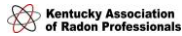


# Environmental Carcinogens Radon and Vapor Intrusion

Kentucky Cancer Consortium  
January 29, 2013  
Kyle Hoylman, Kentucky Association of Radon Professionals



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## Topics for Discussion

- Radon versus Vapor Intrusion
- Radon Overview
- Entry Points and Sources
- Know Your Number
- Kentucky Radon Statistics
- Kentucky Radon Maps
- Radon Policy Initiatives
- Vapor Intrusion Policy Initiatives
- Cancer Action Plan – Objectives and Strategies

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## Radon Overview



Radon is a naturally-occurring, cancer-causing radioactive gas that:

- you can't see, smell or taste
- causes an estimated 25,000 deaths each year
- is the leading cause of lung cancer among non-smokers
- is widely regarded as the leading environmental cause of cancer mortality

The only way to know if a building has elevated radon levels is to have it tested.

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## Radon Entry Points and Sources



### Radon entry points:

- Floor cracks
- Construction joints
- Wall cracks
- Suspended floor gaps
- Service pipe gaps
- Wall cavities
- Water supply
- Sump crock, plumbing penetrations

### Indoor air contribution sources:

- Soil gas: 90%-95%
- Emanation: 3%-5%
- Water supply: 1%-2%

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## Know Your Number



EPA action level = 4.0 pCi/L

WHO action level = 2.7 pCi/L

Radon Level*:	Equates to <sup>1</sup> :
2.0 pCi/L	100 chest x-rays / year 4 cigarettes / day
4.0 pCi/L	200 chest x-rays / year 8 cigarettes / day
8.0 pCi/L	400 chest x-rays / year 16 cigarettes / day
20.0 pCi/L	1,000 chest x-rays / year 40 cigarettes / day
40.0 pCi/L	2,000 chest x-rays / year 80 cigarettes / day

\*Radon is measured in pico curies per liter of air (pCi/L)  
<sup>1</sup>U.S. Department of Health and Human Services, Public Health Service, Toxicological Profile for Radon, (1990).

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## Kentucky Radon Statistics



### Kentucky radon statistics<sup>1,2</sup>:

- Radon found in elevated levels in every county in state.
- Nationwide, 1 in 15 (7%) of homes contain elevated levels versus 47% of all Kentucky homes.
- Nationwide, average home tests at 1.3 pCi/L versus 6.7 pCi/L average for Kentucky homes.
- In some areas of Kentucky, more than 65% of all homes will test above 4.0 pCi/L
- Kentucky leads our nation in lung cancer death rates – this isn't all because of smoking

<sup>1</sup>Kentucky Cabinet for Health and Family Services, Kentucky Radon Program, Kentucky Radon Test Results, (2009).  
<sup>2</sup>U.S. Environmental Protection Agency, Indoor Air Division, A Citizen's Guide to Radon, EPA 402-K-09-001, January 2009.

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