

Radon and Architects
Radon Removal, Inc., Randy Weestrand
952-476-6226 www.fixradon.com

Radon basics

What is radon?

- A. Radioactive gas
- B. Measured in pCi/l

How common is it?

- A. National: 7% of all homes
- B. Minnesota: See map
- C. Local: See brochure

Is it really a health risk?

- A. No longer debated (Except by the tin foil hat society)
- B. Physiological effects
 - 1. Lung damage
 - 2. Risk charts (See the “Guide” p. 18)

Radon tests

- A. Protocols (See the “Guide” p.20 and edited EPA protocols)
- B. Long Term: Alpha track, 1 month to 1 year
- C. Short term: 48 hours, closed house 12 hours before and during the test
 - 1. Charcoal: 2 cans, simultaneous or consecutive
 - 2. Continuous monitor

How does radon get in?

- A. Nearby source of uranium
- B. Entry pathways
- C. Driving force
 - 1. Stack effect
 - 2. Wind
 - 3. Big exhaust fans
 - 4. Rain
 - 5. Barometric pressure
- D. Radon in water

Mitigation

- A. Sealing: 0 – 50% reductions, \$150 - \$250, add \$250 - \$500 for crawl (Rufco 300W, cross laminated, Corona treated)
- B. Sub Slab Depressurization: 80% - 99% reductions, \$1,200 - \$1,600
 - 1. Vacuum gauge
 - 2. By product: Reduced winter humidity and musty smell
- C. Heat recovery ventilator: 25% - 50% reductions, \$2,000 - \$2,400
 - 1. Negatives: Cost, maintenance, summer and winter humidity
- D. Hiring a contractor
 - 1. NEHA certified
 - 2. Written bid
 - 3. 5 year guarantee

Existing homes with radon

Can you pre-identify radon prone houses?

- A. Tight versus drafty? No
- B. By foundation type: Poured, blocks, wood or stone? No
- C. By soil type? No

Standards and protocols

- A. EPA “Radon Mitigation Standards”, Revised April 1994 (*The* mitigation standard)
- B. EPA “Protocols for Radon and Radon Decay Product Measurements in Homes”, June 1993
- C. ASTM E2121-03, existing buildings
- D. ASTM E1465-06, standard practices, new construction
- E. IRC Appendix F

New construction

- A. Pre-construction soil tests don't work
- B. New building code: IRC Appendix F
 - 1. Gas permeable layer
 - 2. Soil gas retarder
 - 3. Sealing
 - 4. Vent pipe
 - 5. Effectiveness

Commercial buildings

- A. Effect of HVAC system
- B. When to test?

Training & credentials

- A. MURC (Midwest Universities Radon Consortium)
 - 1. Mitigation
 - 2. Testing
- B. NEHA certification
- C. AARST membership
- D. Minnesota providers list

Resources

FIXRADON.COM, our web site, answers the questions I've been asked repeatedly since 1988, has photos of installed systems, a link to AirCheck to buy test cans and links to more info on radon than anyone would ever want.

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