

HEALTHY REBUILDING IN NEW ORLEANS



National Center for Healthy Housing
Healthy Homes Training Center

THE HEALTHY REBUILDING PROJECT

Enterprise Community Partners and the National Center for Healthy Housing

In Collaboration with

- Neighborhood Housing Services of New Orleans
- NeighborWorks America
- Neighborhood Development Foundation
- Columbia University
- Tulane University



HEALTHY REBUILDING DEMONSTRATION PROJECT GOALS

- To conduct flood recovery activities in homes
 - to assess the cost of removing flood damaged/mold infested possessions and building materials
 - and the effectiveness of the process in reducing mold spore counts
 - to document suggested worker protection practices



Effects of Hurricanes Katrina and Rita on Housing

- Flooding and Wind Damage
- Mold Damage
- Other Potential Health Threats



New Orleans: A City Under Water



QuickBird Natural Color Multispectral Image
August 31, 2005



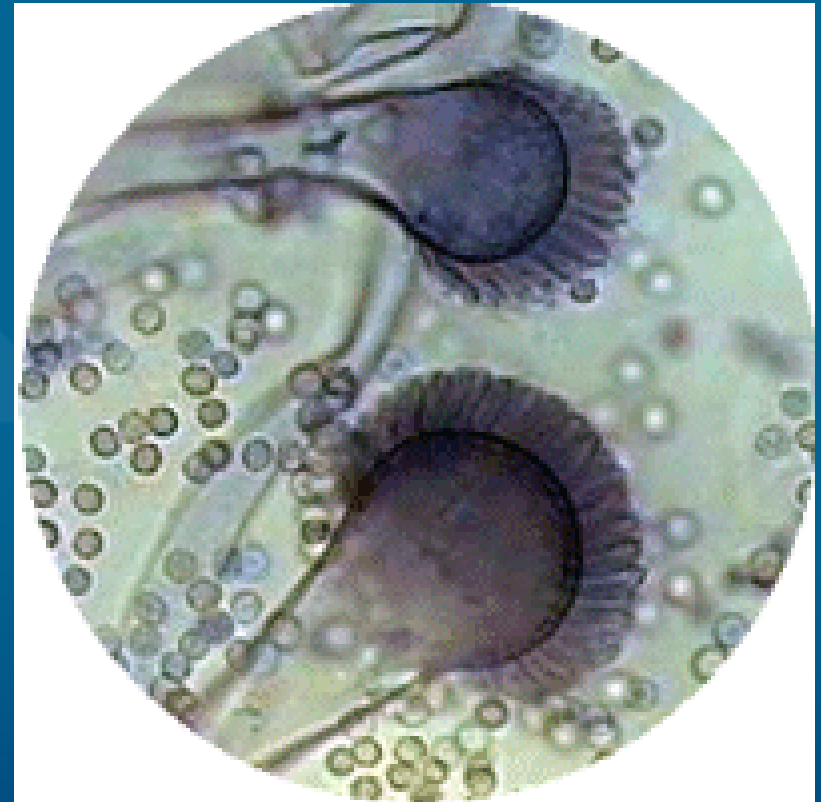






Health Effects of Mold Exposure

- Allergic reactions and asthma attacks
- Effects from toxins released by molds
- Young children, the elderly, and people with respiratory problems or immune-compromised individuals are most vulnerable



Other Health Issues During Clean-up and Renovation

Bacteria
Lead Paint Hazards
Asbestos
Pests



Personal Protection Equipment



N-95 masks if entering for short periods of time

N-100 Respirators, goggles, gloves and disposable coveralls for people working in the home



Homes Participating in Pilot Study

- Three homes located in Gentilly neighborhood of New Orleans. *
- Owner occupied
- Experienced different levels of flooding

**An additional home will be complete in March.*



HOME #1

- 2 story home
- Built in 1987
- Slab on grade construction
- Received up to a foot of flood water
- 2-3 ft of mold growth on first floor



Treatment for Home #1

- Work conducted November 1-4
- Possessions removed from first floor, cleaned, and moved to second floor or discarded.
- Appliances and most fixtures removed.
- Wallboard and insulation removed to 4 ft.
- Floors and horizontal surfaces cleaned with bleach/detergent solution.
- Studs HEPA vacuumed and sprayed with borate solution.



Clean and Disinfect



HEPA Vacuum Cleaning



Treat with Borate Solution



HOME #2



- 1 story home
- Approximately 100 years old
- Raised home on piers
- Received at least 5 ft of flooding
- Mold growth to ceiling



Treatment for Home #2

- Work conducted November 15-17
- Possessions removed and discarded
- Wallboard, insulation and lathe removed
- Left studs, ceiling, bath tile and materials backing tile.
- All surfaces cleaned with bleach/detergent solution
- Studs sprayed with borate solution



HOME #3

- 1 story home
- Built in 2004
- Raised home on piers
- Received about 2 feet of flood water
- Up to 4 feet of mold growth on walls



Treatment for Home #3

- Work conducted January 10-12
- Possessions and cabinets were previously removed.
- Wallboard, insulation, and carpeting removed.
- Left studs, ceiling and vinyl flooring.
- All surfaces cleaned with HEPA vacuum and dry brush process.
- Vinyl floors cleaned with detergent and bleach.
- Studs sprayed with borate solution.



How Much Do Flood Repairs Cost?

- Decontamination:
\$3.40 to \$4.10 per square foot of floor area
Or
\$4,400 for average 1200 square foot home
- To complete repairs:
Home flooded 18 inches deep: \$32,000 to \$47,000
Homes flooded 6 feet deep: \$78,000 to \$120,000



Lessons Learned to Date

- Preliminary results indicate that clean-up protocols are working.
- Mold counts are extremely high especially during the removal process
- Costs are variable because of high demand and shortage of labor
- Access to workers trained in safe work practices is currently limited.



Lessons Learned to Date (cont.)

- General uncertainty about situation (levees, FEMA flood plain rules, electrical codes, etc) raise questions if rebuilding is viable
- Lack of good science about the specific relationship between mold and health is a barrier to assessing success of our work



Borate Treatment Products

- Termite-Prufe: Copper Brite, Inc., P.O. Box 50610, Santa Barbara, CA 93150-0610, 805-565-1566 (www.copperbrite.com). Each container contains 1 pound of product, which makes one gallon of treatment solution. This solution will cover about 200 square feet. Bout 14 pounds is needed for an average house, at a cost of \$126.
- Bora-Care: Nisus Corporation, 100 Nisus Drive, Rockford, TN 37853, (800) 264-0870. (www.nisuscorp.com). The Nisus Corporation website lists local distributors.



Other Products for Clean-up

■ *Safety Masks*

- P-100 respirators: Home Depot supplies a P-100 filter class respirator, MSA Safety Work Multi-Purpose Use Mask. Model # 00817663.
- N-95 respirators: Home Depot offers a package of 10 Dust and Mist Respirators (N-95) Model 8611 (about \$18.00)



Other Products for Clean-up

■ *HEPA Vacuum*

- HEPA Vacuuming can be performed using a Wet-Dry Vacuum with a HEPA filter. Sears offers a Craftsman 16 gal, 6.5 peak hp Wet/Dry Vac (Mfr model # 17066) for around \$120. The Craftsman Wet-Dry Vac Filter, HEPA (Mfr. Model #17912) is available for around \$27.00. Similar products manufactured by Shop-Vac and RIDGID are available from Home Depot.

