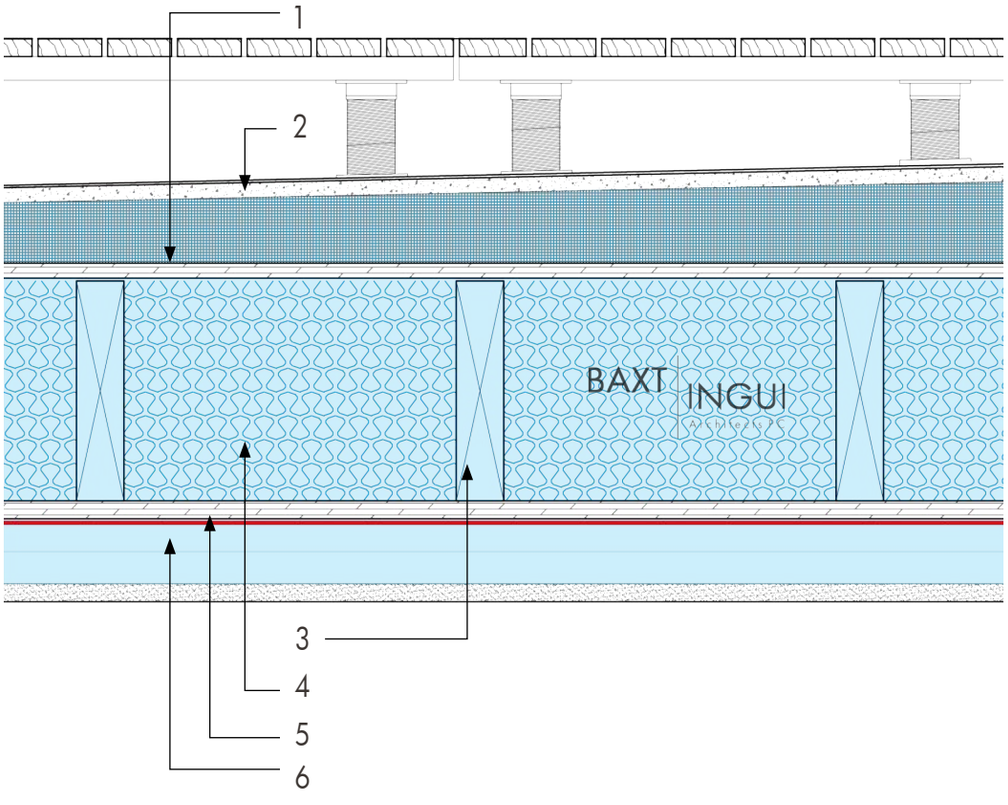
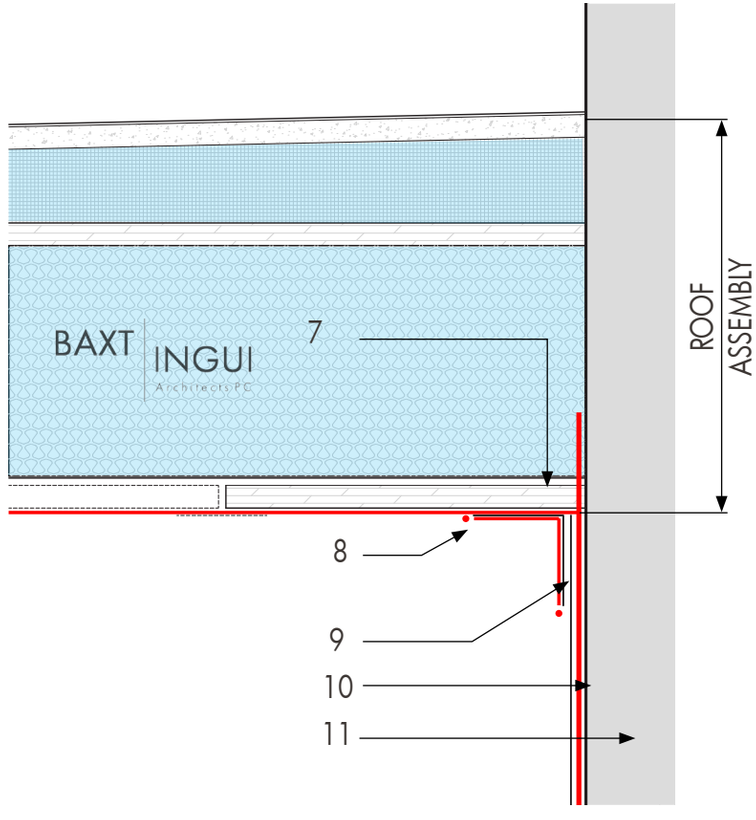
ROOF



1. RIGID INSULATION START AT 2" ON LOW SIDE
2. PROTECTION BOARD
3. LVL ROOF JOISTS
4. DENSE PACKED CELLULOSE INSULATION
5. PLYWOOD SHEATHING INSTALL AT UNDERSIDE OF ALL ROOF LOCATIONS, TAPE SEAMS
6. FIBERGLASS BATT IN CEILING SERVICE CAVITY

TYPICAL ROOF DECK DETAIL



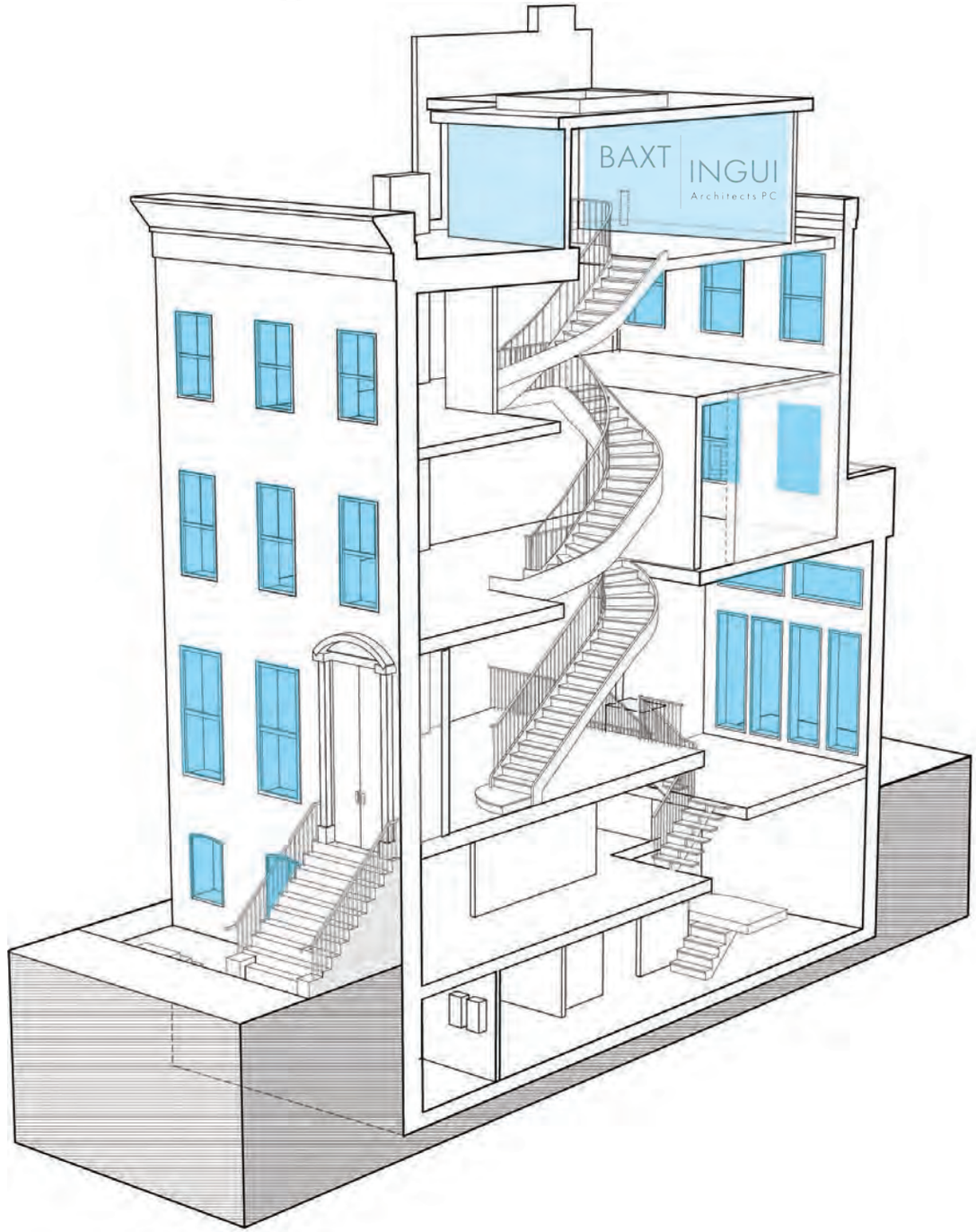
7. INSTALL PLYWOOD AIR BARRIER ALONG EDGES OF ROOF AND TAPE, SEE NOTE BELOW
8. 'STO RAPID SEAL' (OR EQUAL) AT EDGES OF TAPE
9. TAPE PLYWOOD TO AIR BARRIER
10. LIQUID APPLIED AIR BARRIER
11. PARTY WALL

NOTE: THIS ENSURES INTERIOR PARTITIONS ON PERIMETER CAN BE FRAMED WITHOUT INTERRUPTION FROM INSULATION AND PASSIVE ENVELOPE INSTALLATION

DETAIL AT PARTY WALL / ROOF CONNECTION

WINDOWS

- *Triple-glazed windows with careful consideration to sequencing of installation*
- *Connect to air-barrier.*
- *Flashing without metal.*
- *Reduce thermal bridging at connections.*



HIGH PERFORMING WINDOWS

EXISTING

PASSIVE DETAILING

FINISHED

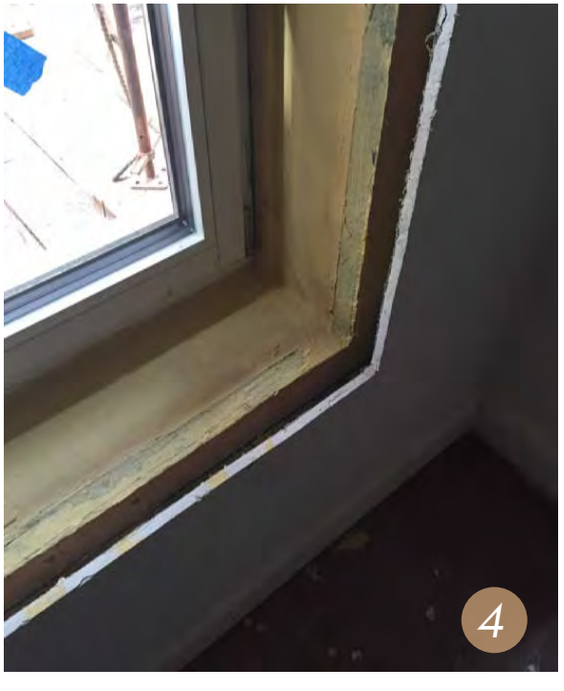
ISSUE:

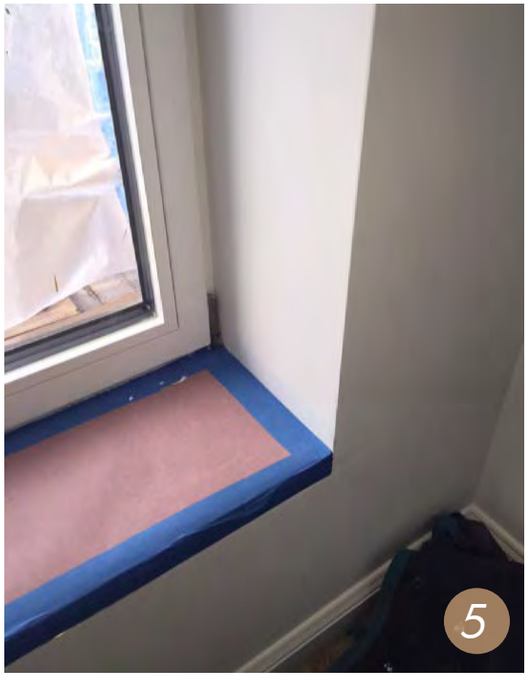
- ***Existing windows often have large gaps around the frame, no insulation & the windows themselves perform poorly.***

SOLUTION:

- ***Specific window installation details, fully air sealed from exterior.***
- ***Blocking, rigid insulation & clips to prevent thermal bridging***
- ***Install a higher performing window - Passive certified where possible.***

WINDOWS

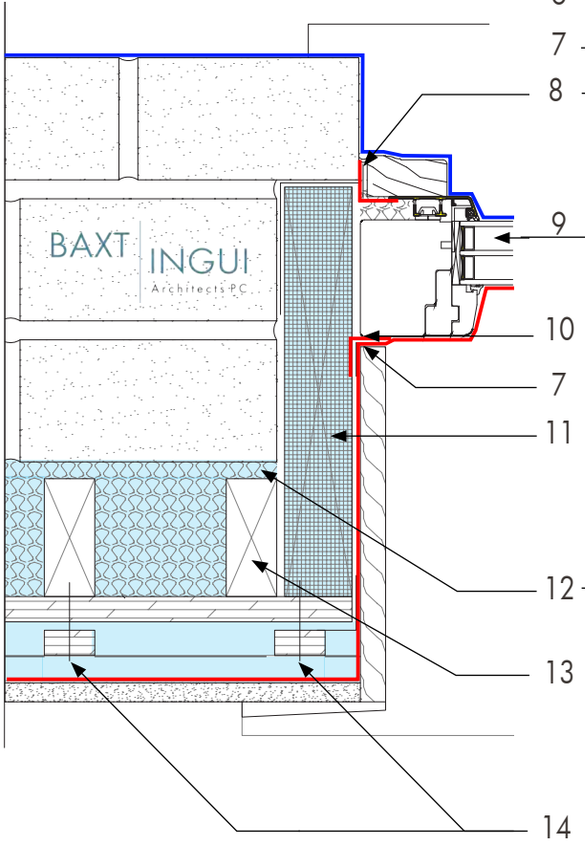




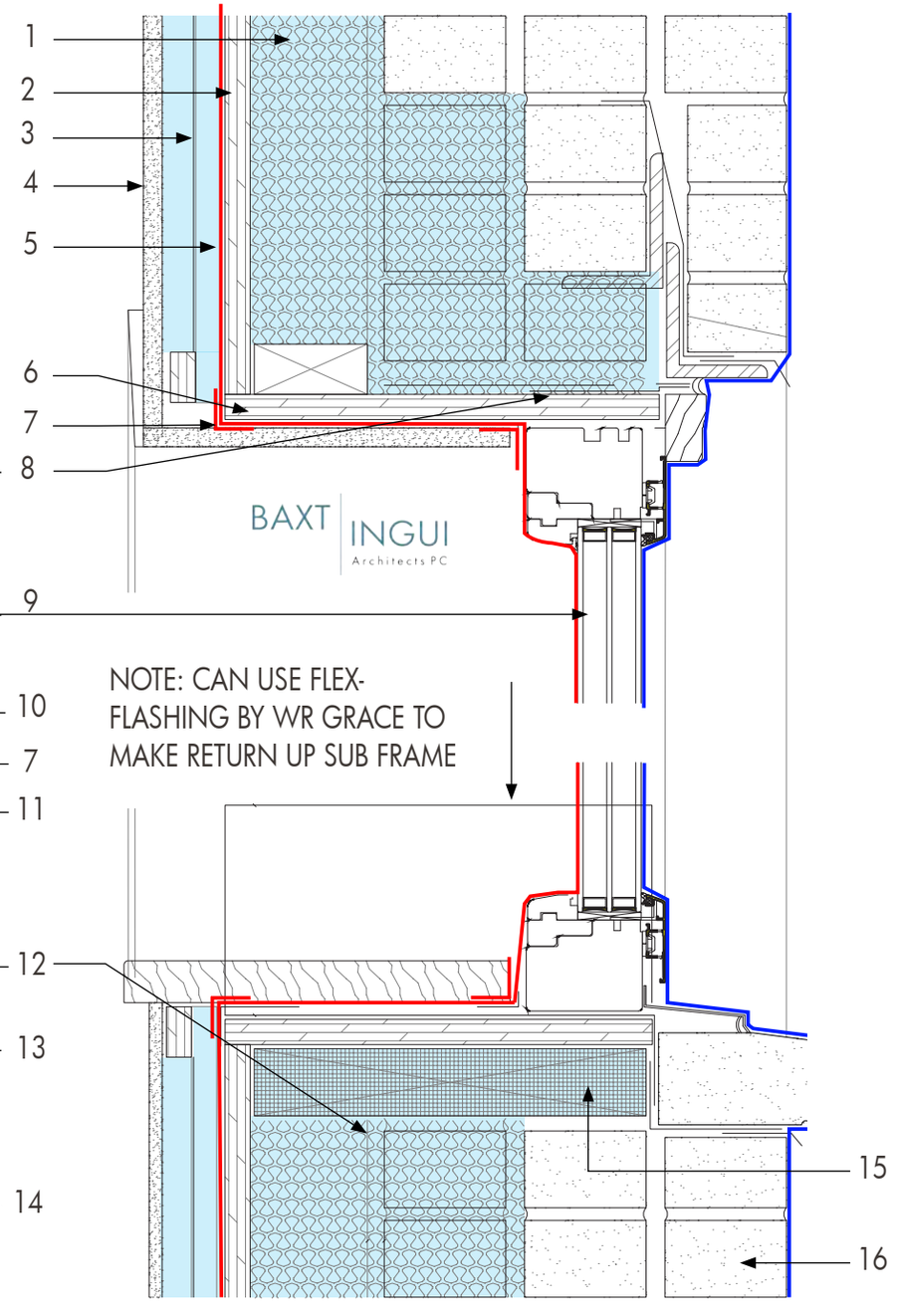
WINDOW INSTALLATION SEQUENCE
PHOTOS: KLEEN CONSTRUCTION, P JOE CONSTRUCTION

WINDOWS

1. DENSE PACKED CELLULOSE INSULATION
2. PLYWOOD W/ TAPED SEAMS
3. 1 1/2" UNFACED BATT INSULATION.
4. 5/8" GWB
5. TAPE AT ALL SEAMS IN AIR BARRIER
6. PLYWOOD SUB FRAME

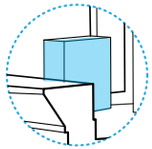


WINDOW DETAIL PLAN



WINDOW DETAIL SECTION

7. TAPE AT ALL WINDOW/EXT. DOOR CONNECTIONS
8. FABRIC FLASHING EMBEDDED IN CAULKING
9. TRIPLE GLAZED WINDOW
10. 1/4" SPACE
11. WOOD BLOCKING AT BOTTOM CORNER, CENTER, AND TOP CORNER OF WINDOW, FILLED WITH 2" RIGID INSULATION
12. MIN 1/2" GAP BETWEEN EXTERIOR WALL + STUD
13. 3 1/2" X 1 1/2" ENGINEERED STUD LEAVE LOOSE UNTIL WINDOW + SUBFRAME INSTALLATION TO ENSURE TIGHT FIT
14. 3/4"X1 1/2" PLYWOOD FURRING RUN VERTICALLY TO SECURE AIR BARRIER SECOND 3/4"X1 1/2" PLYWOOD FURRING RUN HORIZONTALLY AS NAILER FOR GWB
15. WOOD BLOCKING AT CORNERS OF WINDOW, FILLED WITH 2" XPS RIGID INSULATION
16. EXISTING 3 WYTHE MASONRY WALL



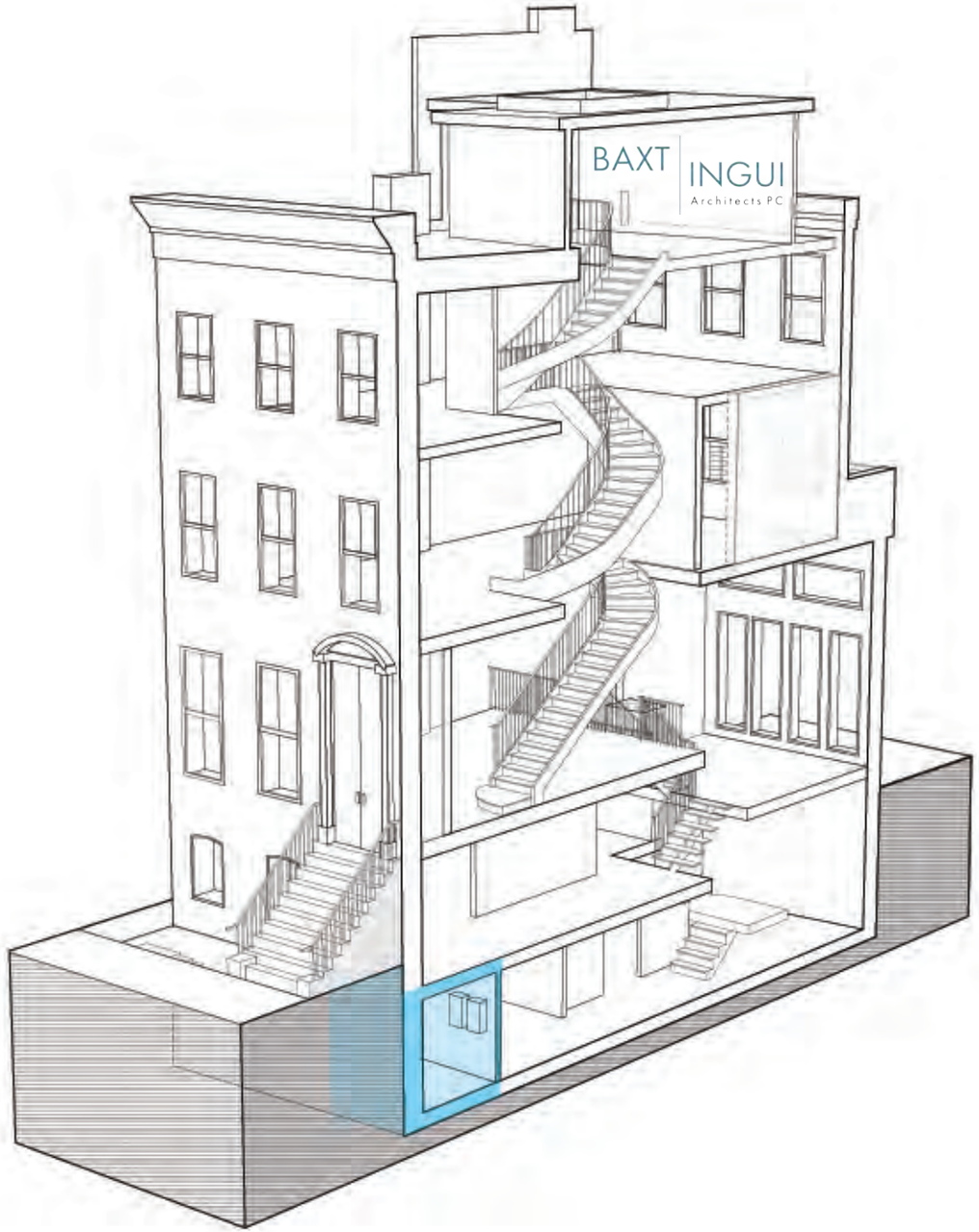
MECHANICAL

Once a high-performance enclosure is achieved (air-tight, well-insulated, thermal bridge free), mechanical systems can be smaller and simpler, but still require careful planning and integration into the design to work well.

-Use electrical sub-panels to reduce wiring penetrations, if entire cellar isnt in thermal enclosure

-Locate ERVs near roof or rear wall to minimize duct lengths

-If gas meter venting is required, isolate meter room at front of cellar, outside the air barrier but still in semi-conditioned space, carefully coordinate all penetrations of the meter room wall (air barrier)



SAVE ENERGY + GAIN SPACE

EFFICIENT + LESS MECHANICALS

TRADITIONAL CONDENSERS

PASSIVE CONDENSERS

- ***Best are single-zone ductless,***
- ***SEERS around 20-25, HSPFs around 12.5***
- ***Multi-zone systems are SEERs ~15, hspfs~10***

- ***So for a 4000 gsf (3000 nsf) Passive House:***
  Moderate efficiency (HSPF=10, SEER=15: $500/yr
  High efficiency (HSPF=12.5, SEER=25):$360/yr
  Difference = $140/yr