

### **BETHANY SENIOR TERRACES PROJECT TEAM**

DEVELOPMENT:	RISE
CONTRACTOR:	L. RIS
MODULAR BUILDER:	WHI
ARCHITECT:	PAUL
STRUCTURAL:	MUR
MEP:	NEW
PASSIVE HOUSE:	ZERO
SUSTAINABILITY:	BRIG
GOVT' PARTNERS:	NYC



## Passive House for Affordable Housing: Modular Project Delivery

BORO COMMMUNITY PARTNERSHIP

SO AND SONS

ITLEY MANUFACTURING

L A. CASTRUCCI, ARCHITECTS PLLC

RRAY ENGINEERING

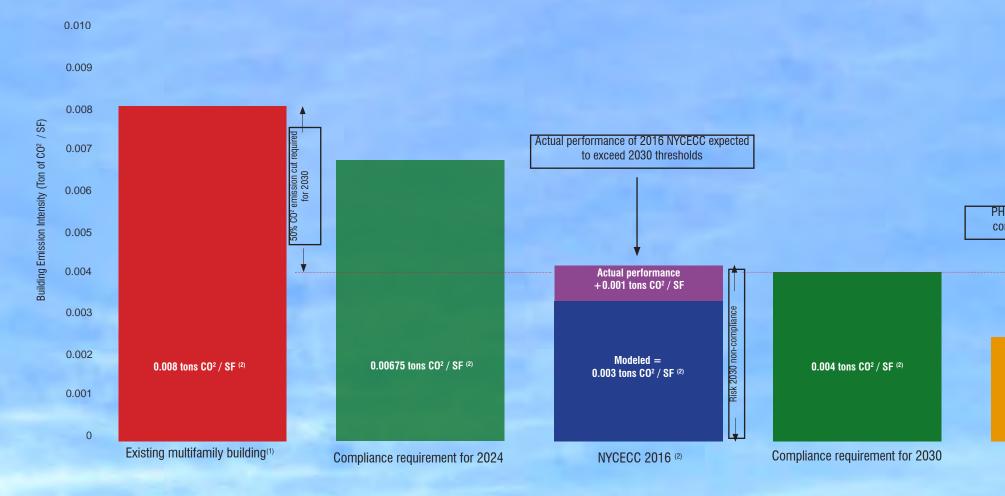
V YORK ENGINEERS

O ENERGY DESIGN

GHT POWER ASSOCIATES

HPD, NYSERDA, HCR

# Passive House for Affordable Housing: CLIMATE MOBILIZATION ACT VISUALIZED FOR MULTIFAMILY





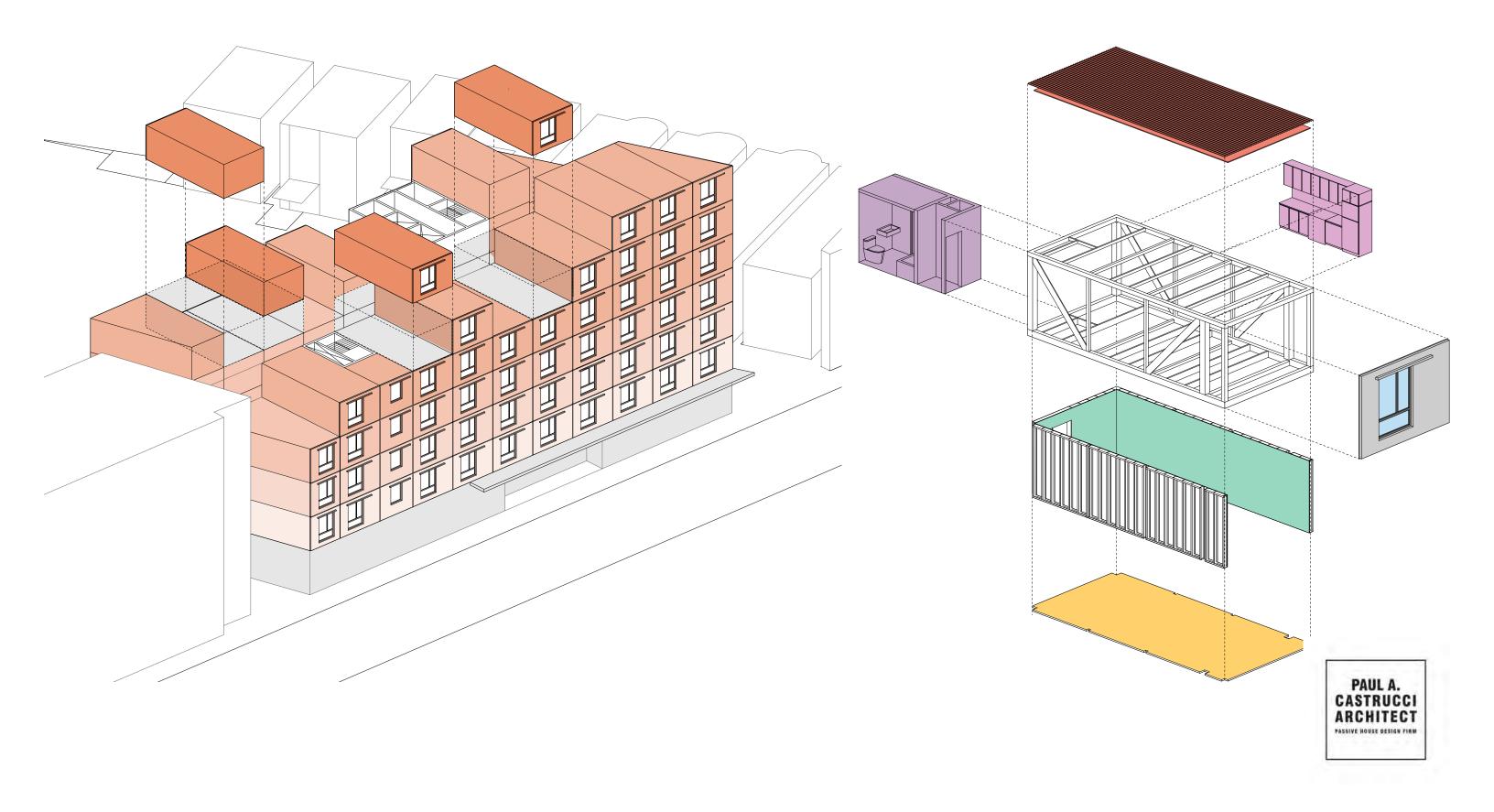


PHIUS + 2018 certification ensure compliance for 2030 and beyond

> Modeled = 0.0017 tons CO<sup>2</sup> / SF

PHIUS + 2018 (not including renewables)<sup>(4)</sup>

### Passive House for Affordable Housing: Moclular



### Passive House for Affordable Housing: Prefab Panels



image credit: tremco



Passive House for Affordable Housing: Bethany Senior

BETHANY

1.10



## Passive House for Affordable Housing: Bethany Senior: Site



1. INTERSECTION AVE D & E 40TH



2. LOOKING NORTH DOWN E 40TH TOWARD AVE D



4. EASTERN EDGE OF SITE

3. NORTHERN EDGE OF SITE

4. ENGLENN EDGE OF ONE



5. SOUTHERN EDGE OF SITE LOOKING SOUTH



6. VIEW OF NEIGHBORS LOOKING EAST ACROSS E 40TH ST



7. SOUTHERN VIEW DOWN E 40TH ST



8. SOUTHERN EDGE OF SITE LOOKING NORTH



9. SOUTHERN SIDE YARD VIEW FROM REAR OF SITE



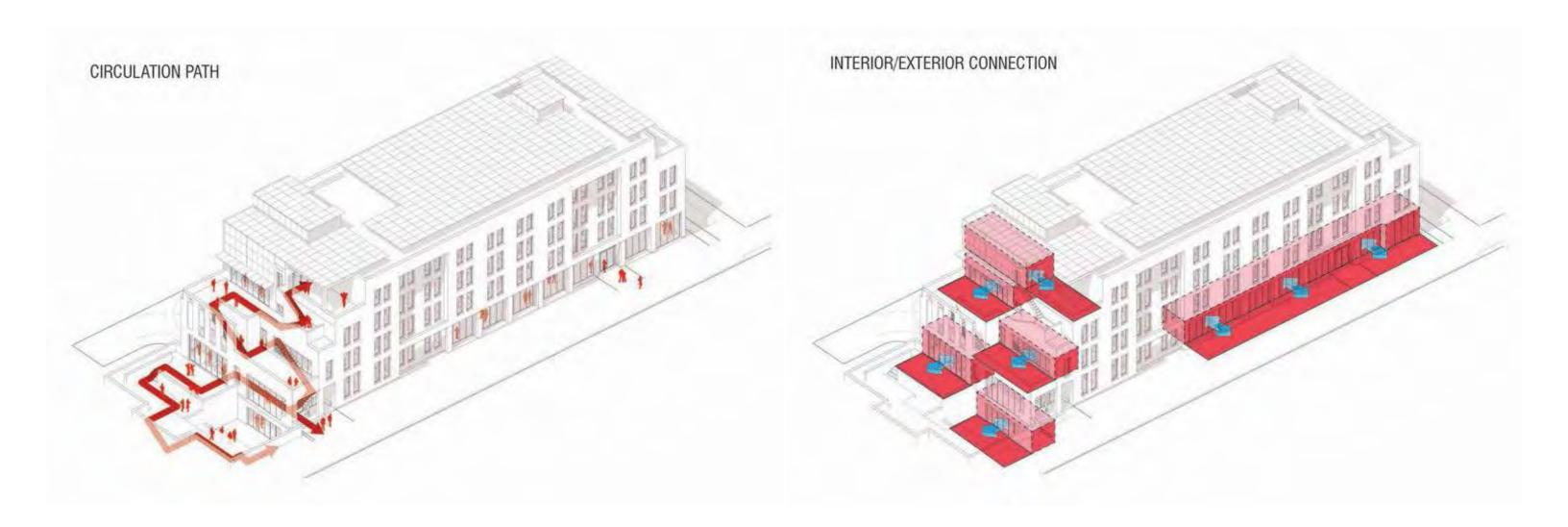
10. NORTHERN SIDE YARD VIEW FROM REAR OF SITE







## Passive House for Affordable Housing: Bethany Senior



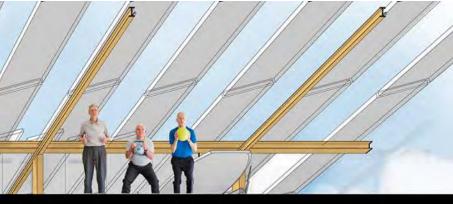


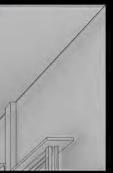
## Passive House for Affordable Housing: Bethany Senior





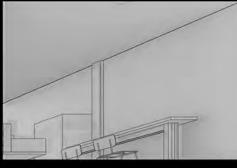




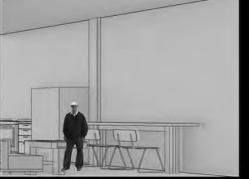














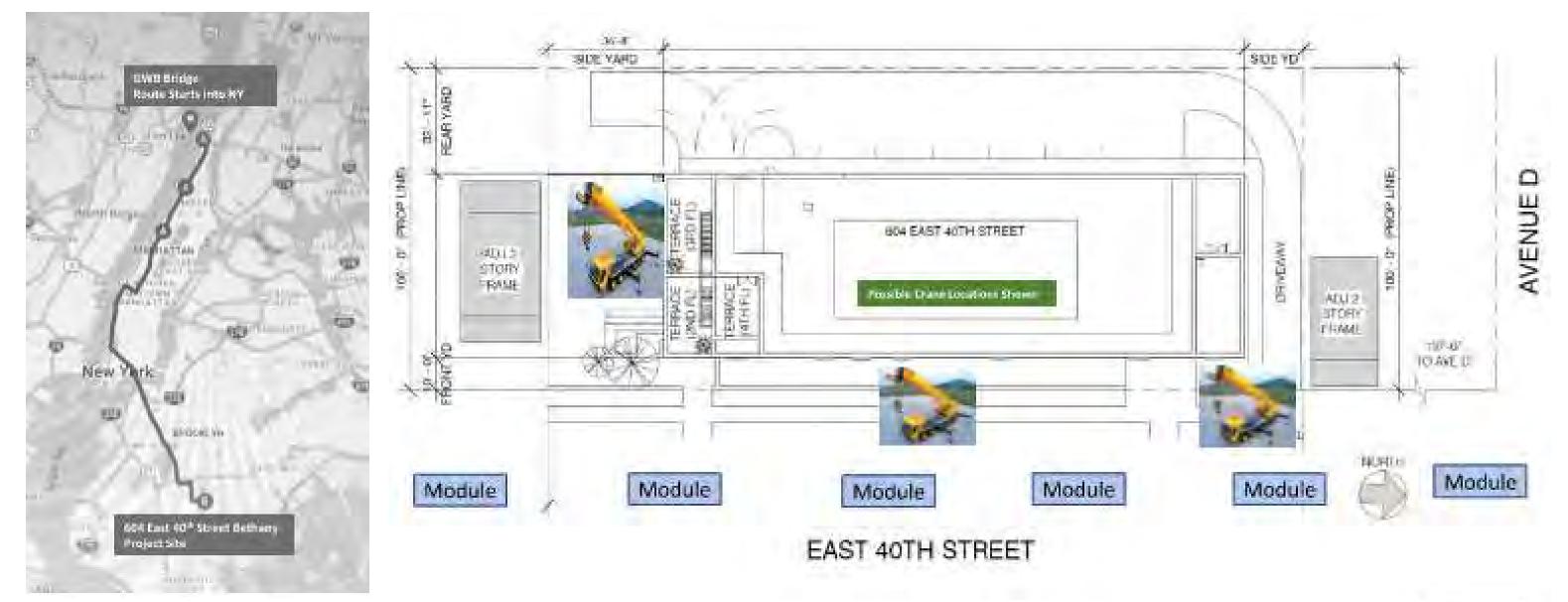


PAUL A. CASTRUCCI ARCHITECT PASSIVE HOUSE DESIGN FIRM



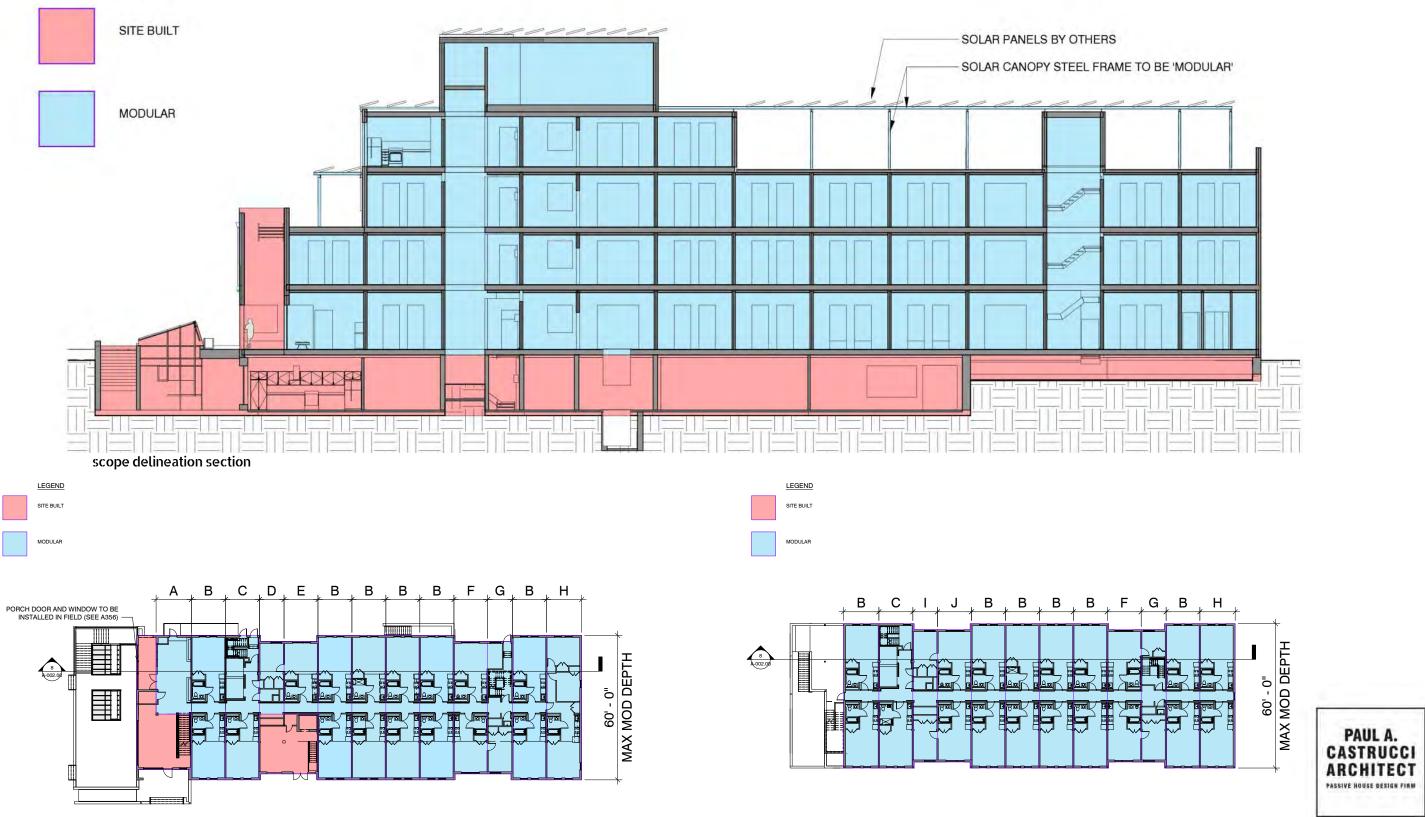


### Passive House for Affordable Housing: Bethany Senior: Transportation and Staging

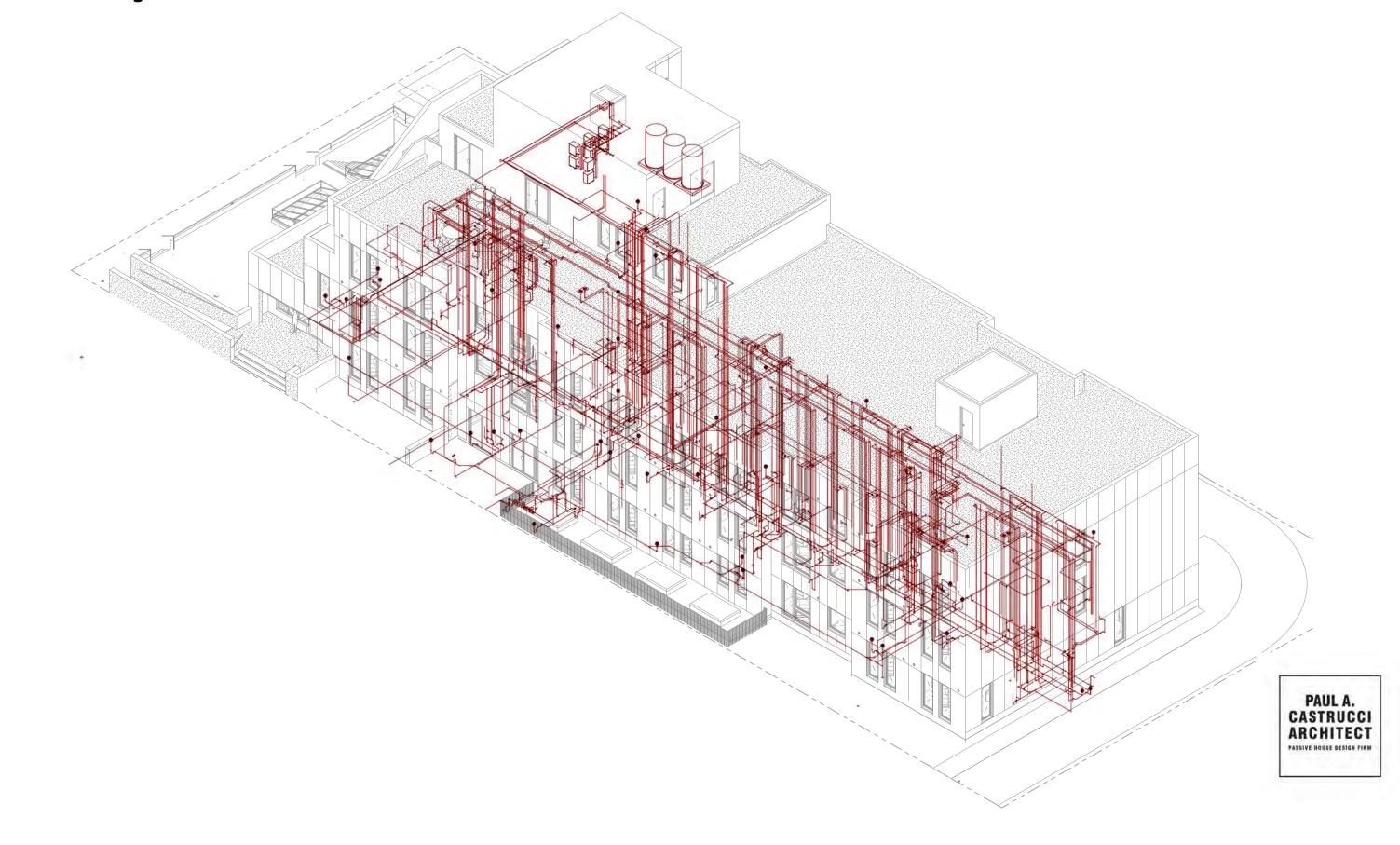




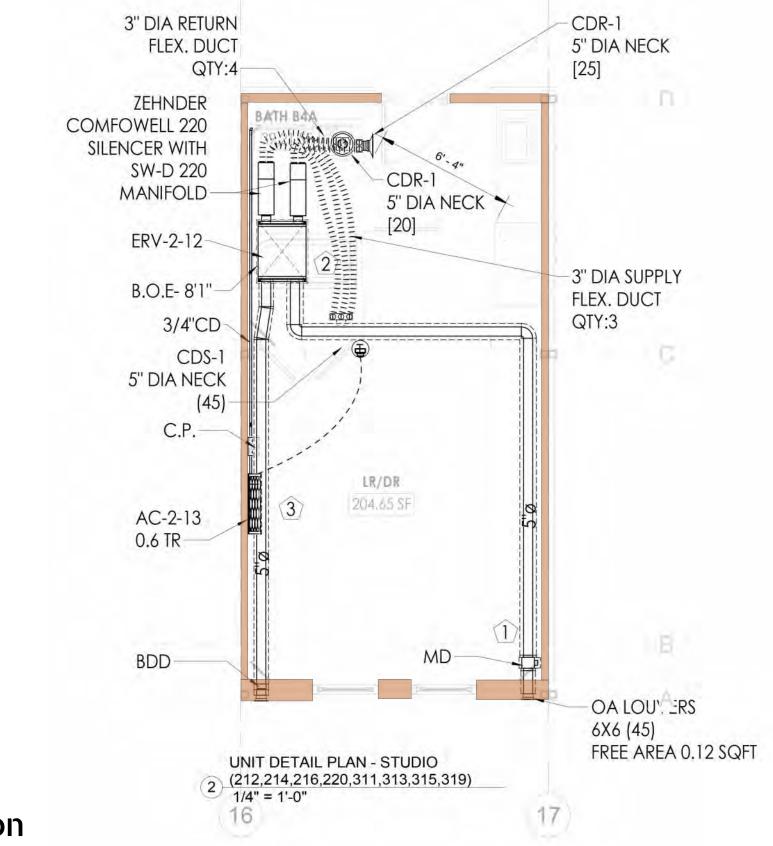
### Passive House for Affordable Housing: Bethany Senior: Modular Scope



## Passive House for Affordable Housing: Bethany Senior: MEP – Modular Coordination



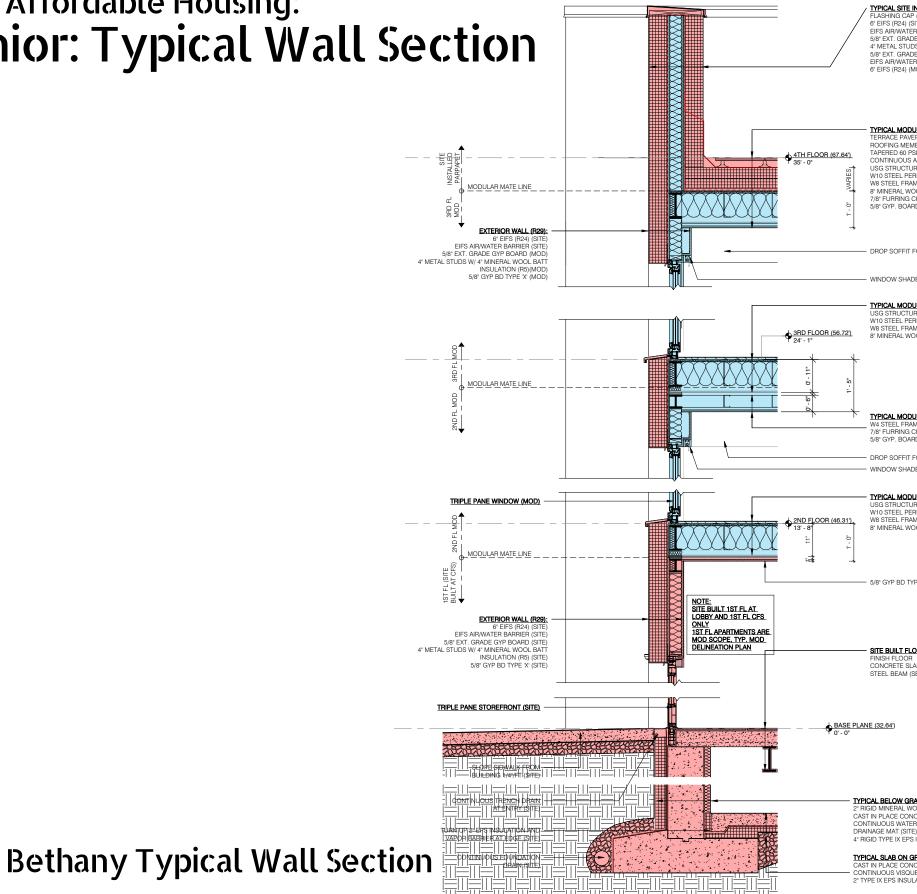
### Passive House for Affordable Housing: Bethany Senior: MEP - Modular Coordination



**ERV coordination** 



### Passive House for Affordable Housing: **Bethany Senior: Typical Wall Section**



### YPICAL SITE INSTALLED ROOF PARAPET AND ROOF

FLASHING CAP (SITE) 6" EIFS (R24) (SITE) EIFS AIR/WATER BARRIER (SITE) 5/8" EXT, GRADE GYP BOARD (MOD) 4/ METAL STUDS W/ 4/ MINERAL WOOL BATT INSULATION (R5) (MOD) 5/8' EXT. GRADE GYP BOARD (MOD) EIFS AIR/WATER BARRIER (MOD) 6" EIFS (R24) (MOD)

### TYPICAL MODULAR ROOF (AT TERRACE) (R47) IS (SITE)

TAPARCE FAVERS ON AUJUSTABLE FEDERALS (SITE) ROOFING MEMBRANE (SITE) TAPERED 60 PSI POLYSO RIGID INSULATION - 6" AVG (R39) (SITE) CONTINUOUS AIR BARRIER (SITE) USG STRUCTURAL PANEL CONCRETE BOARD SUBFLOOR (MOD) W10 STEEL PERIMETER FRAME (MOD) WESTEEL FRAME W/ 8' STEEL JOIST INFILL (MOD) 8' MINERAL WOOL SAFB ON WIRE MESH (R8) (MOD) 7/8' FURRING CHANNEL (MOD) 5/8' GYP, BOARD TYPE X' (MOD)

DROP SOFFIT FOR ERV DUCTS BEYOND (MOD)

WINDOW SHADE (TYP ALL RESIDENTIAL UNITS) (MOD)

### TYPICAL MODULAR FLOOR (MOD)

USG STRUCTURAL PANEL CONCRETE BOARD SUBFLOOR (MOD) W10 STEEL PERIMETER FRAME (MOD) W8 STEEL FRAME W/ 8" STEEL JOIST INFILL (MOD) 8" MINERAL WOOL SAFB ON WIRE MESH (MOD)

TYPICAL MODULAR CEILING (MOD) W4 STEEL FRAME W/ 4' JOIST INFILL (MOD) 7/8'' FURRING CHANNEL (MOD) 5/8" GYP. BOARD TYPE 'X' (MOD)

- DROP SOFEIT FOR ERV DUCTS REYOND (MOD) WINDOW SHADE (TYP ALL RESIDENTIAL UNITS) (MOD)

### TYPICAL MODULAR FLOOR (MOD)

TE BOARD SUBFLOOR (MOD) USG STRUCTURAL PANEL CONCRETE BOARD SUE W10 STEEL PERIMETER FRAME (MOD) W8 STEEL FRAME W/ 8" STEEL JOIST INFILL (MOD) 8" MINERAL WOOL SAFB ON WIRE MESH (MOD)

5/8" GYP BD TYP X ON 7/8" FURRING INSTALLED IN FIELD

### - SITE BUILT FLOORS (1ST FL CFS) (SITE)

CONCRETE SLAB ON METAL DECK (SEE STRUCTURAL) STEEL BEAM (SEE STRUCTRUAL) W/ SPRAY ON FIREPROOFING

### TYPICAL BELOW GRADE WALL (UTILITY SPACES) (R24) (SITE)

2" RIGID MINERAL WOOL INSULATION-MECHANICALLY FASTENED (R8) (SITE) CAST IN PLACE CONCRETE FOUNDATION WALL (SEE STRUCTURAL) (SITE) CONTINUOUS WATERPROOFING MEMBRANE (SITE)

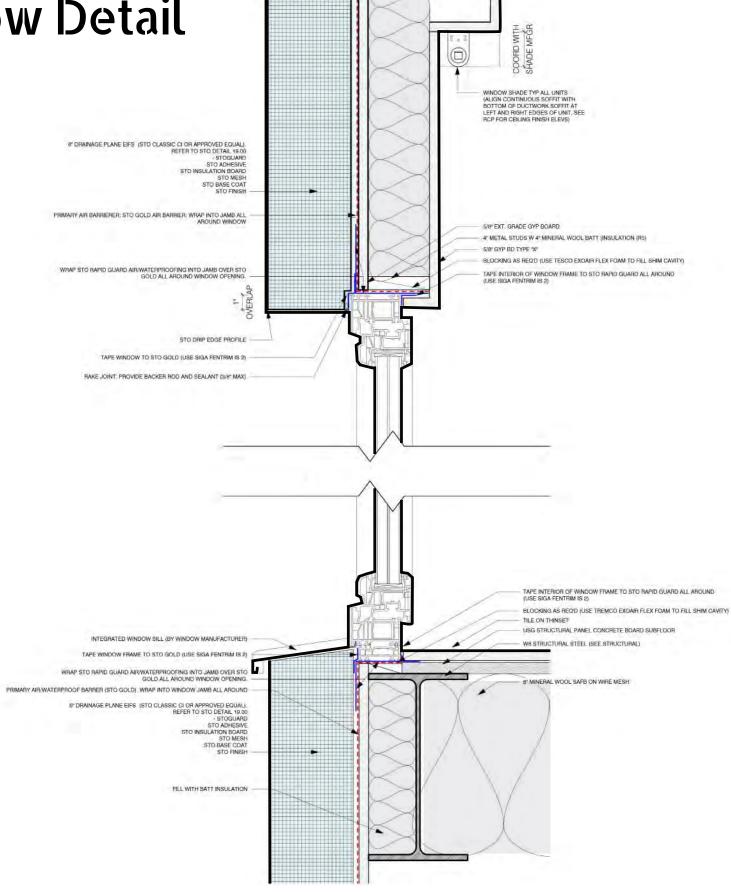
### 4" RIGID TYPE IX EPS INSULATION BOARD (R16) (SITE)

### TYPICAL SLAB ON GRADE (R8) (SITE)

CAST IN PLACE CONCRETE SLAB ON GRADE (SITE) CONTINUOUS VISQUEEN VAPOR BARRIER (SITE) 2" TYPE IX EPS INSULATION BOARD (R8) (SITE)



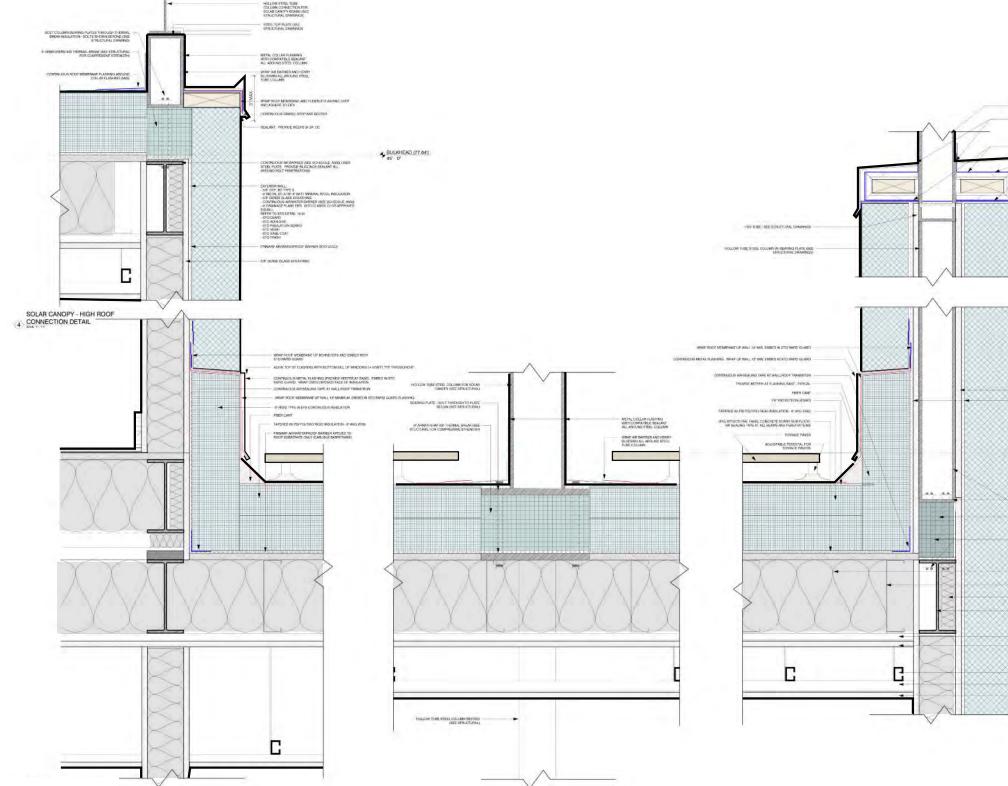
### Passive House for Affordable Housing: Bethany Senior: Window Detail



**Bethany Window Detail** 



### Passive House for Affordable Housing: Bethany Senior: Parapet, Terrace and Roof



Bethany Parapet, Terrace and Setback Roof Section Detail



- PALL MES MUTHORNERAL WOLL MELLATION (MM) W SHOP EXAMPLES STRUCTURE DIMANESS - NY REPLETITURE DIMANESS - NY REPLETITURE DIMANESS

Canadania (Johanne) an Tab musiklent o-wane) Dar gra ko type X

ET MINERAL WOOL BATT INSULATION ON WITH MESH UKHIT SAUGE STEEL JOINTS SEE STRUCTURAL DRAWINGE

SOLT JOLLINN SEARING PLATER THROUGH THERMAL BREAK INSULATEN - NOLTE SHOWN REYOND ISFE STRUCTURAL DRAWING

HOLLOW TUSE STEEL COLUMN IN BEWING PLATE (SEE STRUCTURE CRAMINES) IF ARM/HEIM DIE THERMAL BREAK SEE STRUCTURE FOR COMPRESSIVE STREMTH

4TH FLOOR (67.64) 35' - 0'

DIP DENSE GLASS SHEATHING
YRMANY ARWATERFROM
BARHEN (STO YOLD)

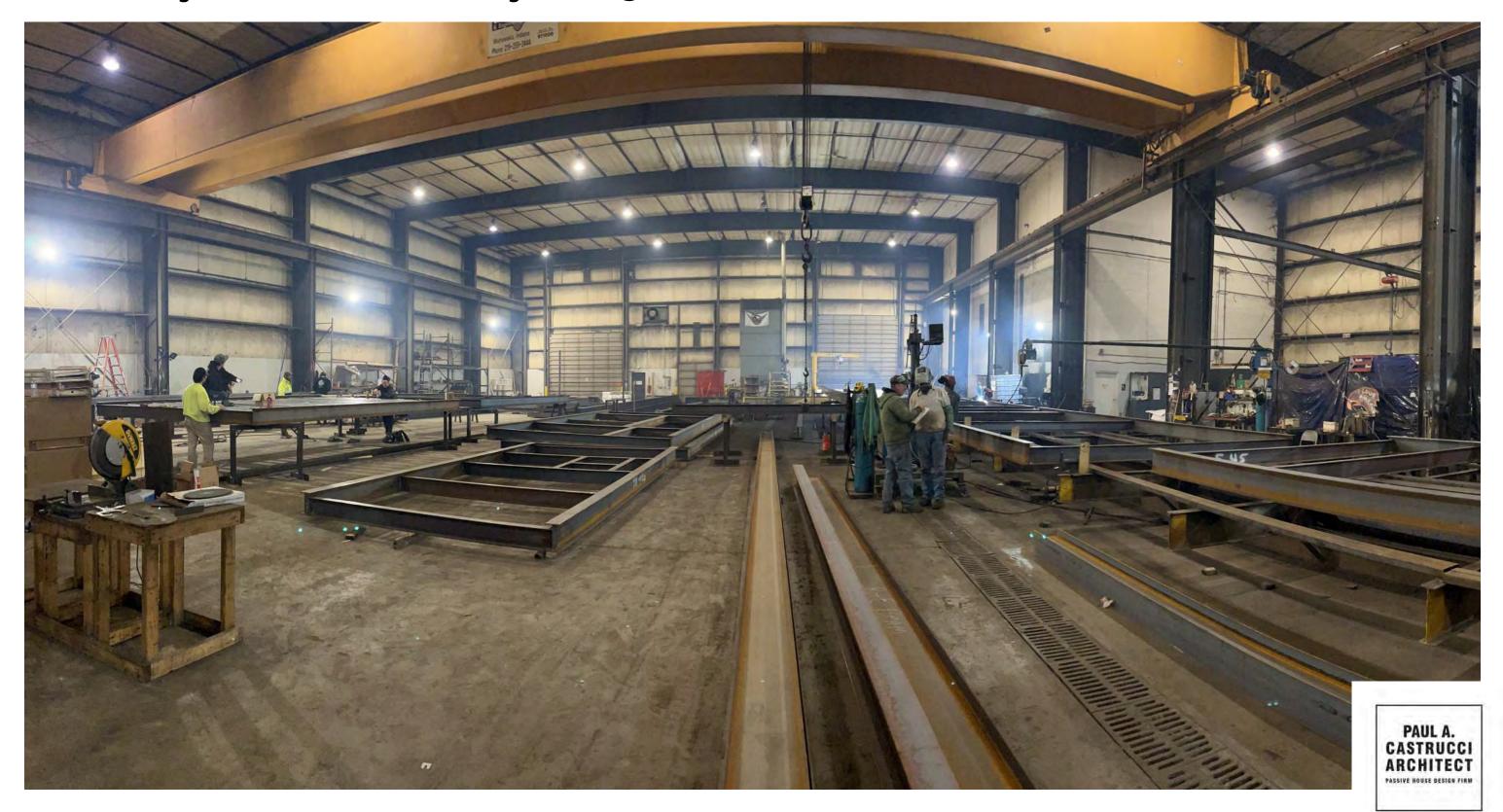
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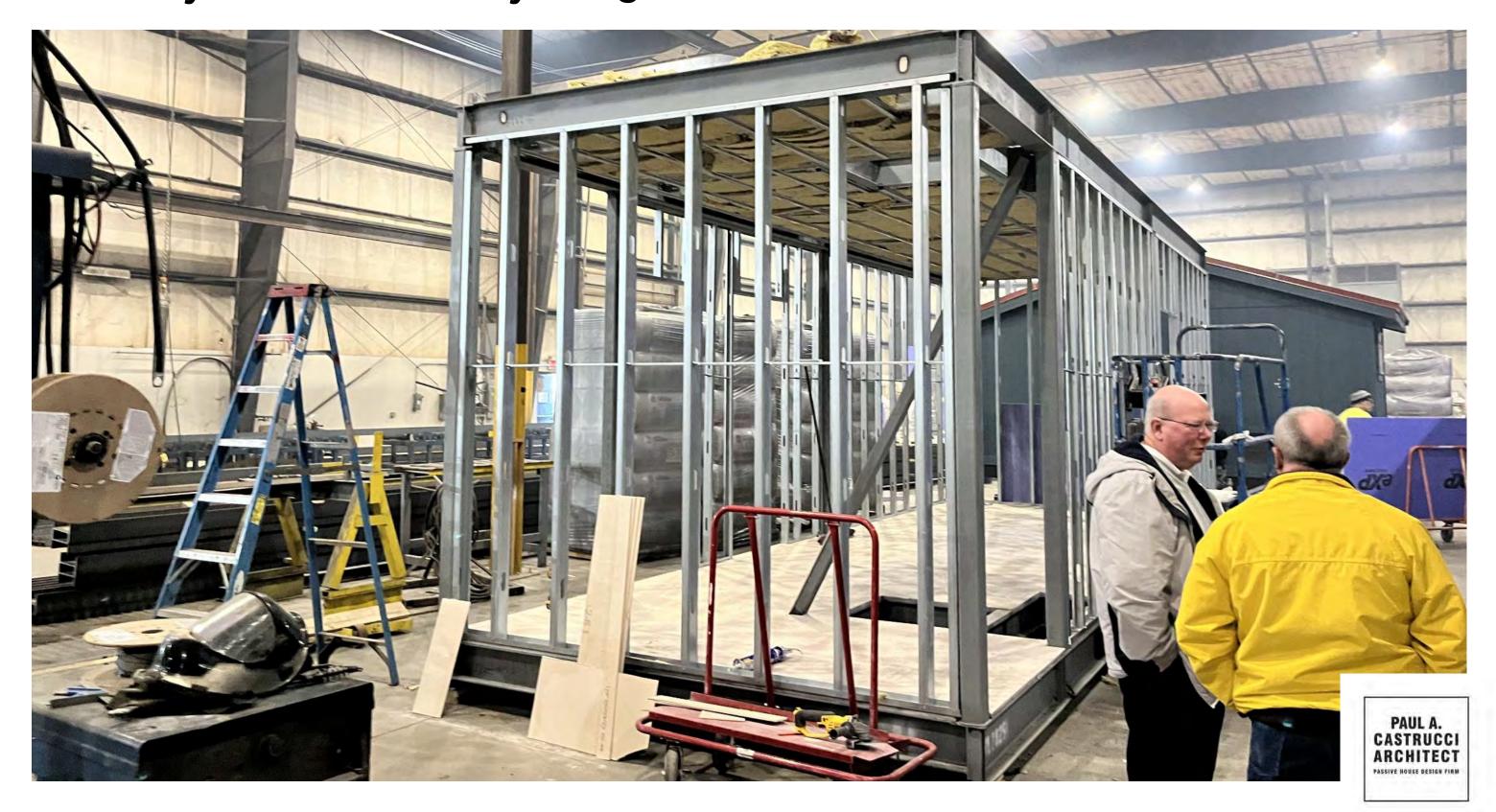
> SEALANT. PROVEDE WOORS @ SH' OD

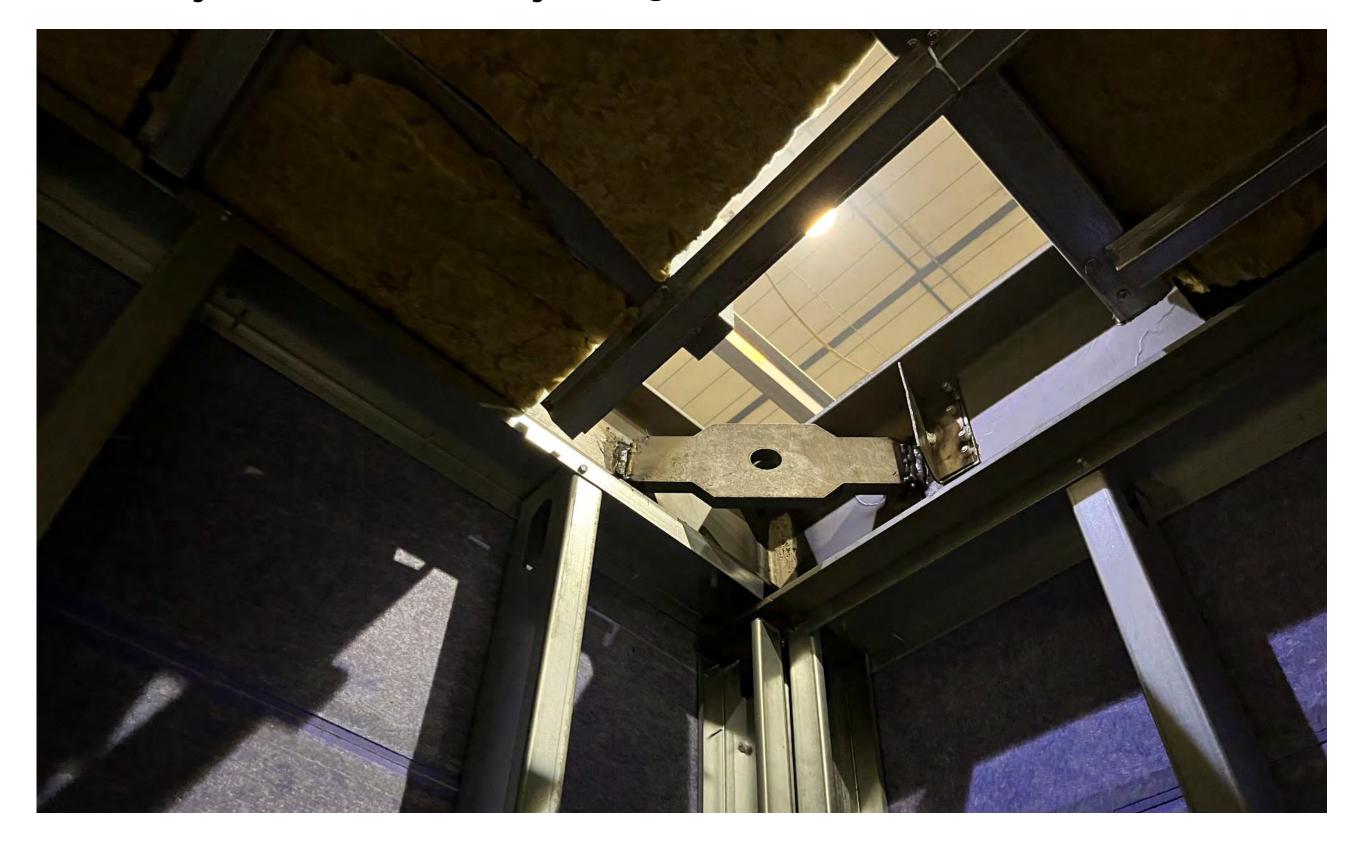
SCLAR CANOPY COLUMN-SEE STRUCTURM TRAINING METAL COLLAR HASHING WITH COMPARES STALAR ALL NROUND STRUE COLUMN





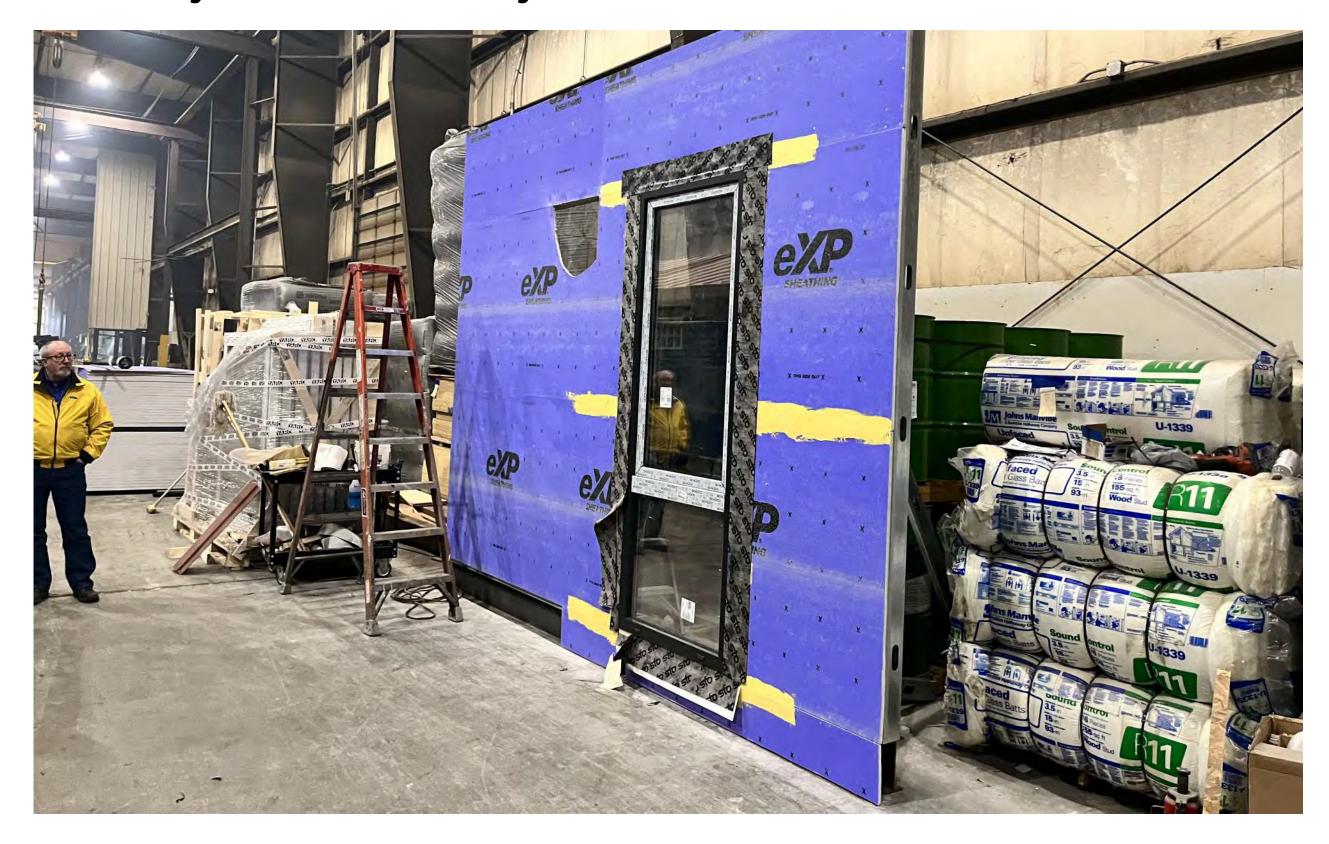






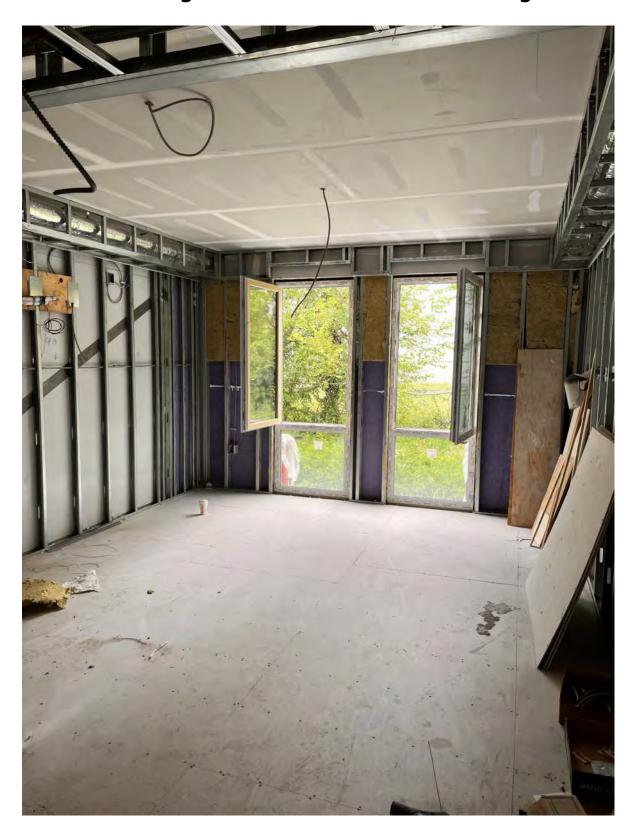


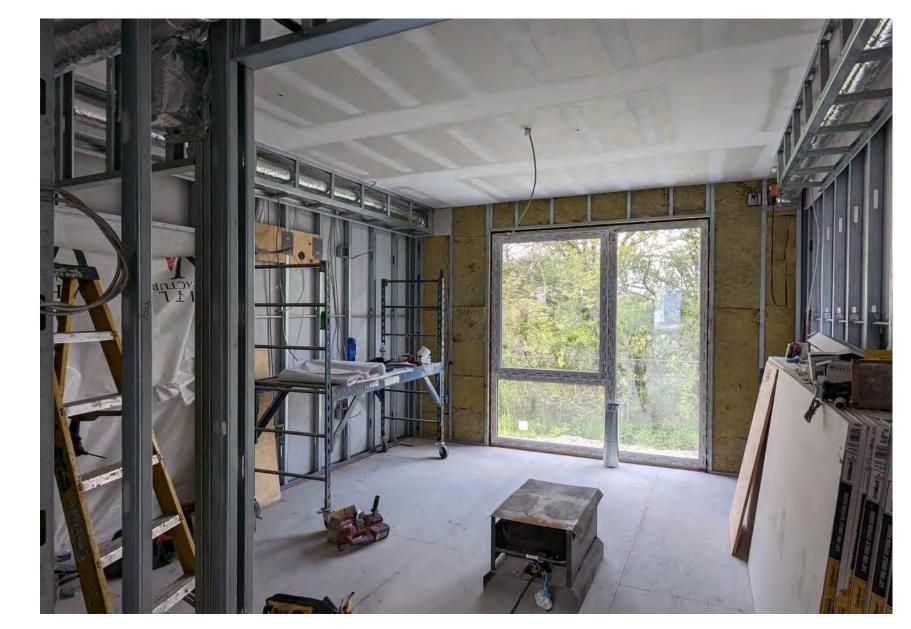
## Passive House for Affordable Housing: Bethany Senior: Quality Control







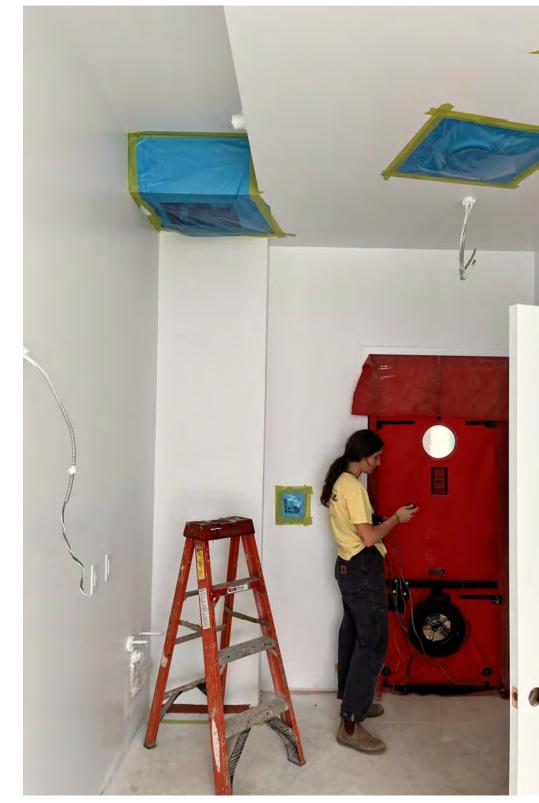






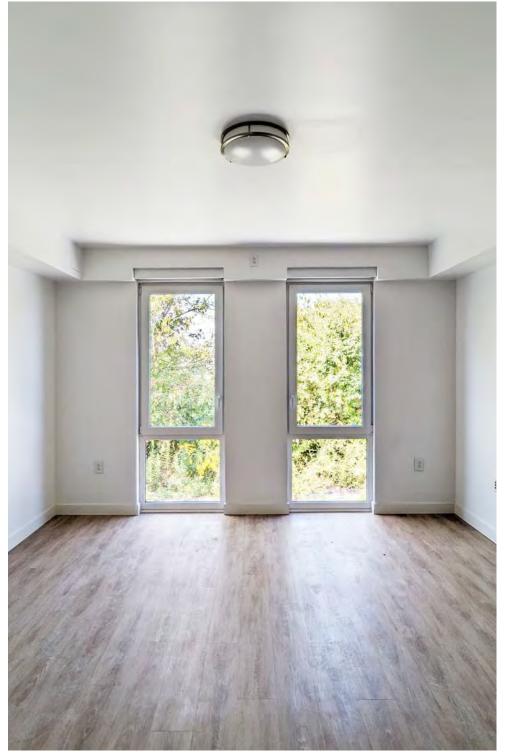
## Passive House for Affordable Housing: Bethany Senior: Factory Quality Control









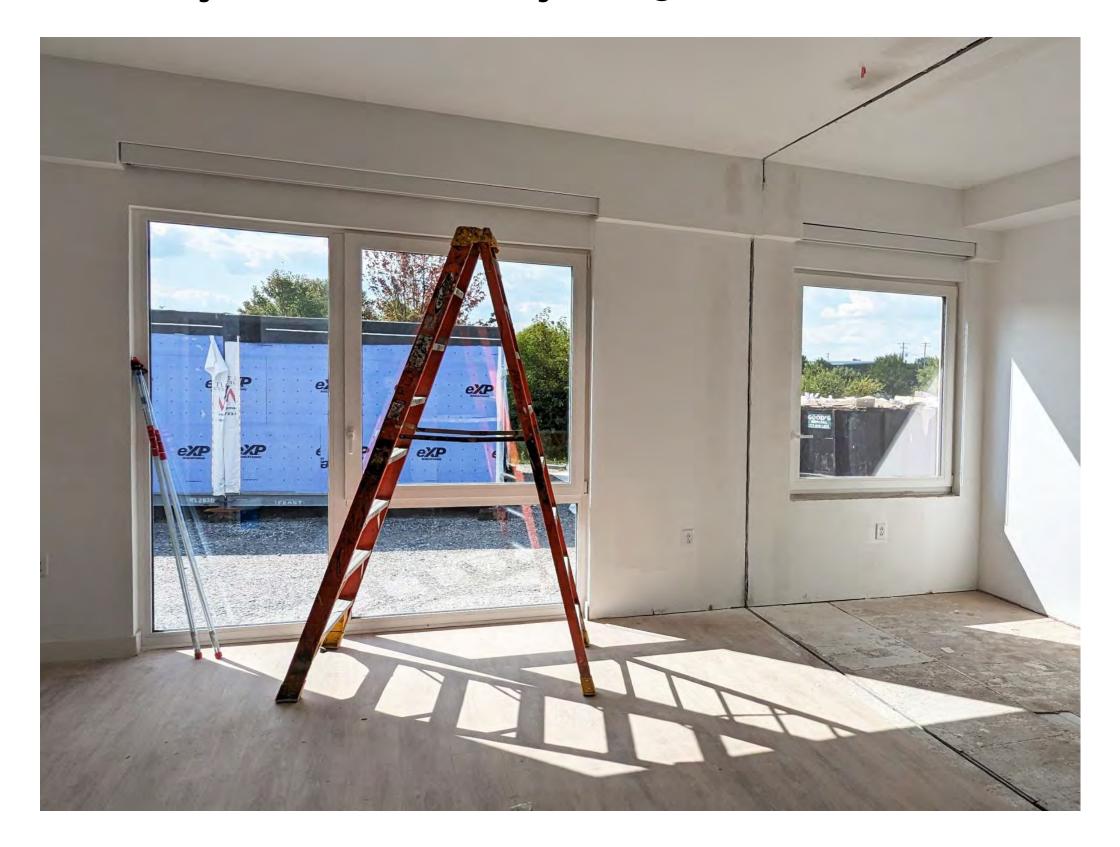




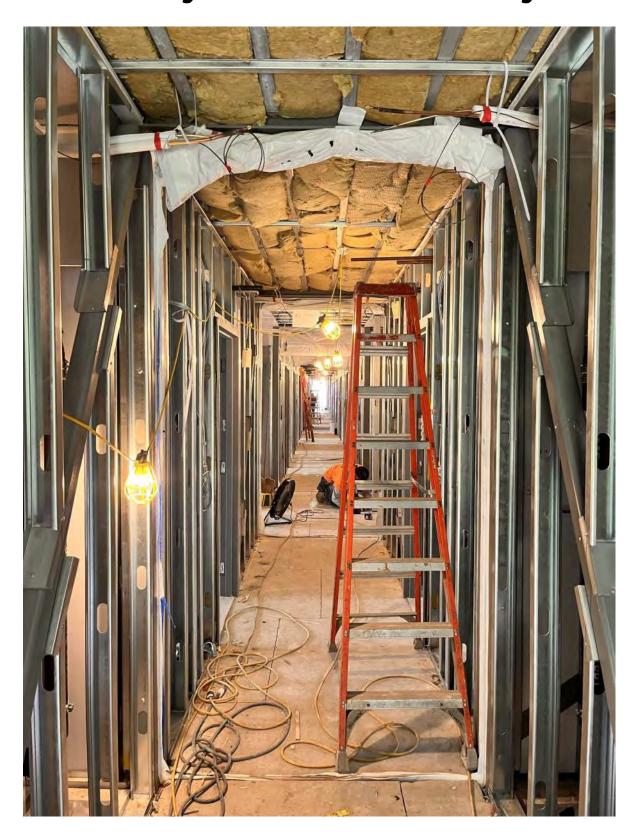


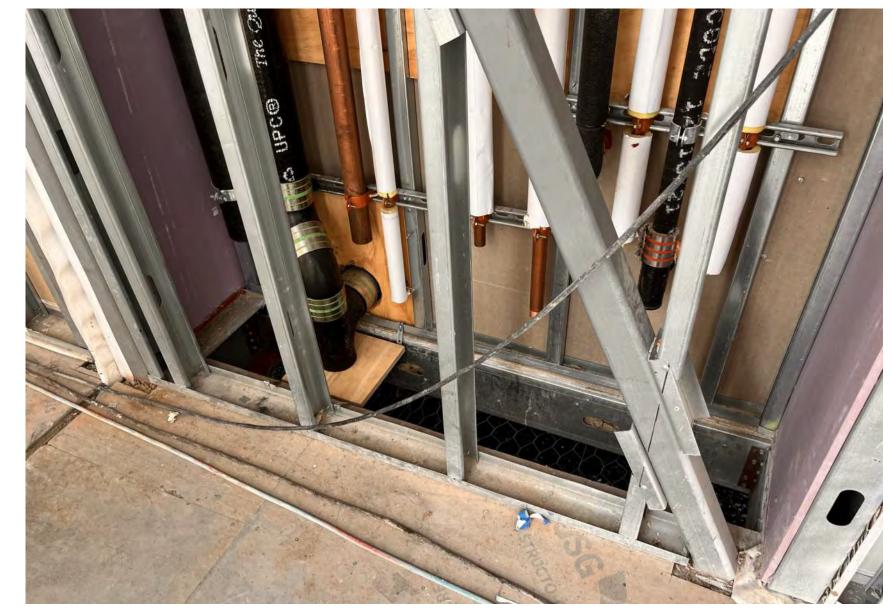






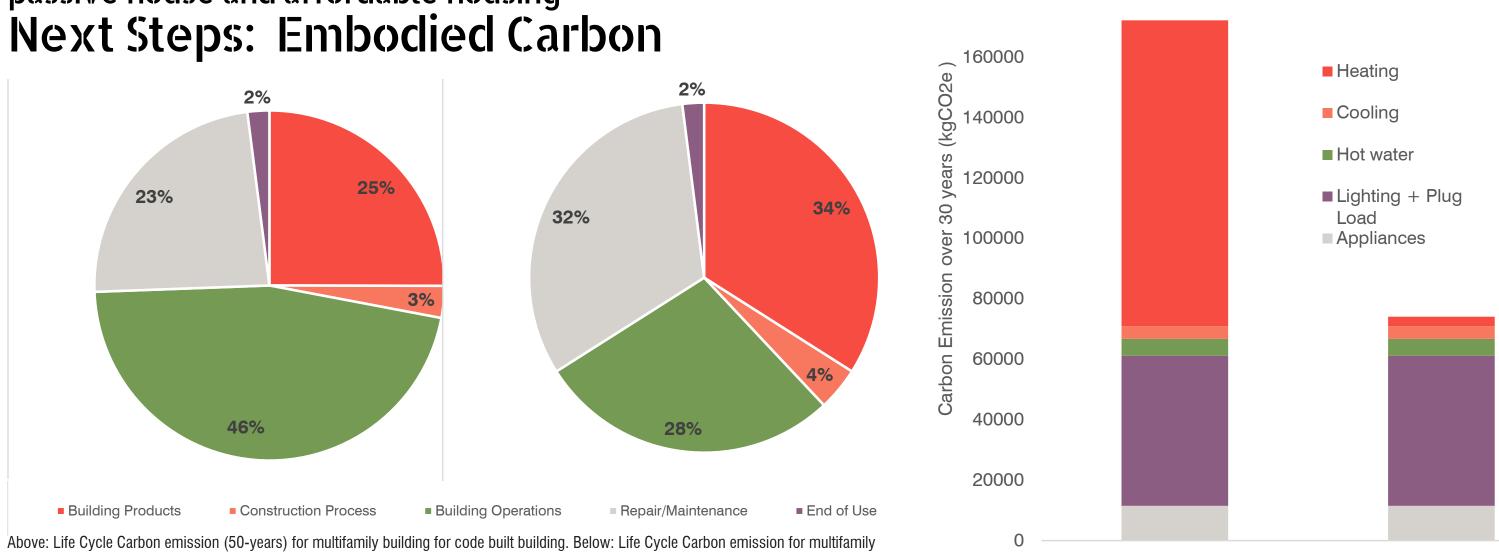




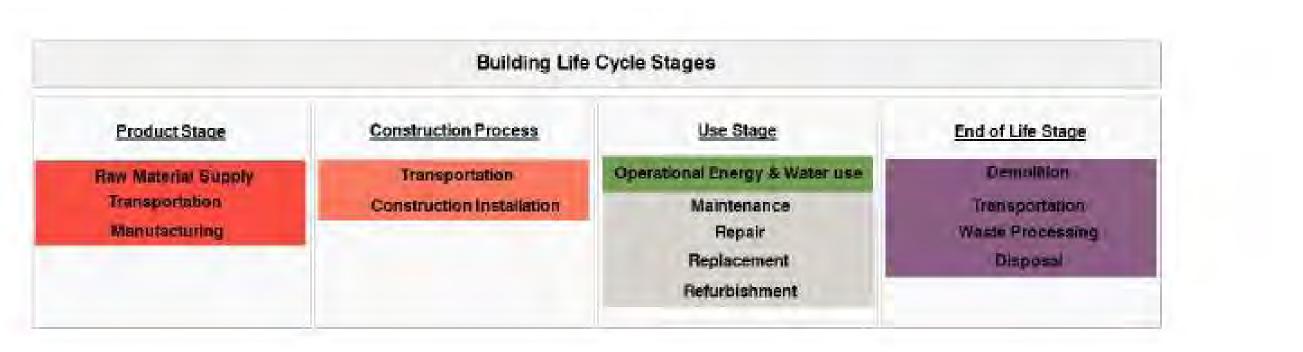




# passive house and affordable housing Next Steps: Embodied Carbon



building built to the Passive House Standard.

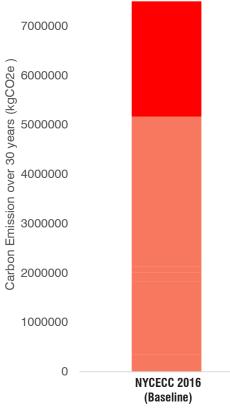


### **NYCECC 2016**

**PHIUS + 2018** 

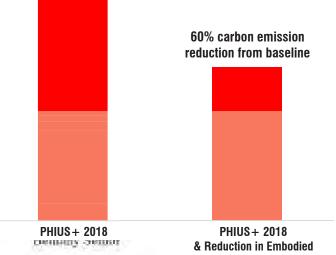


# passive house and affordable housing Next Steps: Embodied Carbon



Heard realization: 2020-07-10; Polyton (160) - Yes: Exterior Wall - Yes Carbon Above: Carbon emission evaluation for Bethany Senior for a 30 year life cycle analysis - from 2020 to 2050. Note the integration of embod-Extense Paciotani ied carbon further reduces carbon emission by another 20% from basecase. Stell C F Haseline Steel, Flange Beam, 2020-07-10 BoardInstitute 2020-07-10, Expanded Polyary - realities . Yes, Below Grade - Superstructure 100 Blankethradution: 2020-07-09: Minered Wood - West Exterior Wall - West Gyptum: 2020-07-10 LightGoupeSteel: 2030-07-10. 72964 Achievable EC Target Steel: Hollow; 2020-07-LD HatRolled: 2020-02+10 HotRolleft 2020-07-10 PAUL A. Net Zero Embodied Carlon Other Substructure CASTRUCCI Foundations Ready Miss: 2020-07-09 ARCHITECT 1000 PASSIVE HOUSE DESIGN FIRM









# Thank you for Participating!



Grayson Jordan (grayson@castrucciarchitect.co



### PAUL A. CASTRUCCI ARCHITECT