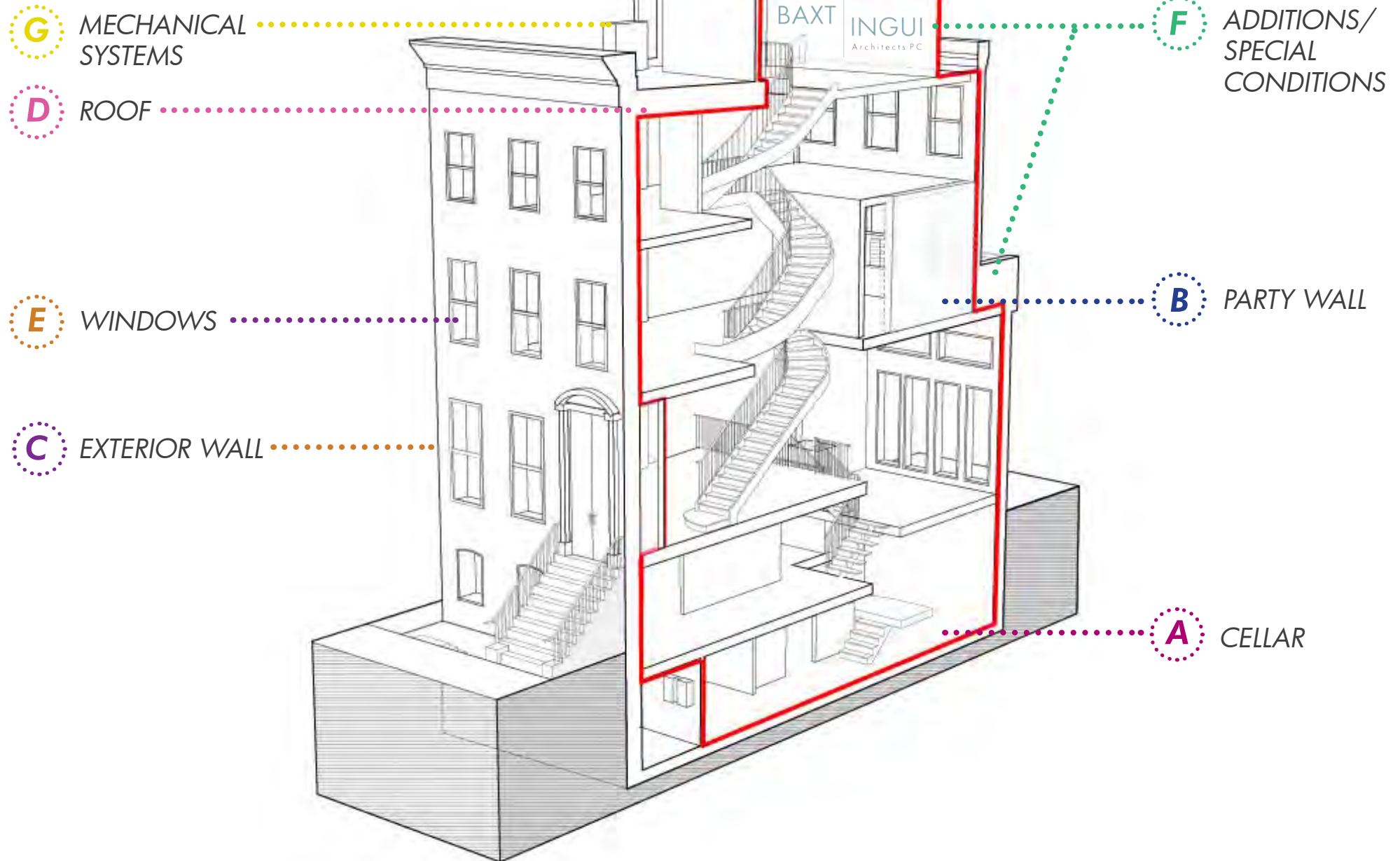
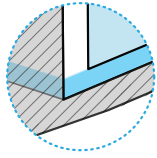


PASSIVE HOUSE: TOWNHOUSE

DESIGN ENVELOPE FIRST,
MECHANICAL SYSTEMS SECOND





CELLAR

- **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.

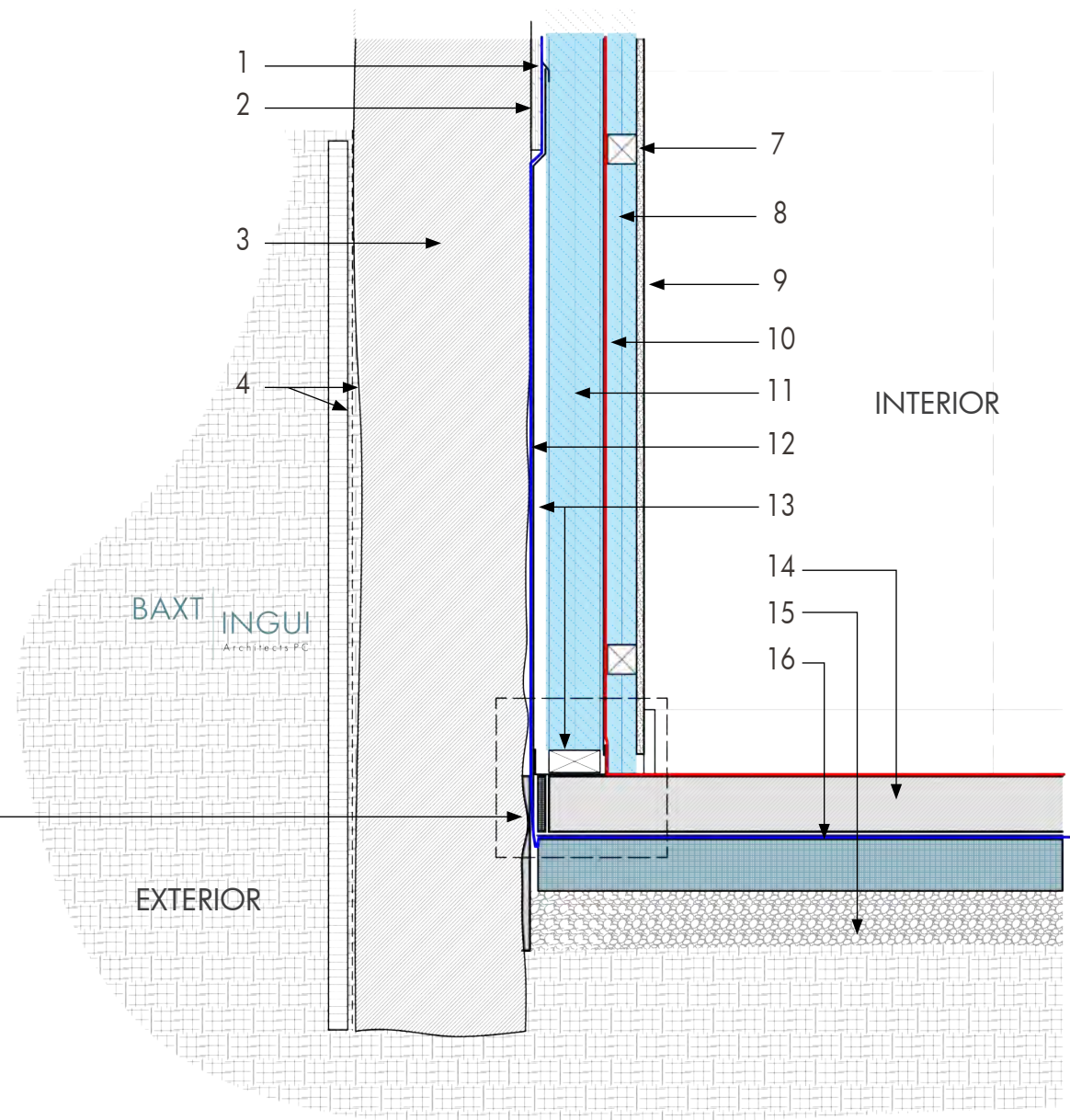
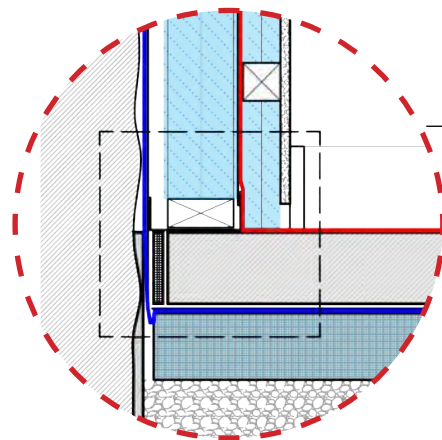
SOLUTION:

*Install a stego wrap (vapor barrier) or similar and rigid insulation below slab. It's simply **better construction + drier usable space.***

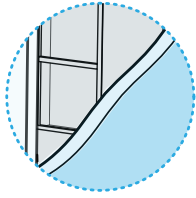
CELLAR

GENERIC PRODUCTS

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

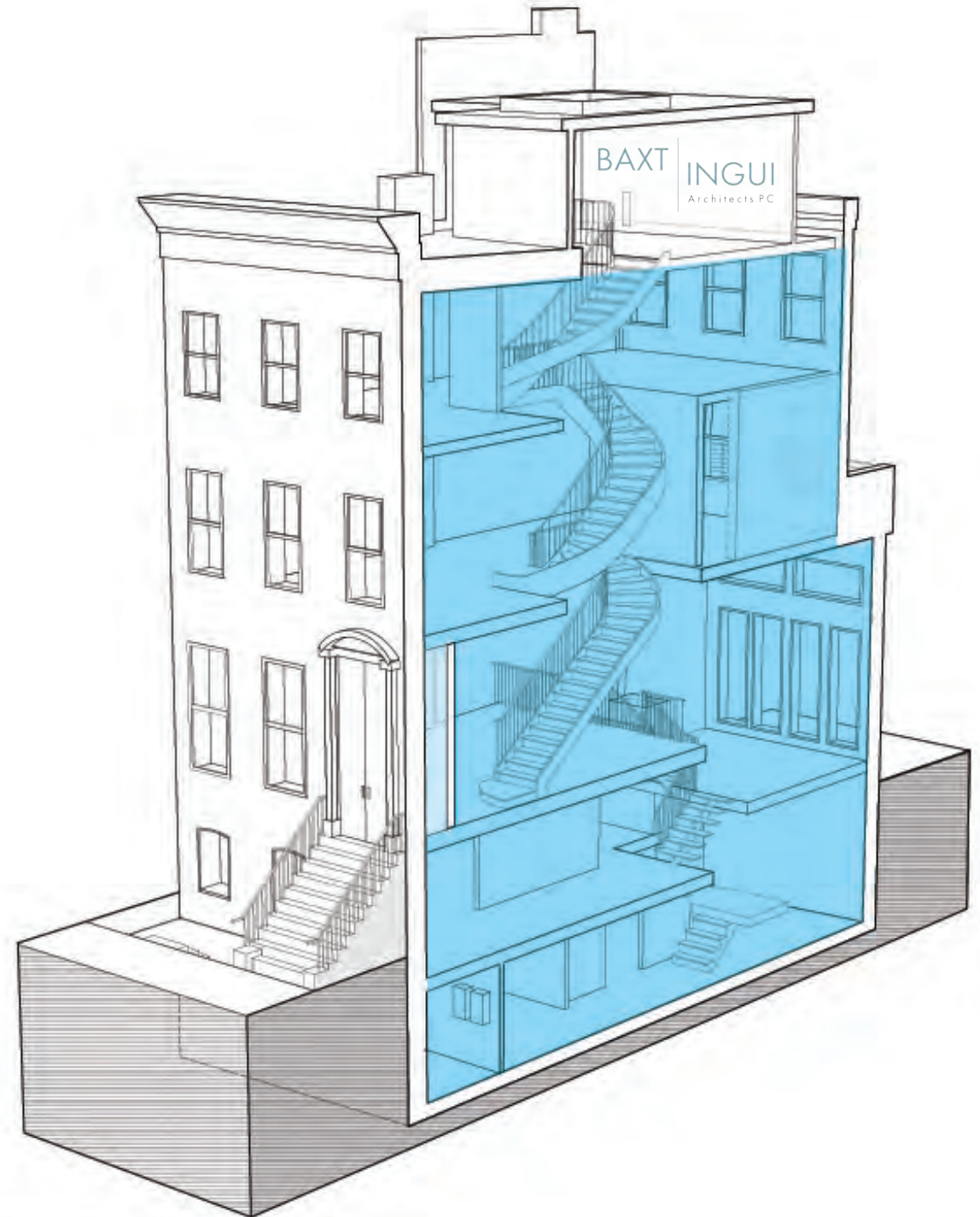


SECTION DETAIL AT CELLAR WALL



PARTY 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**



SOLUTION:

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