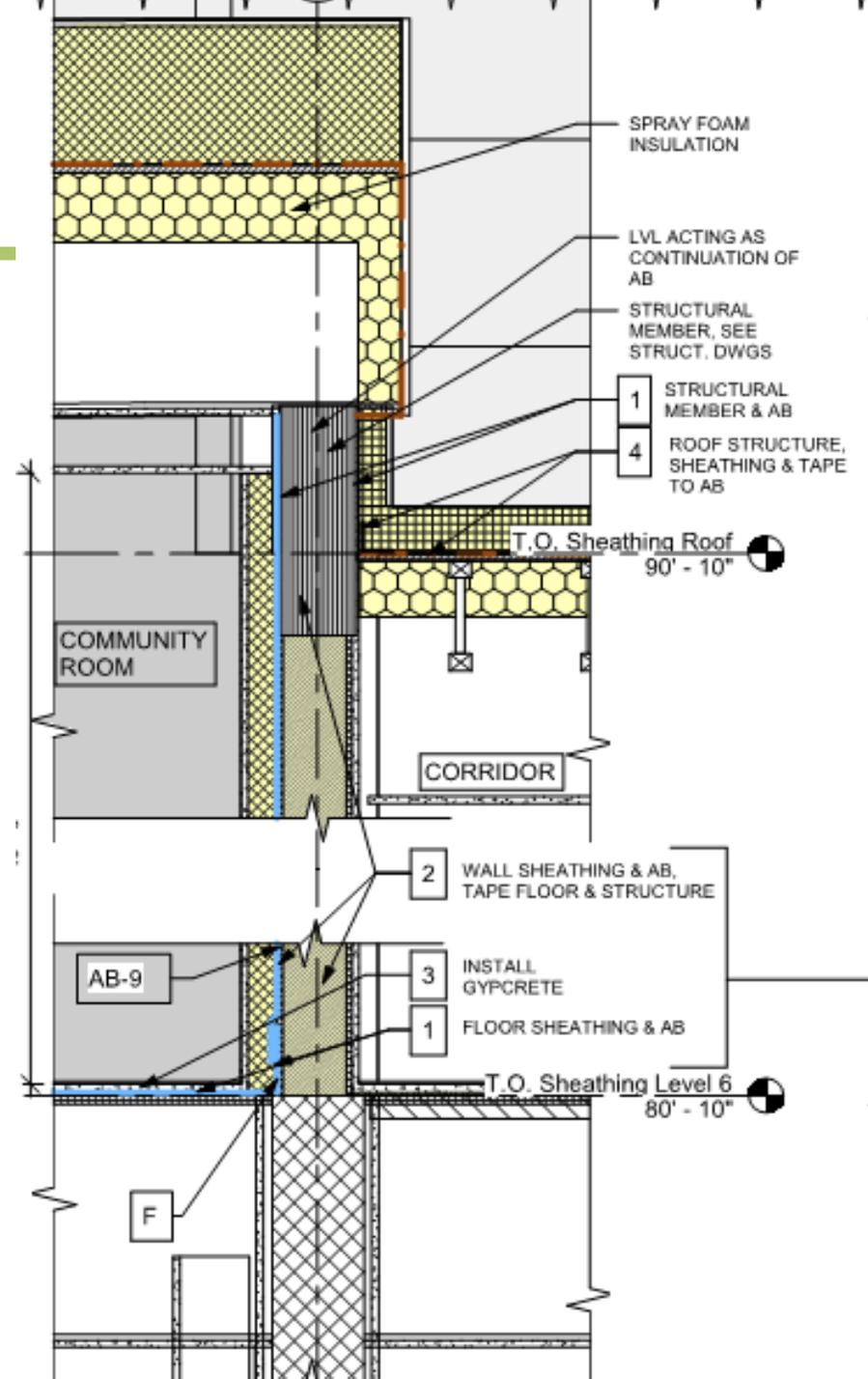
AIRTIGHTNESS DETAILS LEGEND

NOTE: DRAWINGS A-119 THRU A-133 & A-303 SHOULD BE PRINTED IN COLOR



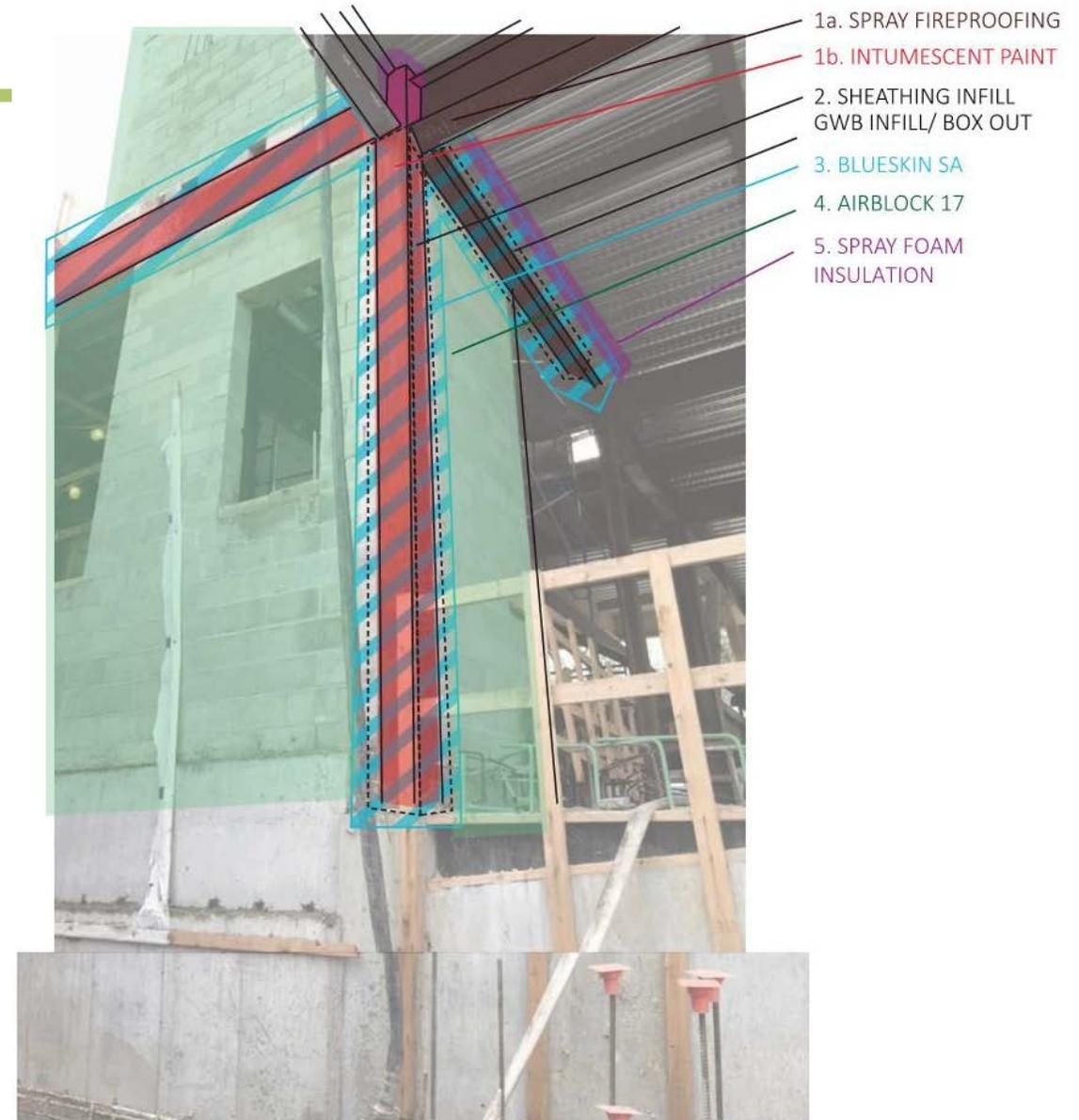
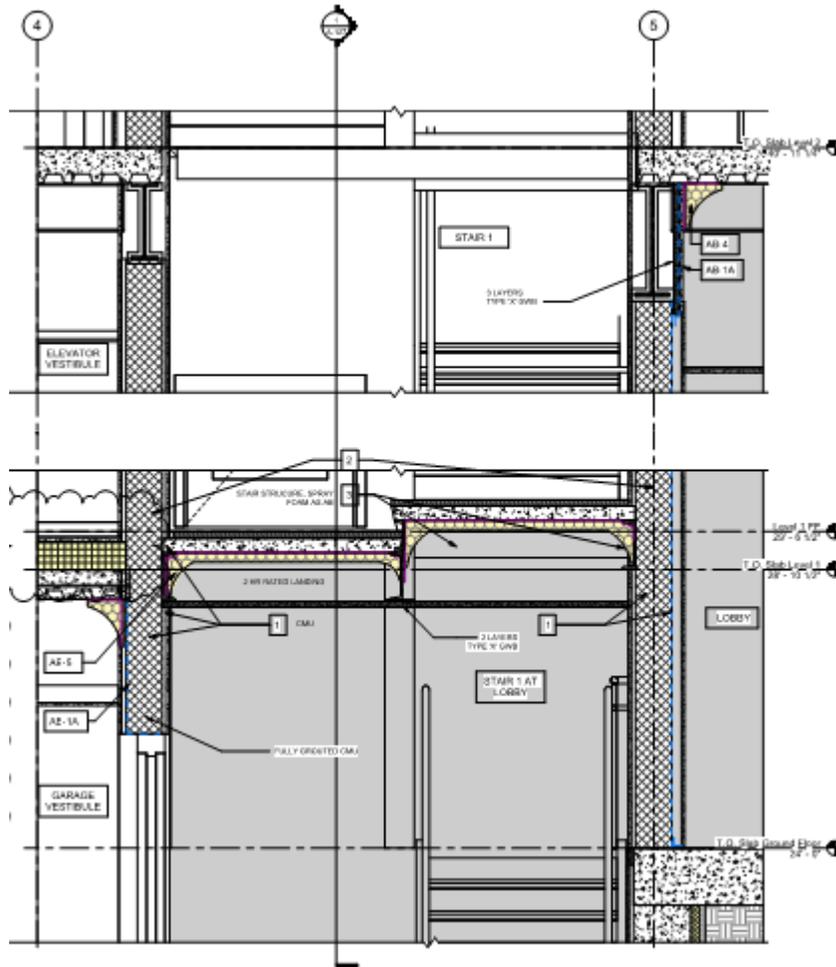
COMPARTMENTALIZATION DETAIL NOTES

- TAPE ALL INTERSECTIONS BETWEEN AIR BARRIER AND ANOTHER MATERIAL
- PENETRATIONS AT AIR BARRIERS SHOULD BE FULLY FIRE STOPPED AND AIRTIGHT.



Field Communication

The right amount of information at the right time



Craft – Envelope Airtightness Continuity

Caio's Team
rocking the
Air Barrier



Craft – Envelope Airtightness Continuity

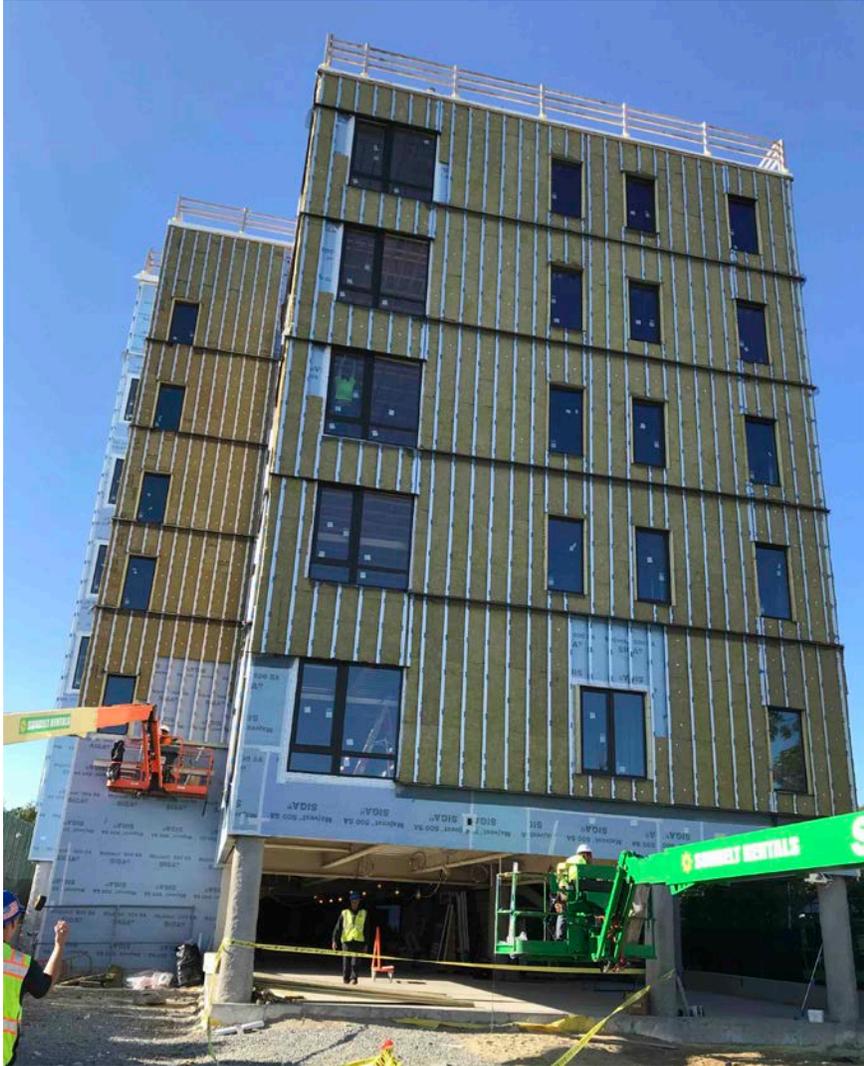
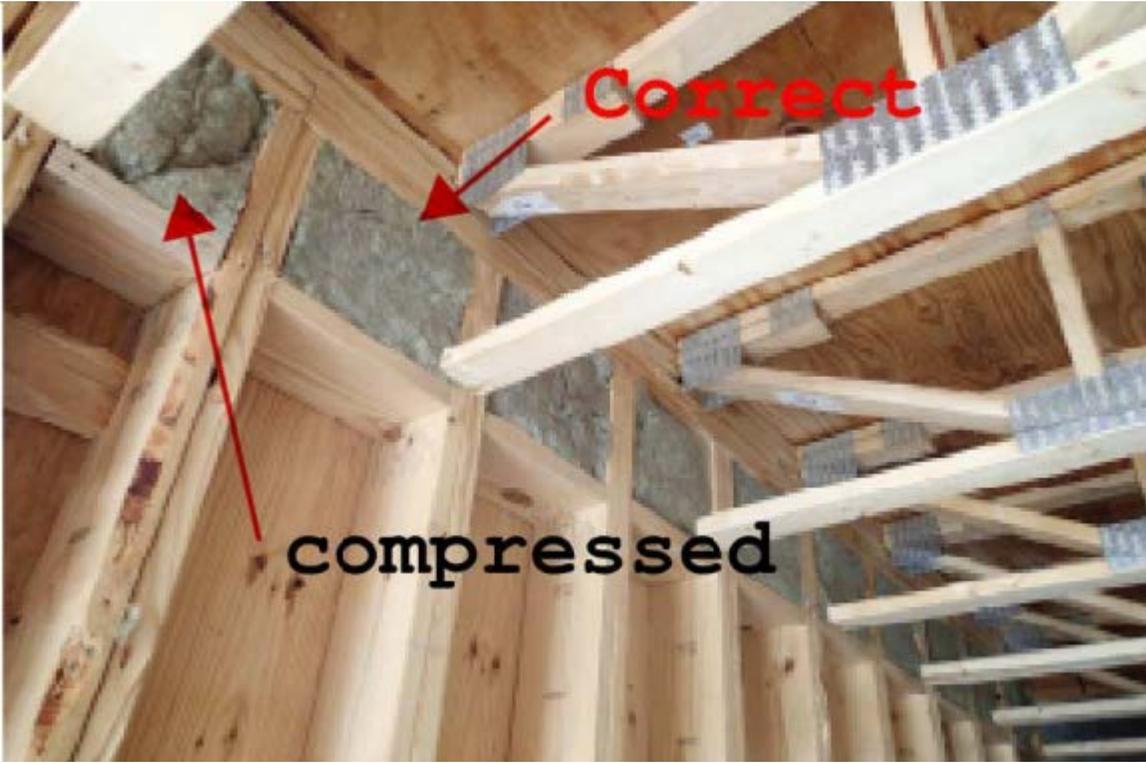


Not Approved



Approved

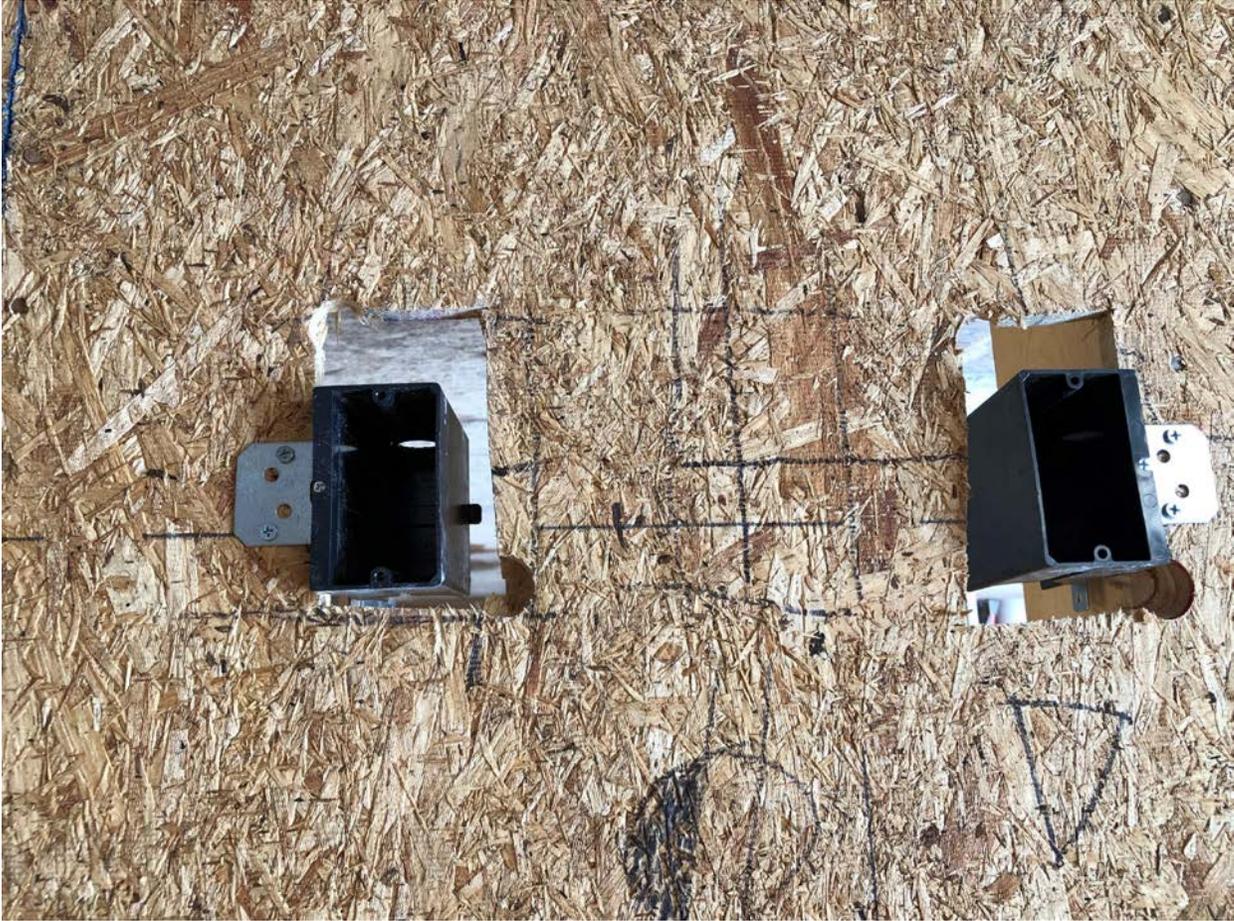
Craft – Envelope Thermal Continuity



Sequence



Craft – Interior Compartmentalization



Not Approved



Approved

Craft: Pipe/Penetration Airtightness



First Try – Not Approved



Ian Russell - Plumber

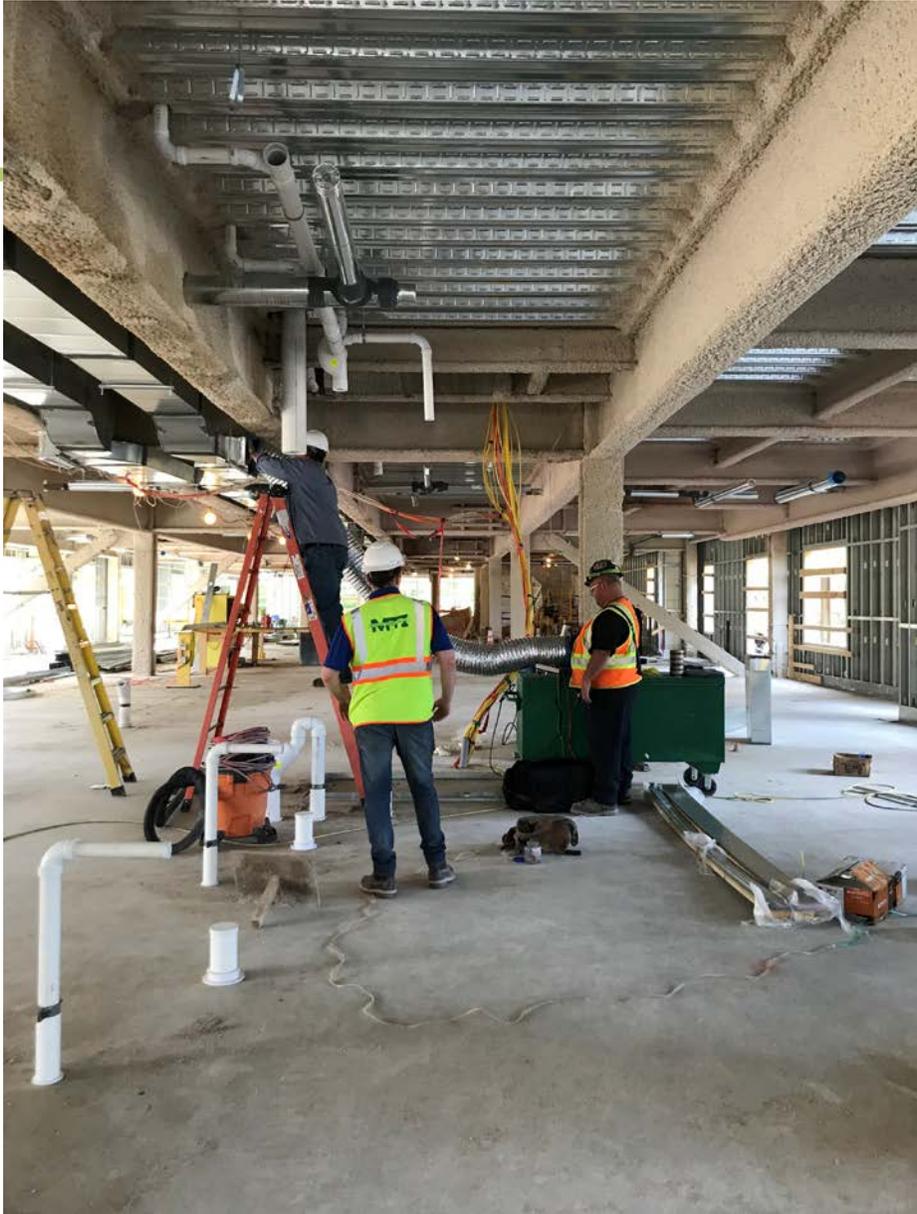


Second Try – Approved

Craft: Pipe/Penetration Insulation



Testing/Verification



Thermal Imaging – Pre/Post C.I.



Commissioning/Monitoring

You are not alone – we are a team

Architect:

ICON Architecture

MEP/FP:

Petersen Engineering

GC:

NEI General Contracting – (CPHC added to team)

Energy Modeler & CPHC :

Linnean Solutions

PH Verifier:

JSR Adaptive Energy Solutions

Sustainability Consultant:

New Ecology

Envelope Consultant:

Building Enclosure Associates

Commissioning Agent:

Sustainable Engineering Solutions

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