PASSIVE HOUSE: TOWNHOUSE

DESIGN ENVELOPE FIRST, MECHANICAL SYSTEMS SECOND

G MECHANICAL SYSTEMS
D ROOF
E WINDOWS
C EXTERIOR WALL
F ADDITIONS/SPECIAL CONDITIONS
B PARTY WALL
A CELLAR

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BAXT INGUI ARCHITECTS
• Moisture protection: It is assumed moisture will infiltrate existing foundations. Mitigate this with a 15mm vapor barrier.
• The cellar slab + connections to the party walls are at the bottom of the envelope.
• The cellar detailing is a large and complex task. There are two issues to consider:
  1. Proper waterproofing
  2. Continuation of the air seal
• The end result is a finely coordinated and durable system, only possible in this collaborative environment.

**NOTE: due to fresh air requirements in the mechanical room, it is treated as “outside” the envelope. This presents special considerations for how utilities penetrate into conditioned space.
WARM + DRY CELLARS

ISSUE:
Typical construction consists of minimal to no vapor barrier.

SOLUTION:
Install a stego wrap (vapor barrier) or similar and rigid insulation below slab. It’s simply **better construction + drier usable space.**
1. Termination bar located above grade on foundation wall
2. At existing foundation walls, if necessary, apply plywood nailer at term. bar locations
3. Existing foundation
4. Bithuthene w/ drainage mat (or eq.)
5. Parge existing wall to create smooth surface for proper adhesion of insulation + new slab details
6. 2x2 furring strips
7. Unfaced stone wool in service cavity (better for moisture resistance)
8. (1) layer 5/8” GWB
9. “Intelligent” vapor membrane. Tape all seams
10. 15 mil. vapor barrier
11. 3 1/2” unfaced stone wool insulation
12. ‘15mm stego wrap’ (or eq.) to close drainage plane
13. 3 1/2” engineered studs on pressure treated bottom plate wrapped in grace at 24” o.c. brace back to masonry wall
14. 4” concrete slab
15. 4” crushed 3/4” stone
16. 4” rigid insulation

SECTION DETAIL AT CELLAR WALL
The party wall constitutes the single largest surface area in the house.

Less of a thermal concern, but a large complicated surface to air seal.
BETTER SEALED PARTY WALLS

ISSUE:
Over the years masonry walls develop many holes that can carry dust, bugs/vermin, sound, fire + moisture.
BETTER SEALED PARTY WALLS

Point, repair or parge masonry & seal w/ Sto Gold or similar. Who wouldn't want a better sealed party wall?