Hot Topics

Slab Insulation

Vapor Retarders

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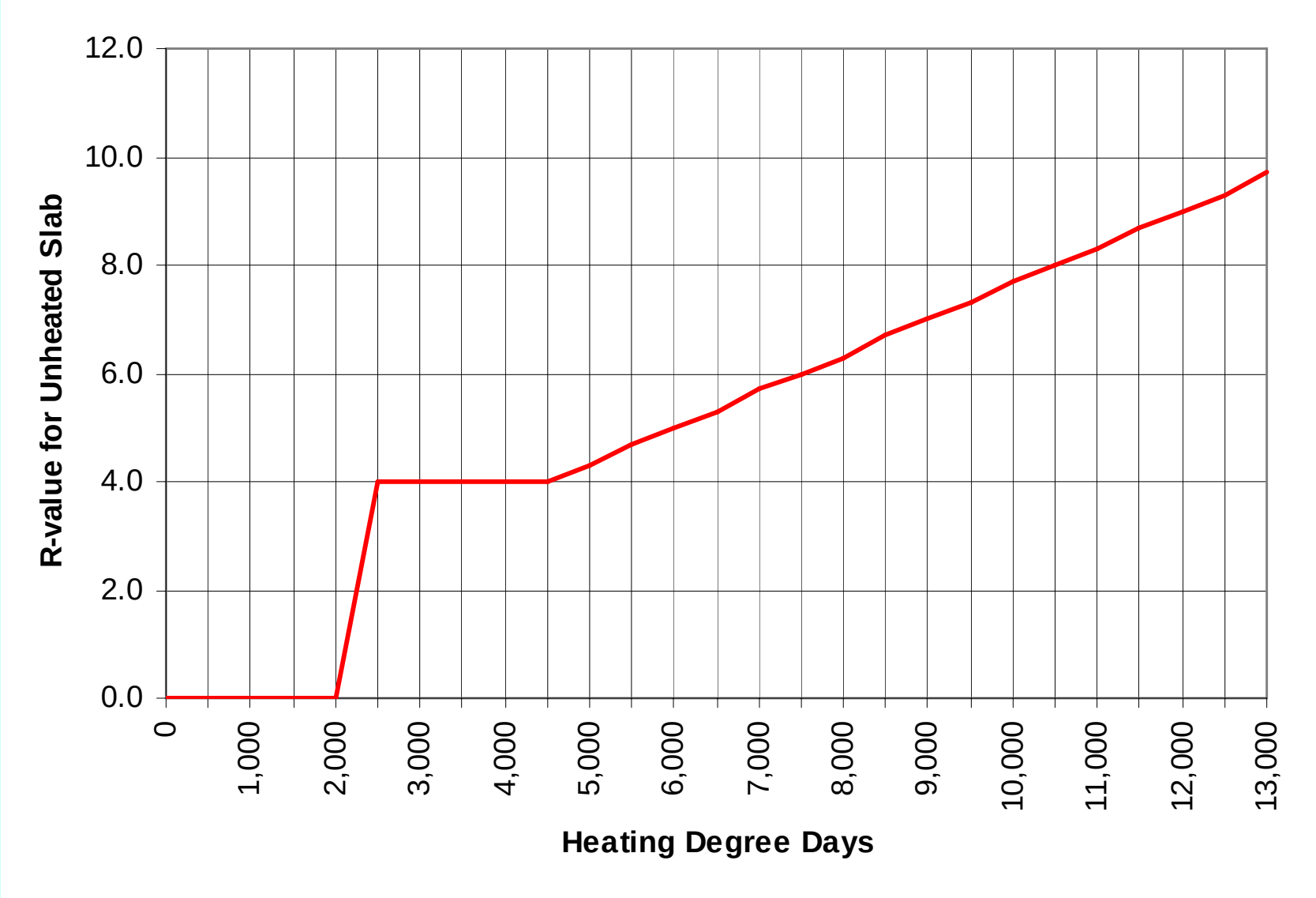
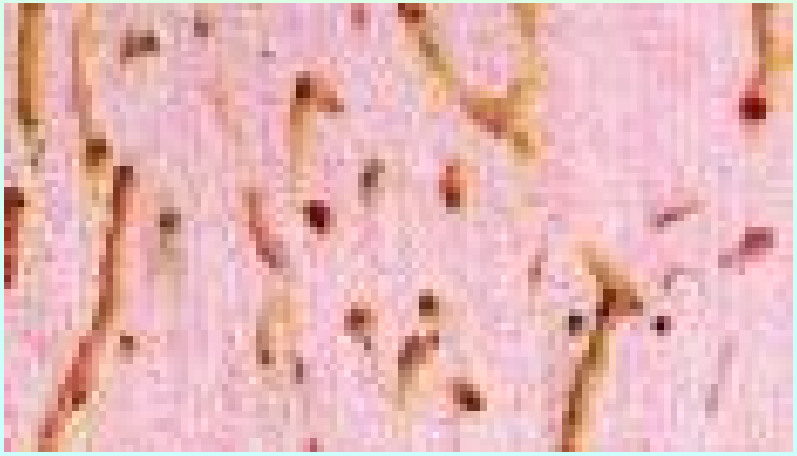
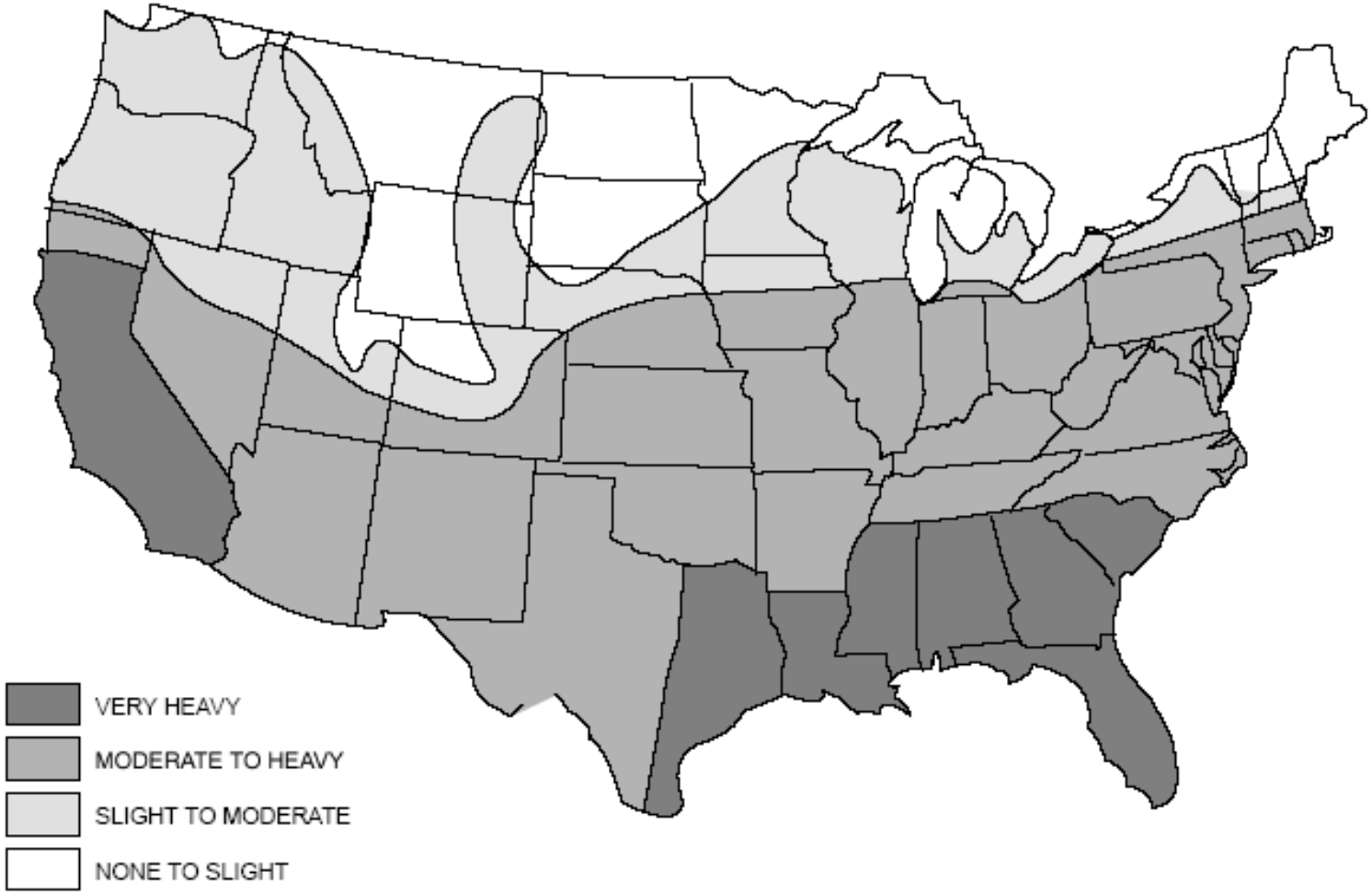
1992 to 2003 Slab Map



Bugs



Termite Infestation Chart

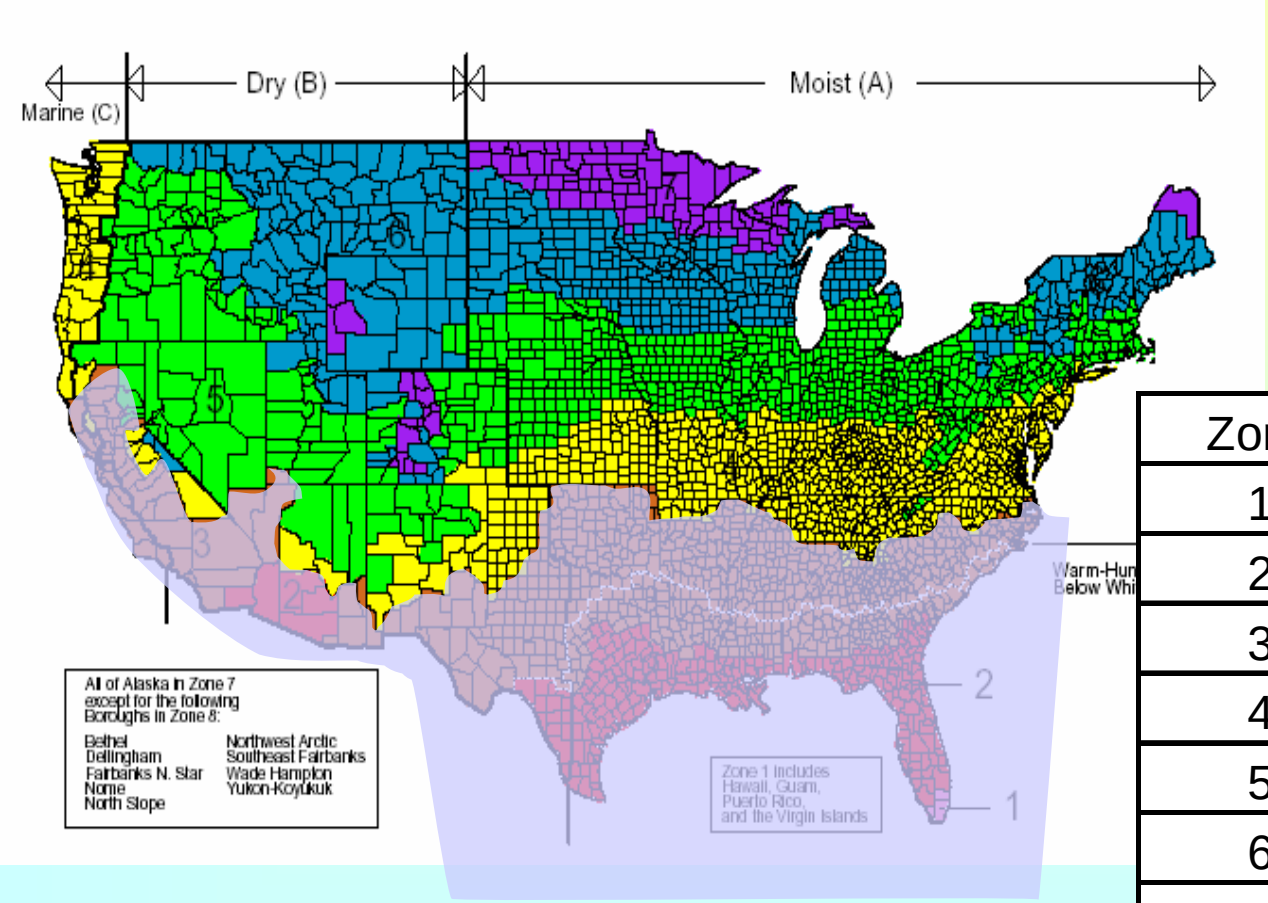


Note: Lines defining areas are approximate only. Local conditions may be more or less severe than indicated by the region classification.

Slab Insulation: 2004 IECC Supplement

- For slabs less than 12” below grade
- Shall extend downward on the outside or inside of the foundation wall
- Can extend away from building underground (minimum 10” of soil)
- Top can be cut at 45 degree angle
- Not required in jurisdictions with very heavy termite infestation

2004 IECC Addendum



Zone	R-value	Feet
1	0	0
2	0	0
3	0	0
4	10	2
5	10	2
6	10	4
7	10	4
8	10	4

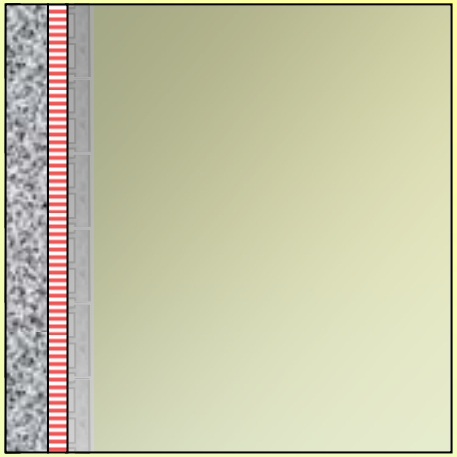
Energy Savings

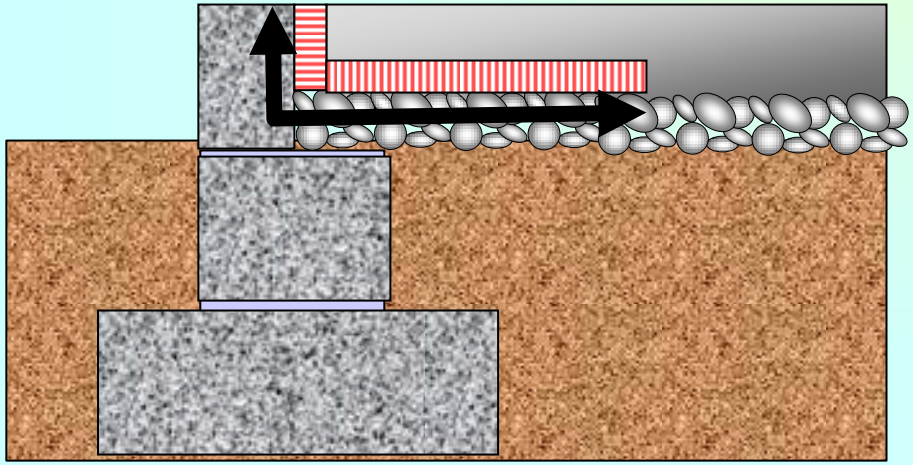
	2003 Zone/ Slab R-val	2004 Zone/ Slab R-val	Savings ($/yr)	
			R-5	R-10
Charlotte	Zone 7 / R-3.1	Zone 3 / R-0	74	101
Greensboro	Zone 8 / R-3.6	Zone 4 / R-10	95	117
Asheville	Zone 9 / R-3.8	Zone 4 / R-10	104	127
Louisville	Zone 10 / R-4	Zone 4 / R-10	74	92
Indianapolis	Zone 12 / R-4.7	Zone 4 / R-10	135	168
Amarillo	Zone 9 / R-3.9	Zone 4 / R-10	105	132
Wichita	Zone 10 / R-4.2	Zone 4 / R-10	115	144

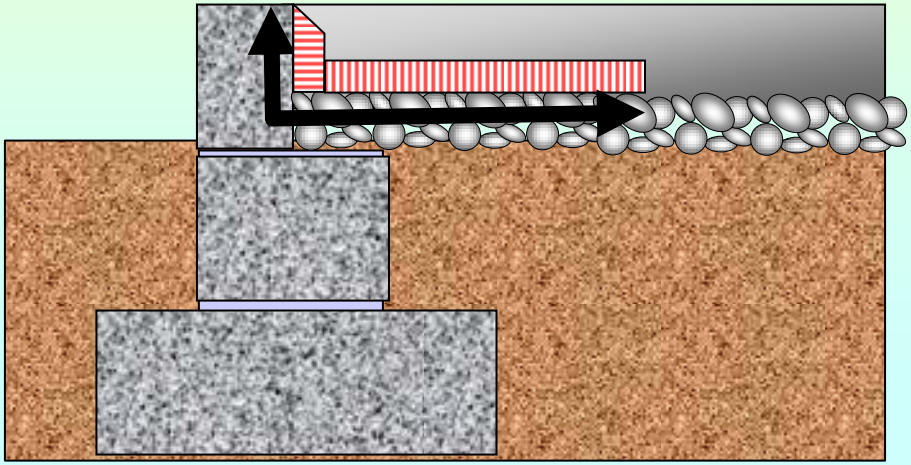
Slab Insulation Economics

Cost for R-10 Slab Insulation		$ 2	per linear foot	
Length of Slab Perimeter		200	feet	
Total Cost		$ 400		
	Energy Savings	**Payback Period**	**Annual Mortgage**	**Net Annual Savings**
Charlotte	101	4.0	30	71
Greensboro	117	3.4	30	87
Asheville	127	3.1	30	97
Louisville	92	4.3	30	62
Indianapolis	168	2.4	30	138
Amarillo	132	3.0	30	102
Wichita	144	2.8	30	114

Slab Insulation Approaches



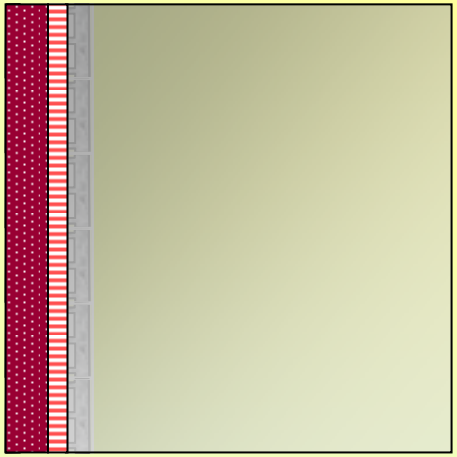


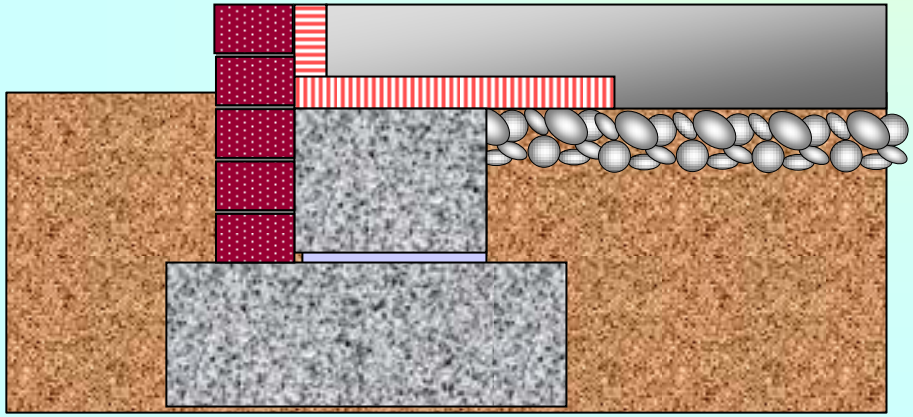


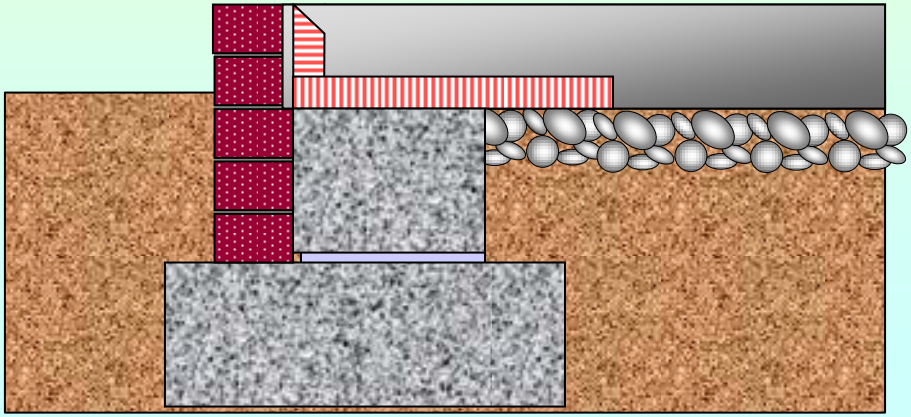
Slab Edge Insulation

Details Are Key

Slab Insulation Approaches

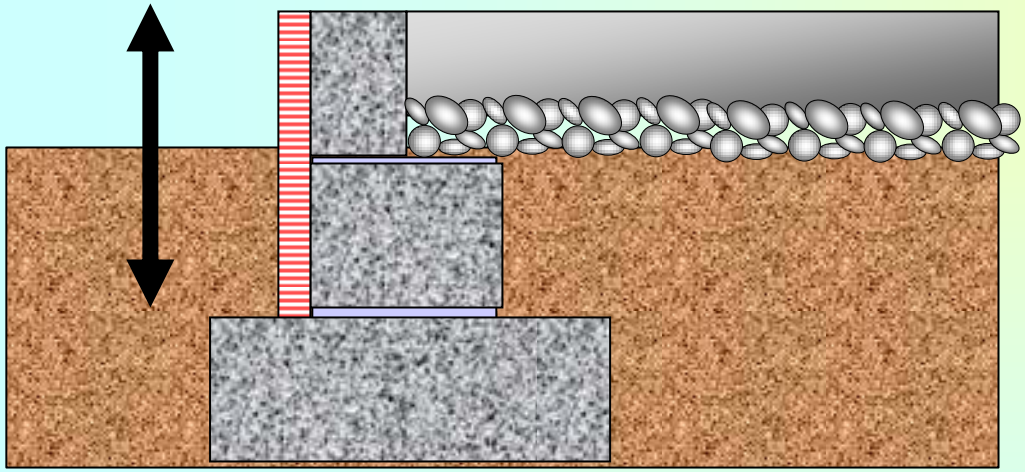


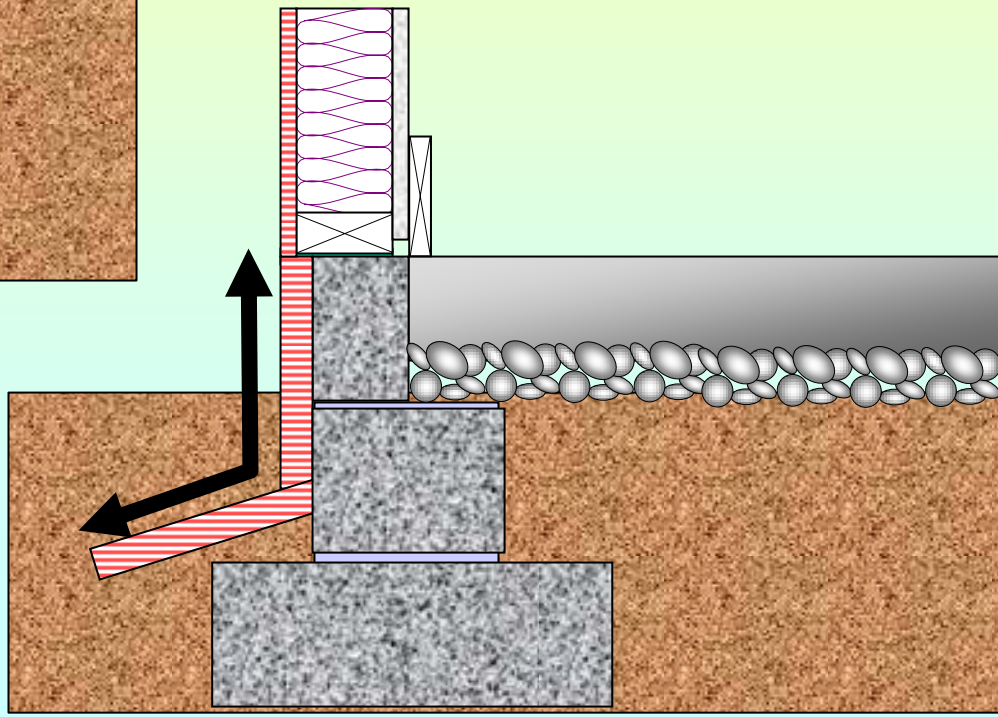


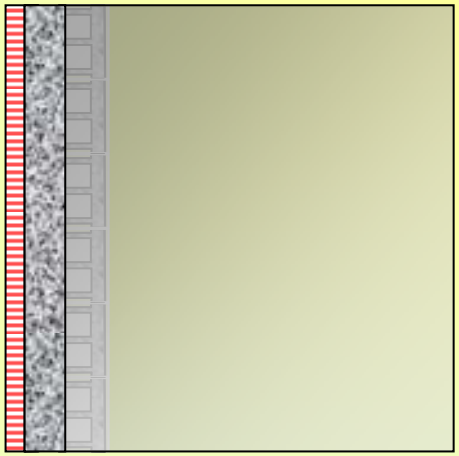


Hickory Habitat

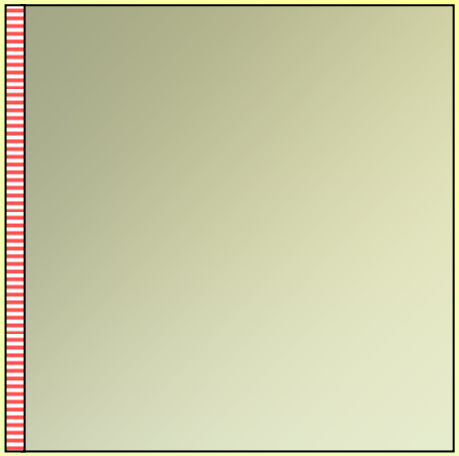
Slab Insulation Approaches

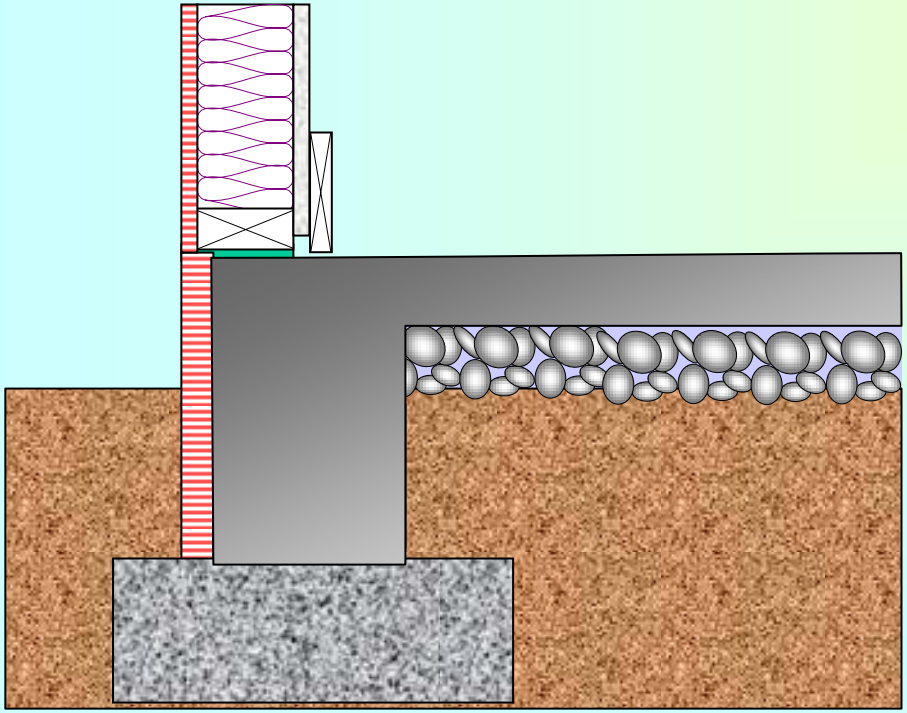


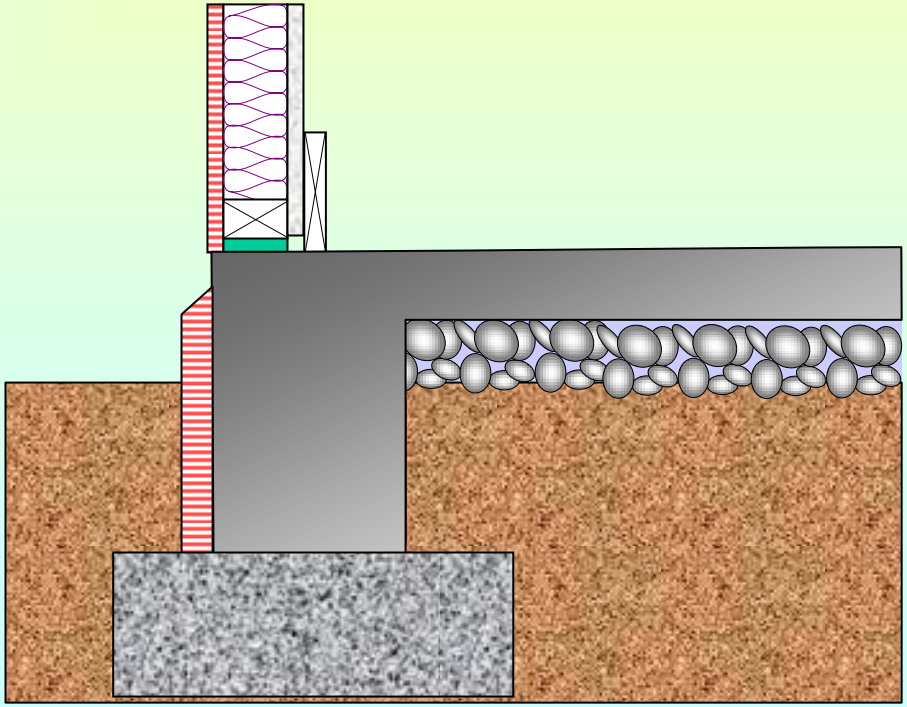




Slab Insulation Approaches





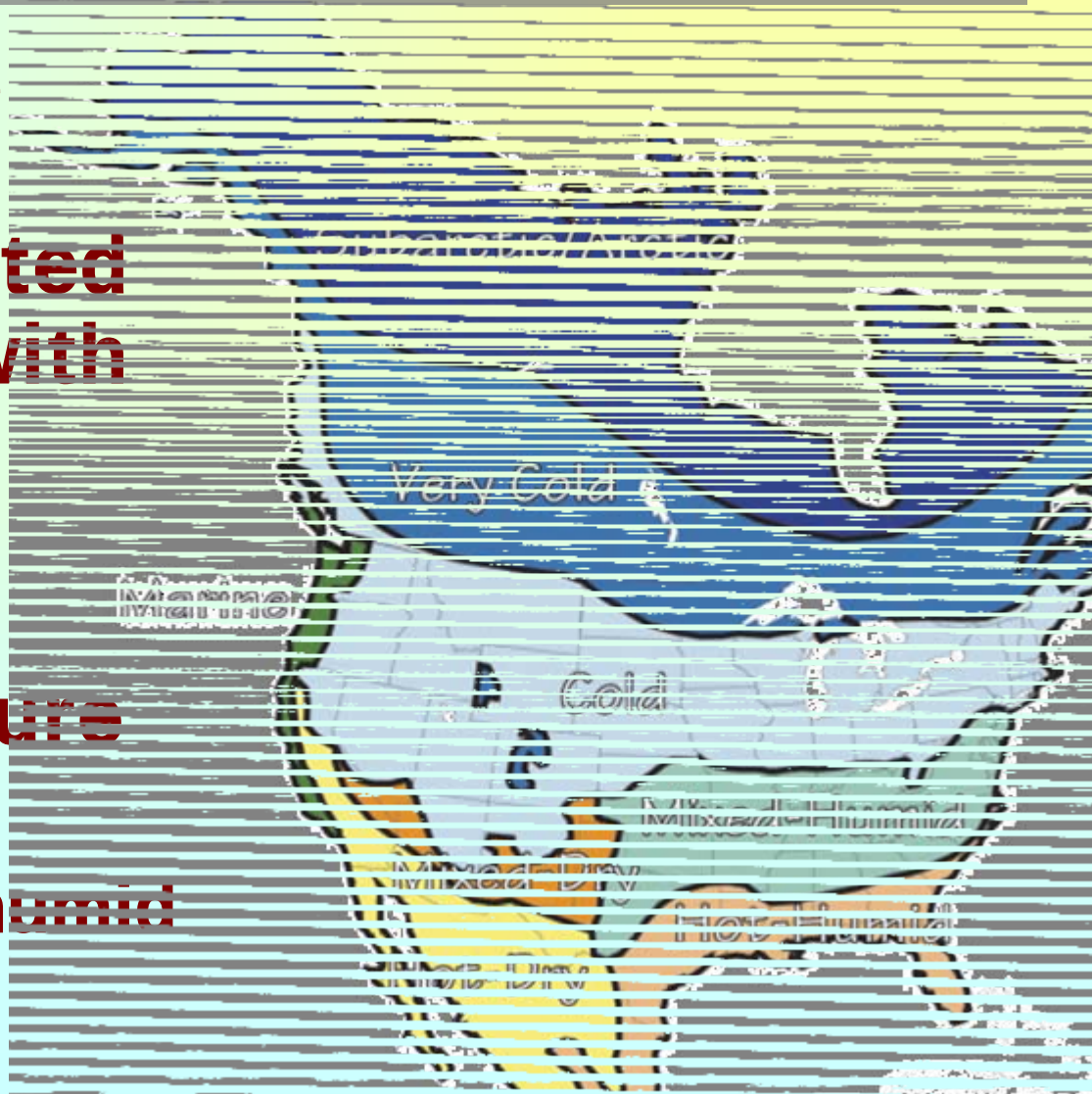


Slab Drip Edge as Termite Shield

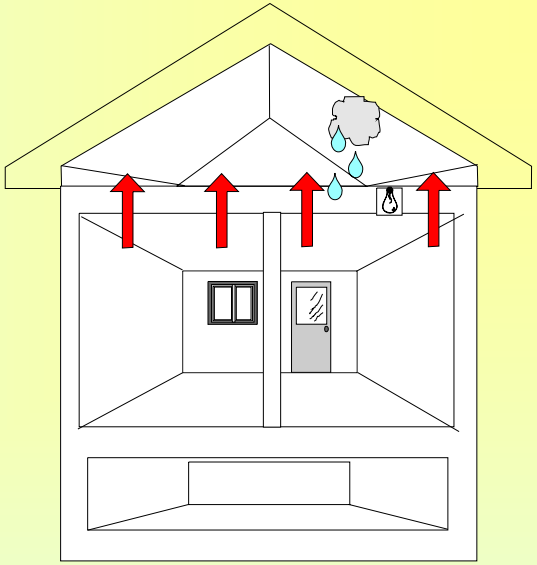
Vapor Retarders: 2000 and 2003 IECC

Above-grade frame walls, floors and ceilings not ventilated shall be provided with an approved vapor retarder having a maximum Perm rating of 1 (Procedure A of ASTM E 96)

- **Except in hot and humid climates**



Vapor Diffusion



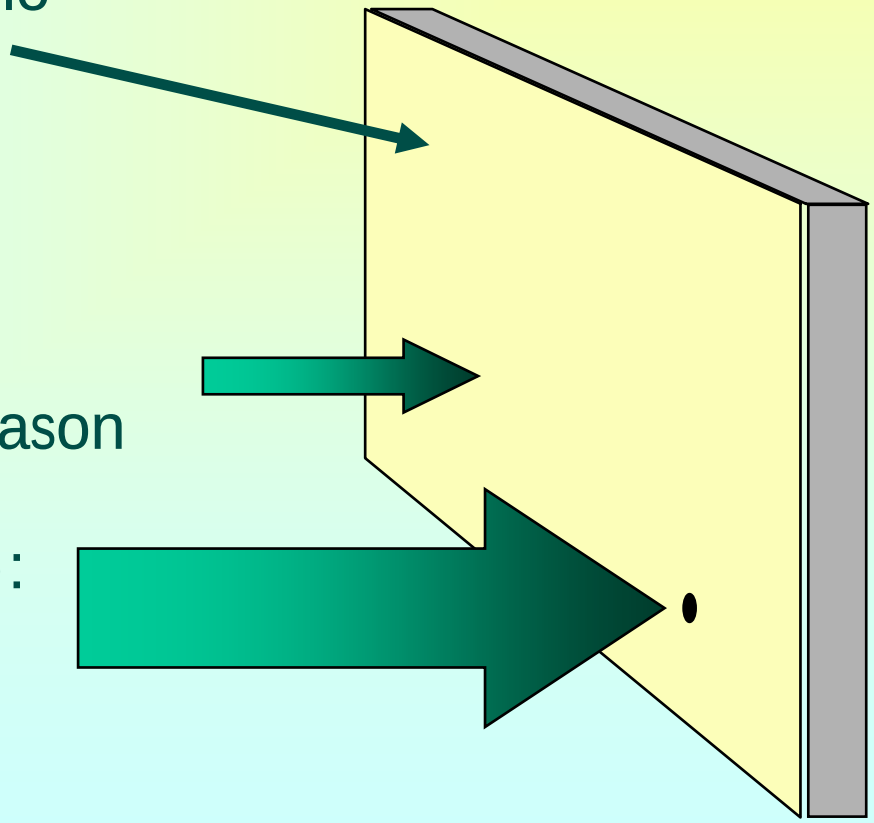
- Water vapor travels through building materials
  - Perm rating -- measures how readily vapor diffuses through materials
  - Rated vapor barriers -- Perm ratings under 1
  - Materials with higher Perm ratings still allow vapor to diffuse
  - Drywall -- Perm rating over 30

Perm Ratings of Materials

Drywall	30-50
Housewrap	5-50
Primed & Painted Drywall	2-3
15 pound asphalt felt	1-4
Insulated foam sheathing	0.4-1.2
Exterior plywood/OSB	0.7
Vapor retarder paint	0.6-0.9
Asphalt coated kraft paper	0.4
Polyethylene	0.06

Annual Water Vapor Transport

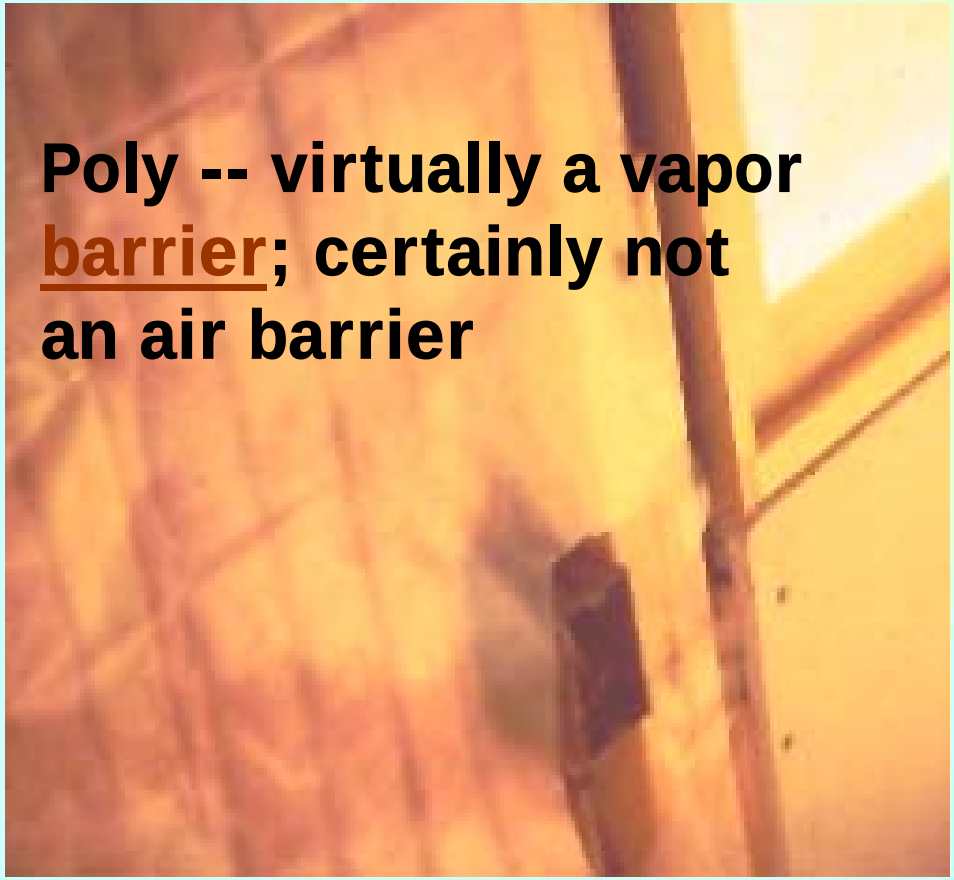
100 sq ft Wall with no Vapor Barrier



Vapor Diffusion:
2/3 pint per heating season

Air Leakage (1/2” hole):
50 pints of water

Vapor retarders versus barriers?



Interior Vapor Retarders

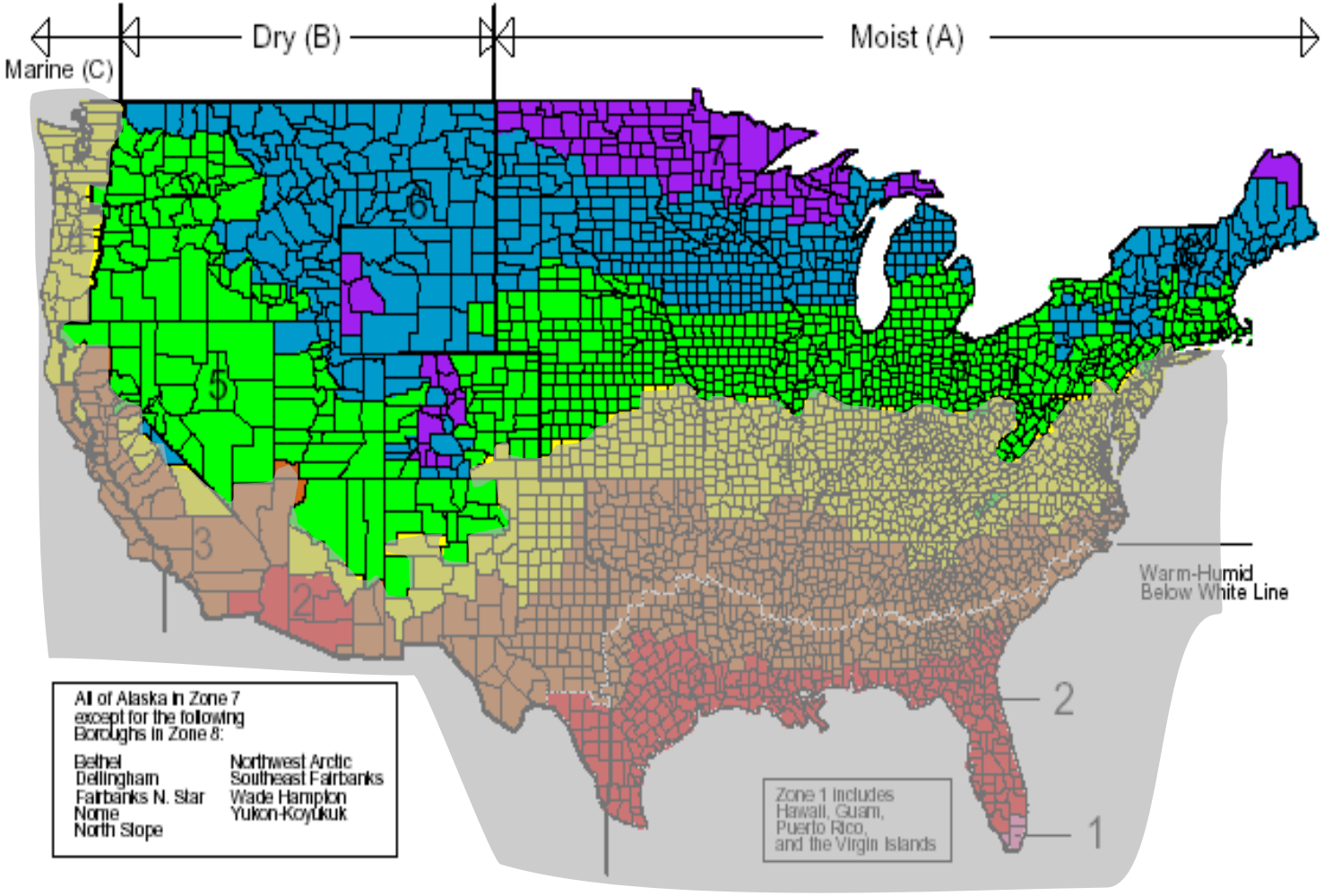
Kraft Paper Recommended

Poly Not Recommended

Vapor Retarders: 2004 IECC Supplement

- Above-grade frame walls, floors and ceilings not ventilated shall be provided with an approved vapor retarder
  - Except in Zones 1 to 4 (Crawl space floor vapor retarders are not excepted)

IECC 2004/5: Vapor retarders not required Zones 1-4



Conclusions

- Slab insulation
  - Great payback; improves comfort
  - Get the edge
  - Watch the bugs
  - 1” is better than none
- Vapor retarders
  - Air sealing is key to reduce vapor intrusion in walls in most climate zones
  - Walls are more forgiving without a poly vapor retarder