

Healthy Green Buildings

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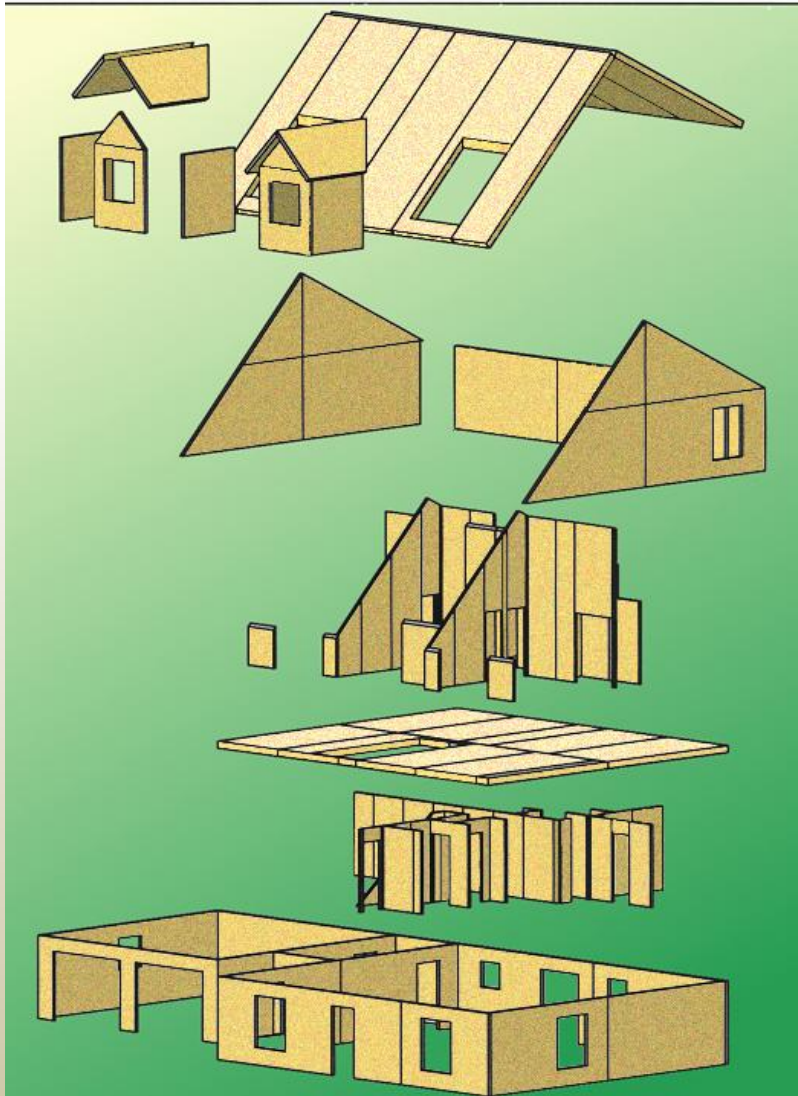
www.rcac.org

Healthy Homes Workshop

West Sacramento, California – May 20, 2009



Neighborhood commercial development at a residential scale can add amenities and reduce automobile use. Neighborhood designs that make walking safe and convenient contribute to better public health.



Modern construction systems make it possible to construct buildings that are nearly airtight. Lower heating and cooling cost is the beneficial goal of energy efficient construction.

Unfortunately, airtight buildings can have serious indoor air quality problems.



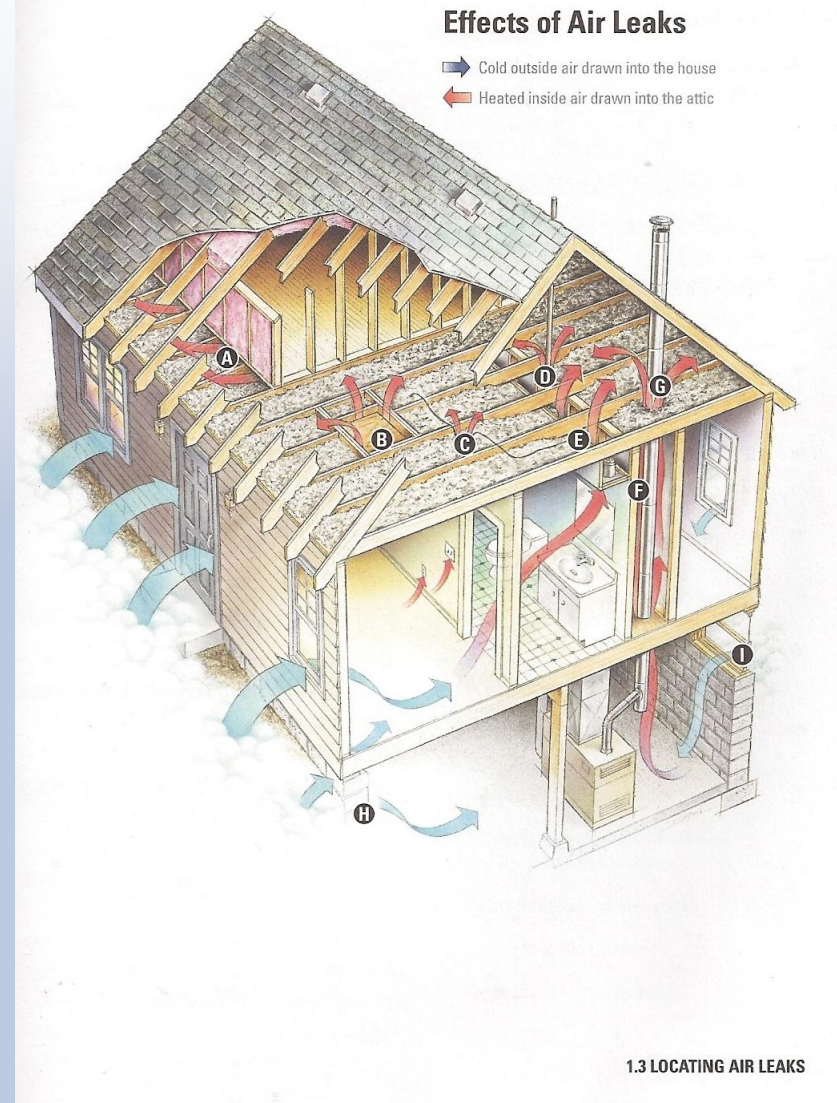
Thirty years ago
“sick building
syndrome” was
unknown.

Today’s tight
buildings allow
pollutants to build up
and become much
more concentrated

Many buildings have
indoor air quality that
is many times more
polluted than the
outdoor air in many
of our most polluted
cities.



Older buildings that allowed air infiltration cost more to heat and cool but generally had better indoor air quality.



Today's energy efficient, tight building envelopes allow an accumulation of...

- ✓ Volatile Organic Compounds
- ✓ Carbon Monoxide
- ✓ Biological Pollutants
- ✓ Radon

Volatile Organic Compounds (VOC's)...

- Formaldehyde
- Pesticides
- Solvents
- Cleaning Agents

Symptoms

- Conjunctival irritation
- Nose, throat discomfort
- Headache
- Allergic skin reaction
- Dyspnea (shortness of breath)
- Nausea,
- Vomiting
- Nosebleed (formaldehyde)
- Fatigue
- Dizziness

Common VOC Sources

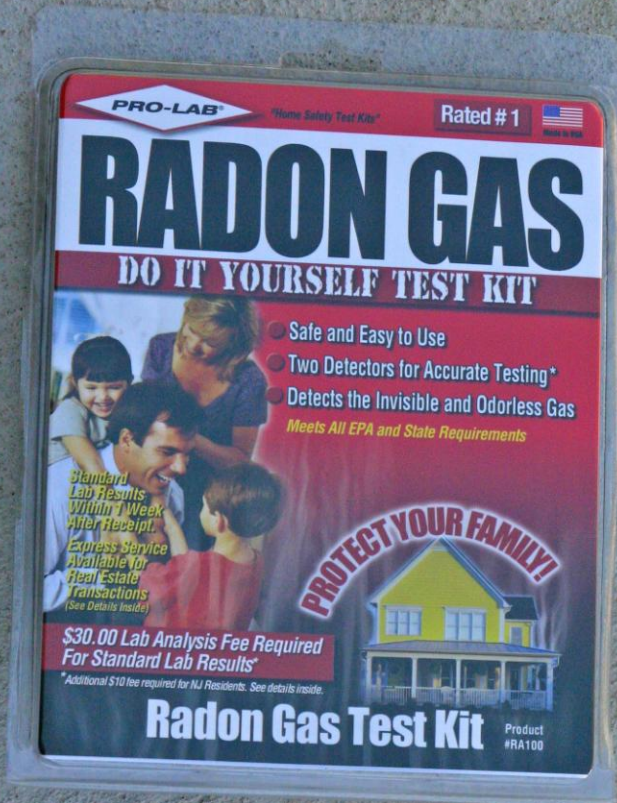
- ✓ Paint
- ✓ Adhesives
- ✓ Carpet
- ✓ Household Cleaning Products
- ✓ MDF (Particle Board)



Radon

Radon is a colorless and odorless radioactive gas. Radon is a naturally occurring by-product of the radioactive decay of radium which is, in turn, a decay product of Uranium 238.

Radon is the nation's second leading cause of lung cancer. Lung cancer rates among smokers exposed to radon are especially high.



Radon enters buildings through the floors and foundations. Poorly vented buildings may allow an unhealthy accumulation of radon gas.

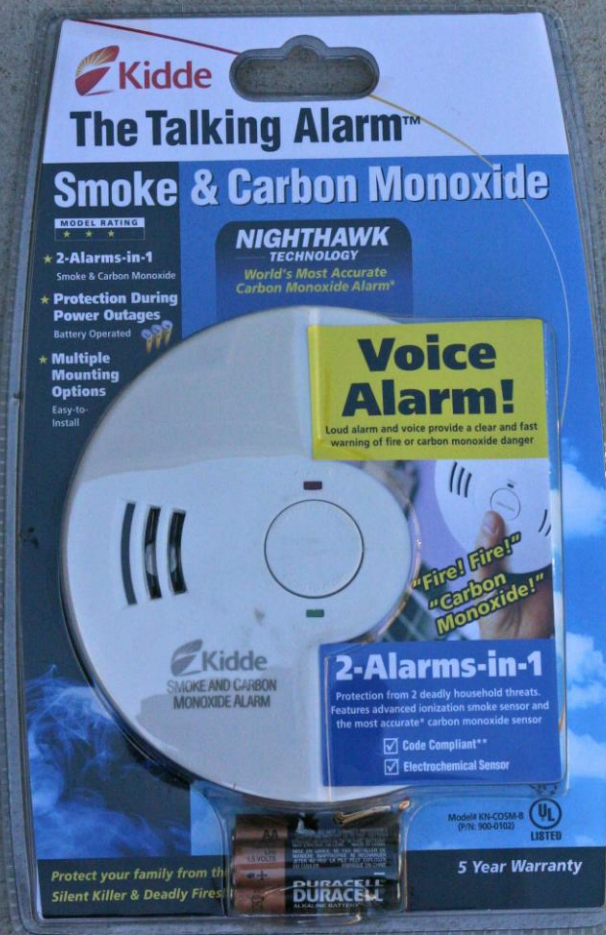
Radon accumulation can be greatly reduced in new construction by using sub slab membranes and venting. In existing construction an active sub-slab venting system may be necessary.



Carbon Monoxide

Carbon monoxide is an odorless and colorless gas. It is a by-product of combustion. Carbon monoxide is an asphyxiant and exposure can be fatal.

Recently there have been cases showing that low level, long term exposures to CO can cause cognitive disorders. Short term exposure can cause headaches, fatigue and impaired judgement.



Biological Pollutants

- ✓ Mold
- ✓ Animal Dander
- ✓ Dust Mites
- ✓ Other

Symptoms

- ✓ Recognized infectious disease
- ✓ Exacerbation of asthma
- ✓ Rhinitis
- ✓ Conjunctival inflammation
- ✓ Recurrent fever
- ✓ Malaise
- ✓ Dyspnea
- ✓ Chest tightness
- ✓ Cough

Accumulation of Mold and Other Biological Pollutants

- Poor ventilation
- Improper construction
- Leaking plumbing

Avoiding Problems

- Proper Ventilation
- Choice of Construction Materials
- Moisture Control
- Correct Vapor Barrier Placement
- Correct Flashing and Window Wrap
- Proper Drainage



Check on Construction Material Hazards

Use the Manufacturer's
Safety Data Sheet
(MSDS) to determine
hazardous contents of
building products such
as adhesives.

ASHLAND SAFETY DATA SHEET

Page: 1
Revision Date: 07/15/2008
Print Date: 10/28/2008
MSDS Number: R0272451
Version: 1.7

PLIOSEAL™ 9705
570542

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Ashland	Regulatory Information Number	1-800-325-3751
P.O. Box 2219	Telephone	614-790-3333
Columbus, OH 43216	Emergency telephone	1-800-ASHLAND (1-800-274-5263)

Product name	PLIOSEAL™ 9705
Product code	570542
Product Use Description	No data

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid

DANGER! EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE. MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. MAY BE HARMFUL IF INHALED. MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN, CAUSE IRRITATION AND BURNS.

Potential Health Effects

Routes of exposure

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

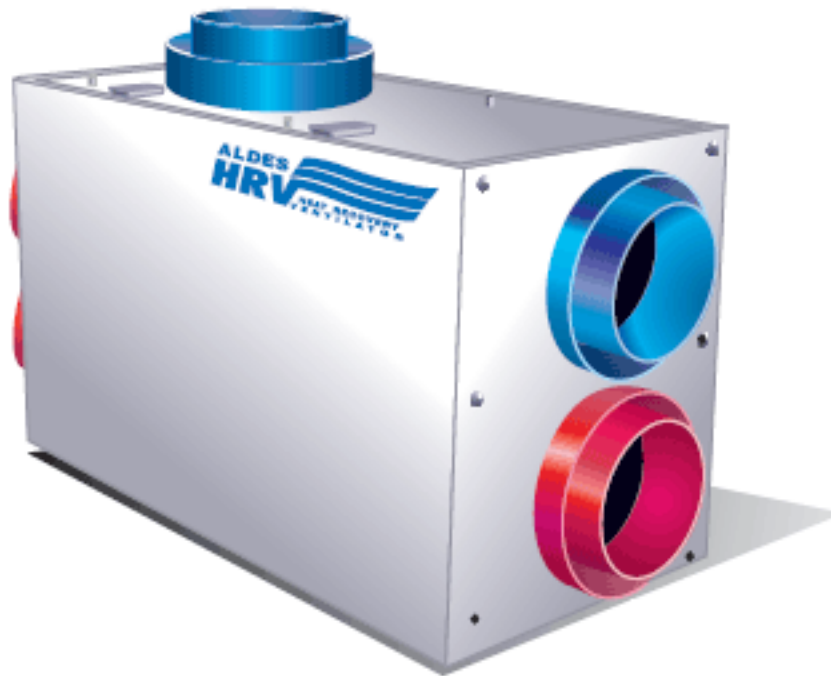
Eye contact

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes. Additional symptoms of eye exposure may include: blurred vision

Skin contact

Can cause skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, burns and other skin damage. Additional symptoms of skin contact may include: Blistering Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

Tight, Energy Efficient Buildings Must Have a Mechanical Ventilation System



A Heat Recovery Ventilation (HRV) includes an air-to-air heat exchange that brings in fresh air without a great loss of heated or cooled air.