

Green Homes: Benefiting Residents with Greener, Healthier Homes

March 2, 2011



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Green Homes: Benefiting Residents with Greener, Healthier Homes

Session Overview

- The seven principles of healthy housing
- How green building programs stack up against healthy housing principles
- Health benefits for residents of green developments
- Key health dangers found in the home
- Green measures to improve resident health
- Making your projects greener and healthier



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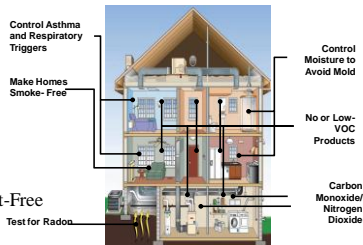


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Healthy Home Principles

Keep Homes:

- Dry
- Clean
- Pest-Free
- Ventilated
- Safe
- Contaminant-Free
- Maintained



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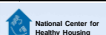


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National Green Program Health Grades

Health Principles	Enterprise Community Partners Green Communities	EPA Indoor Air Package	USGBC LEED for Homes	ICC-700 National Green Building Standard
Dry	A	A	B	C
Clean	D	D	D	D
Ventilated	A	A+	A	C
Safe	D	D	D	D
Contaminant-Free	A	A	D	D
Pest-Free	A+	A+	B	D
Maintained	A+	A	A+	A
Verified/Certified	B	A+	A+	A+
Overall Grade*	B	B+	C	D

* Based on total score across all criteria in comparison to 85 target score.



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National Center for Healthy Housing Case Studies



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Each year in the U.S. hazards in the home lead to:

- 250,000 lead poisoning cases
- 18,000 injury deaths each year
- 21,000 lung cancer deaths due to Radon
- 450 deaths and 15,000 emergency department visits due to carbon monoxide poisoning
- 2 million asthma-related emergency department visits

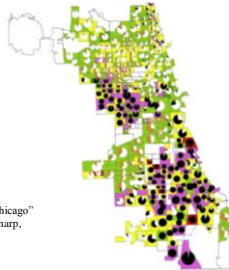


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Childhood Asthma Prevalence & Racial Distribution in Chicago Neighborhoods



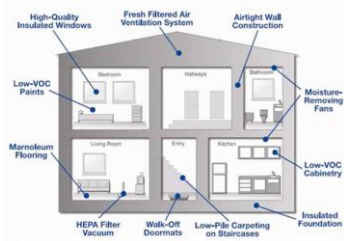
Source:
 "Geographic variability in childhood asthma prevalence in Chicago"
 Ruchi S. Gupta, MD, MPH; Xingyou Zhang, PhD; Lisa K. Sharp,
 PhD; John J. Shannon, MD; and Kevin B. Weiss, MD, MPH
 Chicago and Hines, Ill, and Washington, DC

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Housing and Health: Examples from Seattle's Breathe-Easy Homes



Costs:

\$5-\$7000 additional/unit

Benefits

Health:

- asthmatic children have more symptom-free days
- Able to participate in more outdoor activities

Economic:

- Unit cost=approx 1 night hospital cost for severe asthmatic episode
- Est. Annual cost of U.S. Asthma Care: \$18billion

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Healthy Housing: It Doesn't Stop at the Threshold



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Southwest Minnesota Housing Partnership's Vision

- Preserve affordable housing while reducing operating costs
- Increase life expectancy and efficiency of affordable housing
- Reduce maintenance costs and waste
- Improve residents' health and community livability
- Eliminate hazardous materials, asbestos, radon and molds
- Minimize water and energy consumption
- Build recycling and on-site conservation into construction practices

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Viking Terrace

- Energy efficient lighting & windows, occupancy sensors, enhanced insulation
- Improved roofing system and enhanced attic insulation
- Geo-thermal heating and cooling system
- Energy star rated appliances
- Sealed building envelope*
- Radon Testing*
- Improved ventilation system*
- Bathroom and kitchen exhaust fans*
- Integrated Pest Management*
- Rubber walk-off mats*
- Low-VOC paints, sealants, adhesives, cabinets, carpet and flooring*
- Construction, development and maintenance staff training*
- Resident education*



* Specific Health-Related Elements

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Research and Evaluation

- **Building Performance Assessment:**
 - Center for Sustainable Building Research
 - ✓ Energy use and cost
 - ✓ Emissions and environmental impact
 - ✓ Materials performance evaluation
 - ✓ Water use and cost
 - ✓ Cost Benefit Analysis
- **Livability & Health Assessment:**
 - National Center for Healthy Housing
 - ✓ Resident health pre and post renovation
 - ✓ Physical condition of units, buildings and surrounding area
 - ✓ Level of physical activity/exercise



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SWMHP Lessons Learned

- Long-term benefits exceed upfront costs every time
- Partnering for assessment and evaluation is key
- Conduct pre-renovation/construction testing and assessment before, during and after
- Green systems are not intuitive
- Think outside the box for funding health initiatives
- Building commissioning worth extra expense



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Reach CDC: A Healthy Community Begins at Home

Long-Term Commitment to Green Development

- 1995: Completed first "green" project

Healthy Environments for Residents & Staff

- Integrated Pest Management
- Smoke-Free Housing
- Community Gardens

Resident Involvement and Education

- Bi-Weekly Green Workshops
- Residence Maintenance Handbook

Organization-Wide Green

- Operations and Maintenance
- Energy Efficiency & Water Conservation
- Composting and Recycling
- Support Alternative Transportation: rail, bus, bike



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LEED Silver or Earth Advantage Standards

New Construction 176 units senior & 54 units family housing

Acquisition/Rehab 75 units senior housing

- Transit oriented development
- Low VOC paints, materials, sealants
- Rainwater harvesting – flushing toilets
- Onsite storm water management
- Energy efficient lighting
- Energy Star Appliances
- Dual flush toilets



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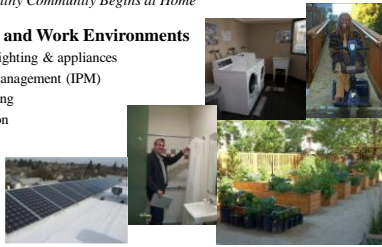


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Reach CDC: A Healthy Community Begins at Home

Healthy Homes and Work Environments

- Energy efficient lighting & appliances
- Integrated Pest Management (IPM)
- Smoke-free housing
- Water conservation
- Aging in place
- Solar PV panels



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Resident Involvement and Education Model

Workshop #1

- Understand popular education methodology
- Visualize healthy home/community
- Share concerns & brainstorm barriers

Workshop #2

- Prioritize concerns
- Choose issue to explore through stories & discussion
- Identify areas to learn more about

Bi-weekly workshops are open to all residents. Each session builds on previous sessions. The cycle can be repeated indefinitely with different health and green issues.

Workshop #3

- Present new information about issue
- Discuss strategies to address concerns
- Create action plans for residents & management

Workshop #4

- Review action steps taken
- Identify next steps and leaders
- Celebrate progress

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IPM: Results Using the Resident Involvement Model

The Rose Apts – An SRO Community

- Partnership with Multnomah Health Department Healthy Home Programs
- Joint inspections by Property Management & Resident Services
- Approach: education, housekeeping, unit maintenance, documentation, focused treatment, monitoring, repeat cycle
- **First inspection: 43%** units infested with roaches
- **Week Six: 10%** units infested
- **Week Eight: 0%** units infested
- **One Year Inspection: 0%** units infested
- Poor housekeeping units improved from **36% to 7%**



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Green Roadmap for Project Development

1. Early Planning
2. Integrated Design
3. Construction Management
4. Verify/Certify/Commission
5. Operations and Maintenance
6. Reflect on Achievements



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