

BECP Technical Assistance to States

Montana

Montana Residential Energy Code

- Based on a window to wall ratio
- Montana houses average - 12% window to wall ratio
- Approximately 80 % of new houses should fit in the simplified prescriptive path of 15% or less window/wall ratio.
- RES-CHECK is an option
- 2006 IECC not based on window/ratio

Simplified prescriptive path

15% or less window/wall ratio

- Ceiling - R-49*
- Exterior above ground wall - R-21
- Floor over unheated space - R-21
- Crawl space wall - R-20
- Slab perimeter - R-13 for 4 feet
- Basement “finished” wall - R-11
- Window - U-.35
- * If R-38 at outer wall, can use R-38 throughout attic.

About 13 inches above exterior wall in attic - 12 inches of insulation and 1 inch air space

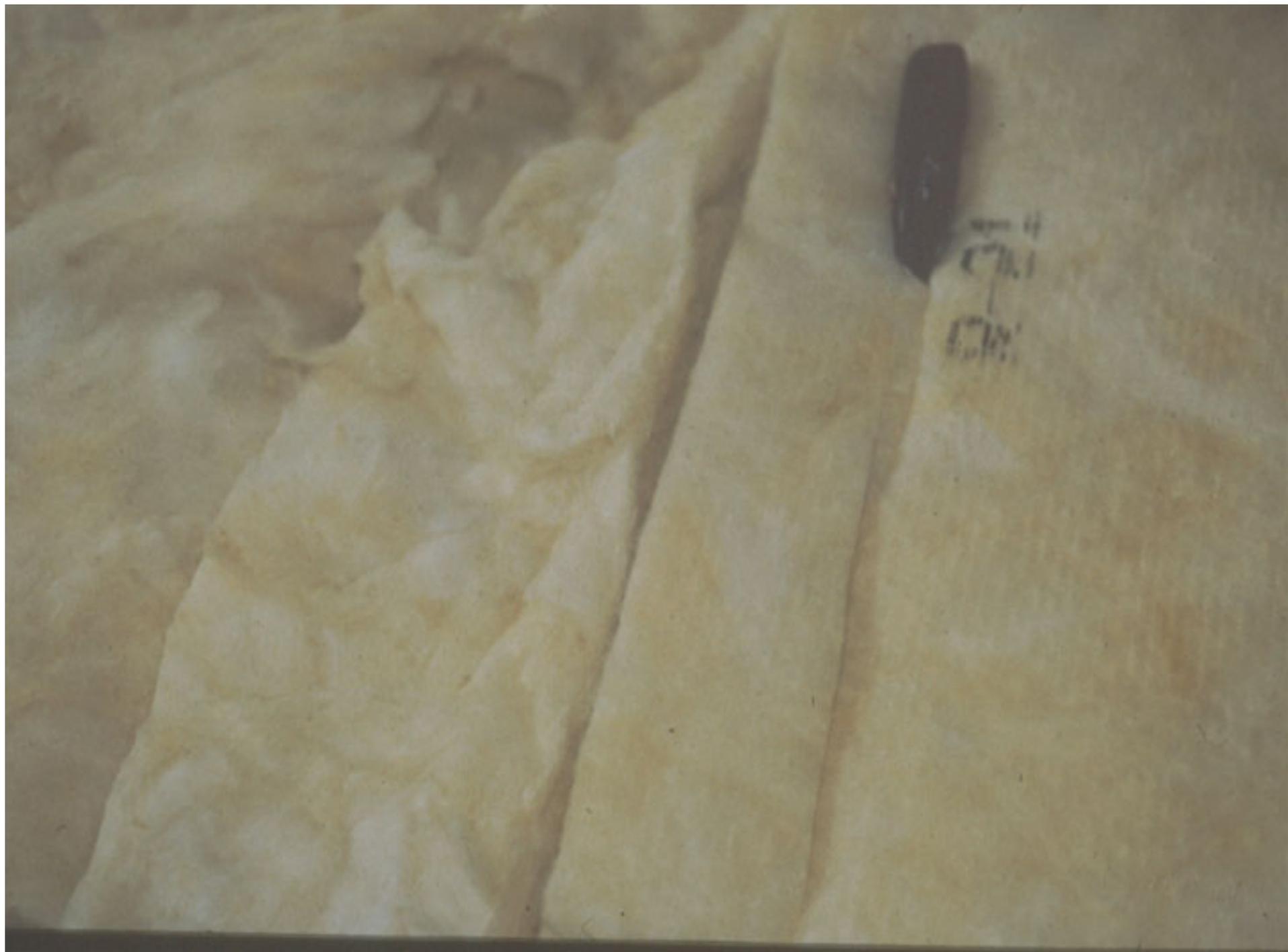
New Energy Code 2006 IECC

- Simplifies the energy code
- No longer any window/wall ratio
- DEQ's concerns – lower
- Above ground walls R-19
- Crawlspace walls R-10
- Crawlspace walls insulation only required for 2 ft below finished grade.
- Commercial building – no slab / below grade insulation required.

Analysis of Residential 2006 IECC Code Change for Montana

R.G. Lucas

- For 1500 sq. ft. house - R-21 saves about \$17 per year over R-19
- Estimate 40% of new houses are receiving R-21 or above in above grade walls
- For 1500 sq.ft crawlspaces R-19 saves about \$19 per year over R-10.
- Estimate 40% of new houses are receiving R-19 or above in the crawlspaces walls.



2006 IECC - Costs and Savings

1500 sq. ft. house

- Above ground walls
R-21 vs. R-19
extra \$.14 per sq. ft. - \$156 with a savings of \$17 for a simple payback of about 11 years.
- Crawlspace walls
R-20/19 vs. R-10
extra \$.18 per sq. ft. - \$115 with a saving of \$19 for a simple payback of about 6 years

Montana Slab Edge Insulation Analysis for 2006 IECC Adoption

K. Gowri Ph.D.

- Insulating slab edges with R-10 to 4 ft depth along the slab edge saves about 3% annual energy and reduces fuel cost by 1-2%
- For Montana building the payback period could vary from 4 years for small retail commercial building to 12 years for small office building.
- Estimate 80 % of commercial building below grade walls are receiving insulation.



How we are using the information

- Distributing information at building code adoption meetings.
- Intend to amend 2006 IECC
 - R-21 above grade walls
 - R-19 crawlspaces
 - R-10 slab /below grade insulation for commercial buildings