Details for Avoidance of Mold

Foundations

PACNY Annual Environmental Conference
April 15, 2005
Mold and Water

• Source
  —Mold is a water problem

• Fixes
  —No water no mold
Find The Water...
and you can

- Find The Mold
- Clean Up The Mold
- Dry The Building
- Make Sure It Doesn’t Happen Again
Exclude the Water

- Keep rain water away from the foundation perimeter.
- Do not place sand layer over polyethylene vapor diffusion retarder under concrete slab.
- Where vinyl flooring is installed over slabs, a low water-to-cement (w/c) ratio (a 0.45 or less is recommended) to reduce water content in the concrete; alternatively, the slab should be allowed to dry (less than 0.3 grams/24 hrs/ft²) prior to flooring installation.
The Old Way - Grows Mold

Interior Stud Framing

Gypsum board installed sometimes, sometimes not

2x2 nailer

Vinyl-faced fiberglass blanket

Interior Blanket
• Ground water enters through foundation wall and is stopped from drying by impermeable surface

• Batt is not airtight to the interior space

• Allows for communication with the air in the basement and eventually the rest of the house
• Moisture moves through diffusion from the foundation wall and is stopped from drying by impermeable surface

• Batt is not airtight to the interior space

• Allows for communication with the air in the basement and eventually the rest of the house
• In the summer, the hot humid air moves behind the batt to the face of foundation wall where condensation occurs and is stopped from drying by impermeable surface.

• Batt is not airtight to the interior space.

• Allows for communication with the air in the basement and eventually the rest of the house.
• Ground water drawn up into the wall through the footing wets the foundation wall and is stopped from drying by impermeable surface

• Batt is not airtight to the interior space

• Allows for communication with the air in the basement and eventually the rest of the house
New Way - No Mold

• Provides airtight seal to foundation wall

• Allows drying to interior

• Provides capillary break at footing
Internally Insulated Basement

Externally Insulated Basement

Basement Insulated in the Middle
For insulation to work successfully on the outside of the foundation wall, it must be in contact with the wall and go above grade as well.

Backfilling is on the critical path of the construction sequence.
• Rigid insulation on the inside is glued to the wall, making it airtight

• Insulating the interior means it can be done any time, after the concrete has been placed and allowed to cure for a while

• Not on the critical path
• Studding out a basement wall with highly conductive metal studs is a bad idea

• Condensation will occur allowing mold growth on the gypsum surface
Gluing rigid foam to the foundation wall prior to installing metal studs is a good idea.
Another option for new crawl spaces or basements