

RRNC 2.0

***An American National Standard for
Radon Prevention in Building Codes***

**AARST National Radon Standards
Consortium**

**Creating an ANSI Standard
*for use as an ICC code***

Working Together To Save Lives

AARST's Mission

"AARST" is a nonprofit, professional organization of members who are dedicated to the highest standard of excellence and ethical performance of radon measurement, mitigation and transfer of information for the benefit of members, consumers and the public at large."

RRNC 2.0 : Reducing Radon in New Construction

AARST's National Radon Standards Consortium

- AARST – Incorporated 1988
- Standards Consortium founded in 2004
- Independent organization within AARST
- Accredited by the American National Standards Institute to create National Radon Standards

RRNC 2.0 : Reducing Radon in New Construction

Why a Radon Building Code is Needed: 21,000 Annual Mortality

- **There are more homes in the United States today with elevated indoor radon concentrations than when the Indoor Radon Abatement Act (IRAA) was passed by Congress in 1988.**
- **Our nation is building High Risk Homes faster than we can find and fix them.**

IRC Building Code Appendix F History

- **Created – early 1990s**
- **Voluntary (Appendix)**
 - **Jurisdictions must opt in**
 - **No Radon Testing Provision**

Jurisdictions adopting Appendix F

- **Six (6) states have statewide RRNC Codes that apply to certain designated jurisdictions.**

Maryland | Michigan | Minnesota | New Jersey |
Oregon | Washington

- **Four (4) states DO have statewide RRNC Codes, but local jurisdictions must adopt them.**

Florida | Maine | Rhode Island | Virginia

Local Jurisdictions

- **A number of local jurisdictions in other states have adopted:**
 - Pequea Township PA,
 - Fort Collins, CO,
 - Montgomery County, MD



ICC Proposal October, 2009

Proposal to move Appendix F into main body of the IRC

Participating Healthy Home Stakeholders

Jane Malone – National Center for Healthy Housing

Phil Jalbert, USEPA,

Gloria Linnertz, CanSar,

Mike Pyles, Pennsylvania DOH

Dave Kapturowski, AARST

Peter Hendrick, AARST

Jurisdictions would be required to “Opt out”

Failed 1-10

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Clear need for more comprehensive, updated radon code

- ICC did not feel that Appendix F meet needs
 - 20 years but lacked detail for body of code
- Suggested format/language to fit code needs.

AARST's National Radon Standards Consortium

- American National Standards Institute accredited Standards Writing Organization
 - Utilizes ANSI approved Stakeholder Methodology
- Standards are recognized as Consensus Documents
 - Congressional Requirement – National Technology Transfer Act

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Standard to Code

AARST Consortium Standards Project

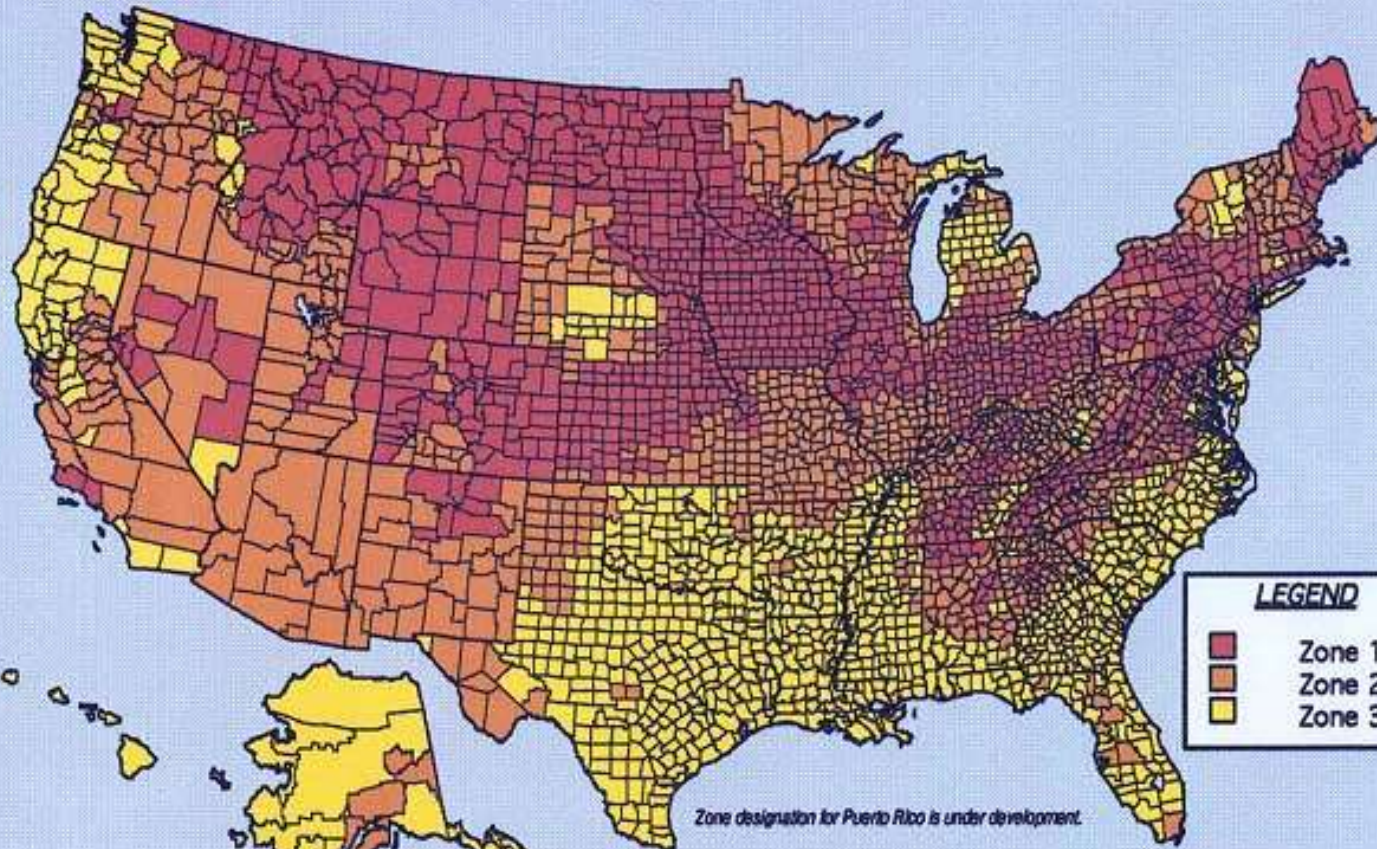
- **11/09** Proposal to National Radon Standards Consortium for RRNC 2.0
- **5/10** Committee seated

RRNC 2.0 : Reducing Radon in New Construction

RRNC 2.0 “Reducing Radon in New Construction of 1 & 2 Family Dwellings and Townhouses.”

- **AARST Consortium Standard (ANSI)**
- **Comprehensive model code**
- **Requires radon system “Rough-in” in all new homes in radon zones 1 & 2**
- **Requires testing prior to occupancy**
- **Requires fan activation if test > National Action Level 4 pCi/l**

EPA Map of Radon Zones



Zone designation for Puerto Rico is under development.

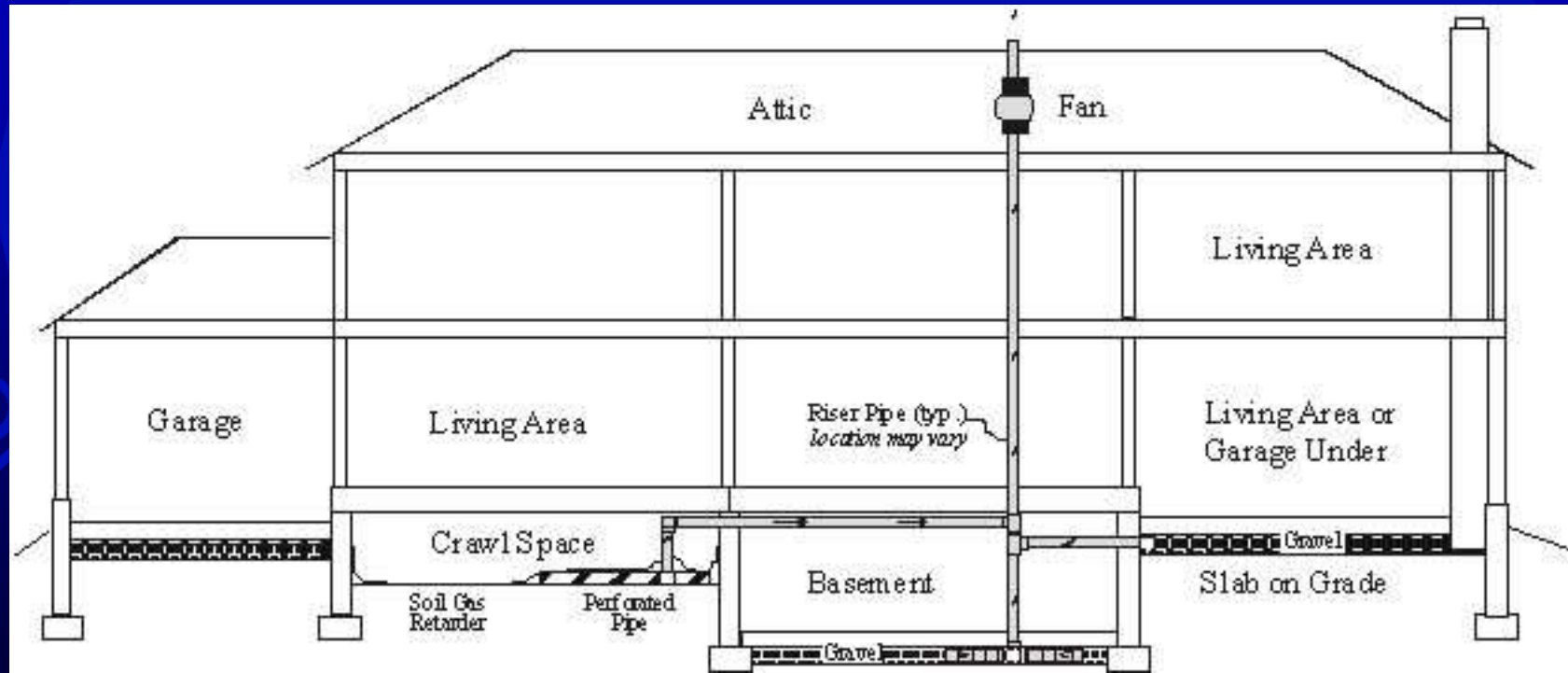
The purpose of this map is to assist National, State, and local organizations to target their resources and to implement radon-resistant building codes. This map is not intended to be used to determine if a home in a given zone should be tested for radon. Homes with elevated levels of radon have been found in all three zones. All homes should be tested regardless of geographic location.

IMPORTANT: Consult the EPA Map of Radon Zones document (EPA-402-R-93-071) before using this map. This document contains information on radon potential variations within counties. EPA also recommends that this map be supplemented with any available local data in order to further understand and predict the radon potential of a specific area.

Guam - Preliminary Zone designation

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Basic ASD in RRNC 2.0 House



RRNC 2.0 : Reducing Radon in New Construction

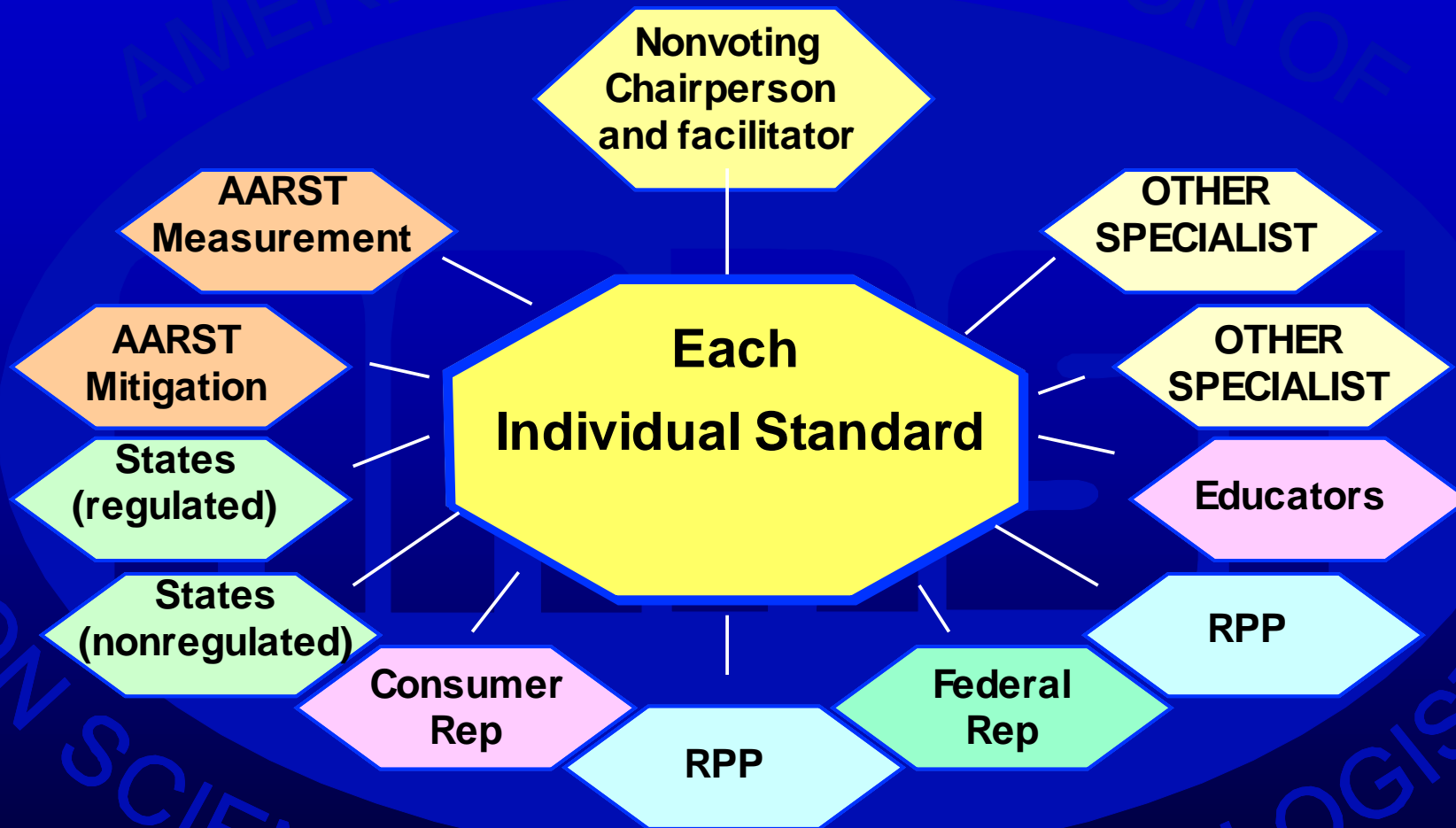
Intent:

What makes RRNC 2.0 Different

- **RRNC 2.0 = Measurable Radon Risk Reduction in ALL NEW HOMES**
- **Will reverse the trend of increasing the number of HIGH RISK homes**

RRNC 2.0 : Reducing Radon in New Construction

ANSI Consortium Committees



(Primary, Secondary and Specialist Stakeholders)

Status of RRNC 2.0

- **10/10** **First Public Comment Draft**
- **7/11** **Second Public Comment Draft**
- **Late 2011** - **Publish ANSI Standard**
- **Current Schedule:**
- **RRNC 2.0: Reducing Radon In New Construction of 1 & 2 Family Dwellings and Townhouses. – Draft 6-30-2011**

RRNC 2.0 : Reducing Radon in New Construction

RRNC 2.0 Comment Opportunities

- RRNC 2.0: Reducing Radon In New Construction of 1 & 2 Family Dwellings and Townhouses. – Draft 6-30-2011

COMMENT DEADLINE: September 1, 2011.

Contact information:

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RRNC 2.0 : Reducing Radon in New Construction

Goal for RRNC 2.0

- 2012 – Promulgate/Publish - An American National Standard on Radon Prevention to State, Local and Federal Officials
- Return to the ICC in 2013 with Standards Language that Fits the Code

RRNC 2.0 : Reducing Radon in New Construction



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Advancing the Healthy Housing Agenda through Building Codes

National Healthy Housing Conference 2011

Doug Farquhar, JD

National Conference of State
Legislatures





Are Housing Codes the Answer?



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"When enforced, housing and building codes have resulted in better constructed and maintained buildings and in improved health. For example, strict housing code enforcement has been demonstrated to reduce the likelihood of death in residential fires (Cummins and Jackson 2001) and lead poisoning in homes where lead-poisoned children live (Brown et al. 2001). A large number of programs, codes, and regulations exist that have the potential to influence changes in the environmental conditions in homes."

Surgeon General's Call to Action to
Promote Healthy Homes, **May 2009**



When Codes Work Well



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1619 Wood Avenue, Colorado Springs
Built in 1900, following model fire codes



No Building Codes



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Regulating the Unregulated - Private Housing



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- **Inadequate housing** has been linked to adverse human health effects
- **Millions of children** live in home environments that are unhealthy
- Coordinated, comprehensive, and practical approach to prevent diseases that result from **environmental health hazards** related to housing





Regulating an Unregulated Community



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- **Private interest; no public component**
 - Eliminates Environmental regulation (via EPA)
- **Not an employee/employer relationship**
 - Eliminates Occupational regulation (via OSHA)
- **Not Rental Housing**
 - Warranty of Habitability
- **No link to Federal Housing Standards**
 - HUD Section 8 Housing - not applicable
 - Indian Housing - not applicable
 - Department of Defense Housing - not applicable



Which Costs More??



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Housing Hazards



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- Lead Hazards
- Asbestos Hazards
- Construction Products/Building Materials
- Indoor air pollutants
 - *chemicals, allergens, smoke, ventilation*
- Pesticides
- Chemical and Safety Hazards
- Rat infestations and other vermin
- Radon Gas
- Other



But State Legislatures Love Businesses that Make Money



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Building Codes



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International Code Council

- Combination of Southern Building Code, Int'l Conf of Building Officials,
 - **Fire Codes**
 - Fire exits, fire alarms, isolation of hazards
 - **Electrical Codes**
 - Number of outlets, up-side-down outlets
 - Don't overstress the system, prevent fires
 - **Plumbing Codes**
 - Contained system, prevent flooding
 - **Building Codes**
 - Structure, stability





Building Codes



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Federal Response:

- Lead hazards (EPA)
- Asbestos hazards (EPA)
- Federal funds supporting the action (HUD)
- Products standards (CPSC)
- No federal housing or building code
- No federal health code

State Response

- Housing and building codes
 - State enforced (**Police Powers**)
 - Privately enforced (**insurance, mortgage, bond**)
- NJ has **statewide code**; TX considers a **state code** unconstitutional





Building Codes



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City Jurisdiction:

- Most have adopted various codes
- Fire Codes, Plumbing Codes, Electric Codes
- City inspectors verify
- Enforced by insurance and mortgage codes

County Response

- Some have housing and building codes; many do not
 - Rely on State enforcement
 - Privately enforced (insurance, mortgage, bond)
- Most rural jurisdictions have no applicable codes





Codes that Apply to Private Housing



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Housing/Property Maintenance Code

Applied at property transition

Health/Sanitation Code

Landlord-Tenant Law

Rental properties

Product Standards

For consumer products

Hazard Management Laws

Miscellaneous

PA Municipal Housing Code Avoidance - sets enforcement penalties but fails to define the municipal housing code





Various State Codes



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Housing/Property Maintenance Code

CA State Building Standards Code

Health/Sanitation Code

CO Sanitary Standards and Regulations

Landlord-Tenant Law

TN Smoke Detector Code

Product Standards

MN Formaldehyde Product Standard - new and manufactured homes

Hazard Management Laws

GA Community Living Arrangement Code - mandates a healthy home for residents

Miscellaneous

FL Environmental Health - to prevent disease caused by natural and manmade factors in the environment





Healthy Homes Legislation



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- **No organic Federal Act**
 - No Congressional authority to release grants
- **No model state law**
 - Complex and undefined topic
- **No quick legislative fix**
 - Will require amendments to several laws
 - Will require new authorities for agencies to act
 - Will require additional or reassigned resources





Healthy Homes Legislation



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- **Whose interests are served?**
 - Can public environmental health be linked to Medicaid?
 - Could industry benefit (i.e., profit) from such legislation?
- **Whose interests are compromised?**
 - Who will pay to retrofit homes?
- **Can housing become healthy without legislation?**
 - Amend/expand current legislative authorities
- **Can/will the federal government perform this service?**
 - Will states be preempted from acting?





Healthy Housing Lawsuits



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- Creating a standard of care for legal system
- Providing for Attorney Fees
- Eliminating tort restrictions



No Codes/No Enforcement



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Residence built by Code



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Can we make a change?



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“Anyone who doesn’t believe in miracles is not a realist.”

David Ben-Gurion



NCSL Environmental Health Program



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All Politics Are Local – Housing Codes and Strategies for the Future

Jane Malone

National Center for Healthy Housing





GOTHAM COURT



(why regulate housing?)

The First Known Building Code

- If a builder builds a house for someone, and does not construct it properly, and the house which he built falls in and kills its owner, then the builder shall be put to death.
 - And if the owner's son dies, then the builder's son shall be put to death.

» Hammurabi, 1760 BCE

Moses - #11?

- “In case you build a new house, you must also make a [parapet](#) for your roof, that you may not place [bloodguilt](#) upon your house because someone might fall from it.” [Deuteronomy](#) 22:8

Types of Codes

- *Building construction* codes affect how properties are built or substantially remodeled:
 - International Building Code – IBC (and IEBC)
 - International Residential Code – IRC
 - NFPA 5000 and other fire/safety codes
- *Codes for Systems* – plumbing, electric, etc.
- *Property maintenance* codes (“housing” “sanitary” codes) govern housing condition and habitability
 - International Property Maintenance Code - IPMC
 - MA, MD, NY, other states

Housing Codes

- Minimum standard of care - rental property
- Covers very basic structural safety
- Common healthy housing gaps
 - Relative inattention to moisture and mold
 - Unsafe response to infestation
 - Focus on deteriorated paint but not lead-safe
 - Ventilation, safety issues rarely cited
- Enforceability and enforcement are key...

US Housing Code Timeline

- 1850 MA – sanitation
- 1867 NYC – windows, roof, WC
- 1901 NYC – Tenement House Act
- 1938 APHA – Basic Principles
- 1941 Baltimore “Hygiene of Housing” ord.
- 1952 APHA model ordinance
- 1955 1st Uniform Housing Code (BOCA)
- 1985 APHA + CDC – Minimum Standards

Role of the Model Codes

- Provide communities with turnkey product:
 - Expert policy research and screening
 - Protective as *but not more strict than* most
 - Palatable for elected officials
- In many cases, local and state policies are only as protective as model codes

Leading Model Codes

- International Code Council
 - Develops, publishes, updates model codes
 - Membership organization for code officials
 - Resulted from merger of BOCA, the Southern Building Council, et al. in 1995
- National Fire Protection Association
 - Coordinates with ASHRAE, consensus
 - NFPA 5000: Construction and Safety Code

ICC Code Development

- Model codes updated every 3 years
 - 1) Code change proposals
 - 2) Committee hearings
 - 3) Comments on committee actions
 - 4) Final action hearings

IPMC

- Conditions after occupancy
- Lead hazards from deteriorated paint
 - But peeling paint's viewed as cosmetic or non-priority
 - RRP rule should be the game changer
- Key housing based allergens:
 - pests, mold/moist building materials
- Mainstream policy for entire housing stock
 - Fulfill public health: population vs. patient
 - Primary prevention
- 8 states and 1,000 localities adopted IPMC

Recent IPMC Efforts (health-focused standard needed)

- Pests – clarify tenant role
- Vent dryer to outside
- Lead-safe work practices in paint repair*
- CO alarms *
- Cleanable floors
- Repair underlying cause

*committee decision reversed at final hearing

NSHHC Standards Committee

Radon New Construction Standard

Creating national conversations
about housing codes and improving
the international model codes

Local <> National Targets

- Public health, CBOs, other advocates:
 - local priorities for enactment, enforcement
 - local code staff to support protective policies with peers within county, state, ICC, NFPA
- NCHH, NSHHC:
 - National Healthy Housing Standard work group
 - state-level code official associations, national associations, code organization staff

How Code Agencies Can Help Reinforce and Enforce RRP

- Educate regulated community
- Creatively use existing authority
- Alert EPA of violations
- Obtain new specific authority

Basic Reinforcement of RRP

- Place EPA RRP literature on the permit desk or in another prominent location where applicants for permits will see it.
- Promote training opportunities
- Advise elected officials, media, agencies

Adding RRP to the Model Codes

- IPMC committee accepted
 - Final action hearing overturned IPMC
- Deadline for Proposals: March 2013
- Targets: IRC, IEBC, IPMC
- Hearings: April and November 2013

Direct Enforcement of RRP

- Use authority requiring compliance with other applicable laws to enforce RRP.
- Require compliance evidence within the building permit application process:
 - Renovator, renovation firm certificates
 - Space on the application for EPA/state certification numbers for renovator, firm
- Require post-renovation checklist

In the Field during Inspections

- Check for common RRP problems:
 - No containment
 - Use of power tools without HEPA
 - Open flame burning or heat gun $>1100^{\circ}$
 - Improper trash disposal (no taped/tied bag)
 - Visible dust or debris at work site
- Ask for renovator/firm certification

In the Field during Inspections - More

- Identify non-permitted RRP work:
 - Look for activity, dumpster, trash
 - Listen for power tools and scraping
 - Check for common problems
- Follow up tips with visit ASAP
- Take photos:
 - Visible violations of RRP work practices
 - Dust and debris post-renovation