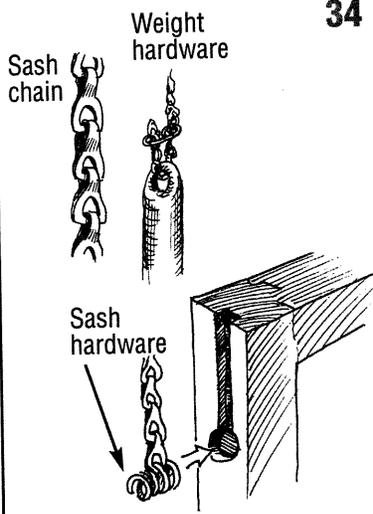


00-172 f
42

Reinstall Counter Weight System Cont'd

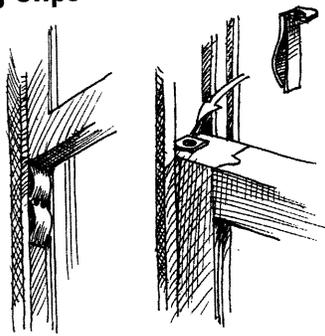
- Drop chain over pulley into weight compartment, pull out through panel opening, and attach to weight.
- Attach other end to edge of window sash using spring fixture. You may want to secure chain with fence staple.



Option #2: Install Spring Clips

Install Spring Clips

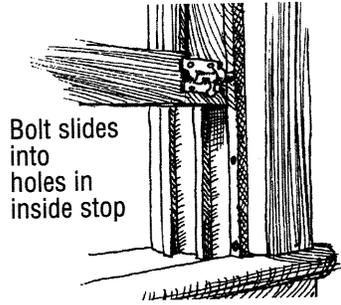
- Screw spring clips on to window as directions indicate. (2 styles shown.)



Option #3: Install "Hold Open" Hardware

Install Slide Bolt

- Screw slide bolt to bottom of window sash. Tap bolt to mark where you want to drill holes for bolt. Drill holes in inside stop at 3 or 4 points.



Bolt slides into holes in inside stop

OR

Attach Hardware

- Attach hardware that uses spring to press against stop. To move sash, press lever. Release lever when window is at desired height.



Spring forces rubber shoe against stop

Clean Up and Clear

- See Section 4, p. 47.



DETERIORATED WINDOW TROUGH

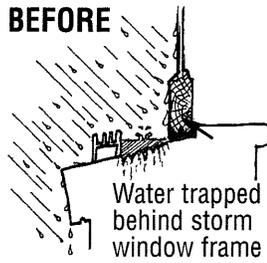
Storm window traps water behind the frame causing paint deterioration and damage to the sill.

Drill a drain hole through bottom of the storm window frame.

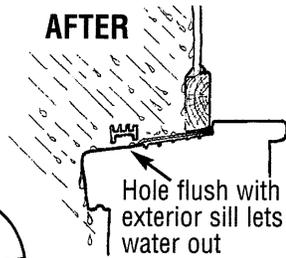
Window trough surface is damaged and difficult to clean.

Install smooth and cleanable surface in window trough.

BEFORE

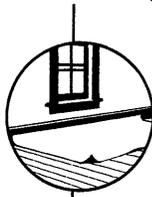


AFTER



Set Up

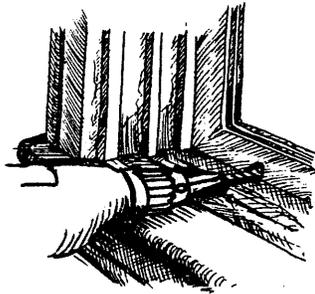
- See Section 2, p. 13.



Drill Drain Hole

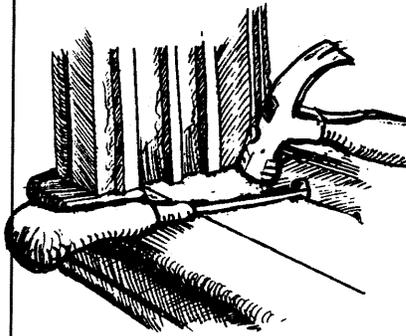
Drill

- To allow drainage, drill 2 holes through frame of storm window flush with sill. Drill holes approximately one quarter of the way from both sides. First, drill a 1/8 inch pilot hole, then the 3/8 inch hole.



Dent

- If flashing is installed in window trough and covers any part of the drain hole, run awl through drain hole. Tap with hammer to form dent in flashing to drain out water.



Cover Trough with Flashing

Wet Scrape

- To make surface flat, wet scrape high points and remove any fasteners from trough.

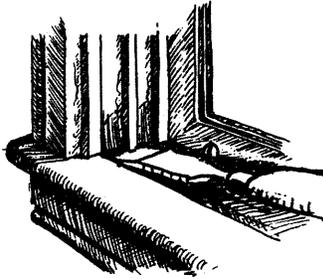


Cut

- Cut flashing 1/4 inch shorter than the width and length of trough.

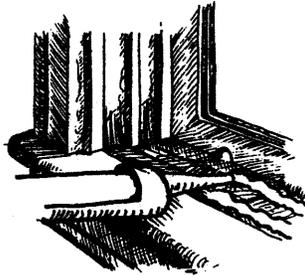
Chisel or Notch

- To allow flashing to fit tight to jamb, drive chisel under parting bead and outside stop — or notch each side of the flashing at these two points.



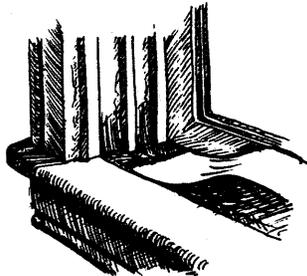
Check Fit

- Then slide flashing in to check fit. Remove and trim if needed.



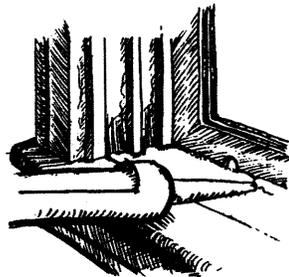
Fasten

- To fasten flashing, run bead of adhesive caulk around perimeter of trough.



Install Flashing

- Bed flashing in adhesive caulk bead and press down.



Seal

- Run a bead of caulk around perimeter of flashing. If necessary wipe off excess caulk with damp cloth. Try not to smear caulk on face of flashing.



Important: Do not cover drain hole with caulk.



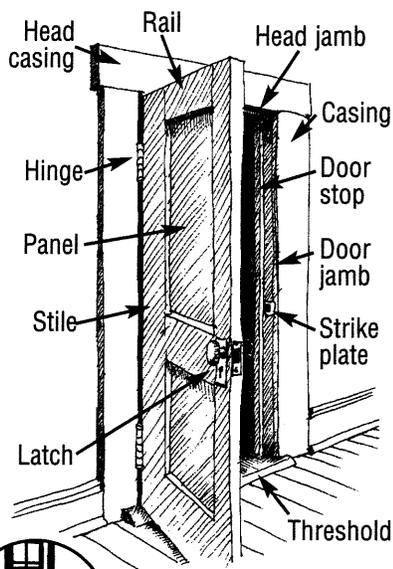
Clean Up and Clear

- See Section 4, p. 47.

DOOR NEEDS ADJUSTMENT

PROBLEM Edge of door is crushing against jamb on hinge side; or door is rubbing on latch side because hinges are loose. When paint on a door rubs or is crushed, dust and paint chips can result.

SOLUTION Adjust the door so that it opens and closes without damaging painted surfaces.



Set Up

- See Section 2, p. 13.

Check Door

- Grasp knob and try to move door up and down. If hinges are loose, door will move.



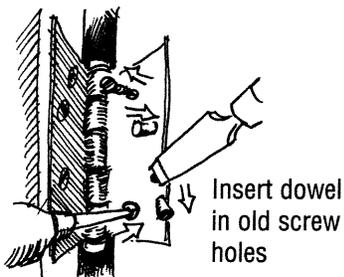
Remove Screws

- Remove screws that are most loose, but not all screws, so door remains hung.
 - Clear paint from screw notch with hammer and small screwdriver.
 - Unscrew. If screw head is stripped, use screwdriver bit in a brace.



Fill Hole

- Drive 3/16 inch or 1/4 inch dowel into screw holes as necessary to fill each hole. Cut dowels flush.



DOING THE WORK

Install New Screws

- Replace screws. Use longer screws if necessary. Using a screwdriver bit on a brace makes this easier. Then remove and replace remaining screws as necessary.

Adjust Stop

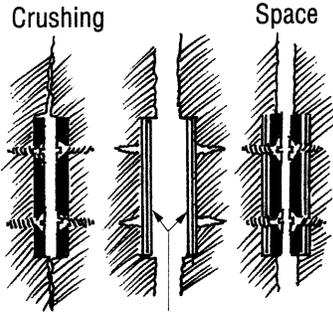
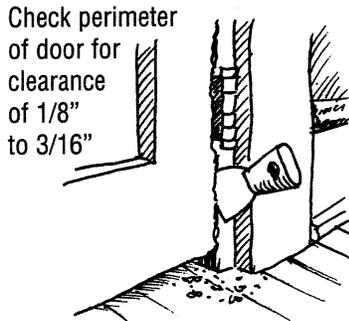
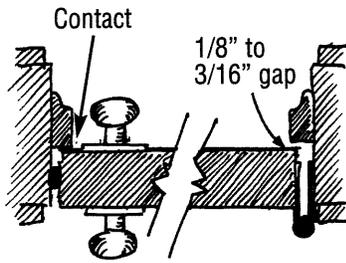
- Face of door should only contact the stop on the latch side of door frame. It should not crush or rub head or hinge side stop.
- Where stop is nailed, remove and replace with new matching stop. Leave 1/8 inch space between hinge, head stop, and the face of the door.

Check Clearance

- If putty knife can't fit in gap between door and jamb at all points, crushing of painted surfaces may be occurring.

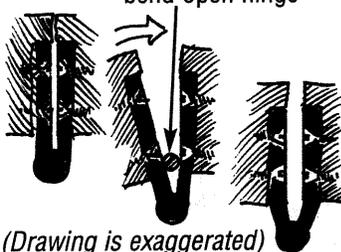
Adjust Depth of Hinge Leaf

- If door is crushing hinge side and there is more clearance than necessary on the latch side, install metal shims behind hinge leaves. Keep at least 1/8 inch clearance on leaf side and 1/8 inch clearance on latch side. If not enough clearance, see p. 39.
- If only a small increase is needed between leaves of hinge to create a gap between door edge and jamb, place a steel rod between hinge leaves near pin and close door to slightly bend apart leaves.



Add shim stock

Use steel rod (like screwdriver) to bend open hinge



(Drawing is exaggerated)



Clean Up and Clear

- See Section 4, p. 47.

DOOR RUBS OR STICKS

PROBLEM

Door is scraping on latch side; or door is crushing jamb on latch side and there is not enough clearance on latch side to add shims to hinges. When paint on a door rubs or is crushed, paint chips can result.

SOLUTION

Plane edges of door so that it operates smoothly and does not rub.

Set Up

- See Section 2, p. 13.

Remove Hinge Leaves

- Remove pins from hinges and hinge leaves from door.
- Set door on edge in a door hold. (See Section 5: Building a Door Hold, p. 74.)

Hand Plane Edge

- Mist surface and hand plane a chamfer edge.
- Use a smooth bench or jointer plane (not a block plane) to remove the rest of the paint from the edge. Continue to mist while working. If a power planer is used to remove paint, it must be attached to a HEPA vacuum. Some power planers need an adaptor to accept HEPA attachments.
- Once paint is removed, use either a hand or power planer.

Recut Gains

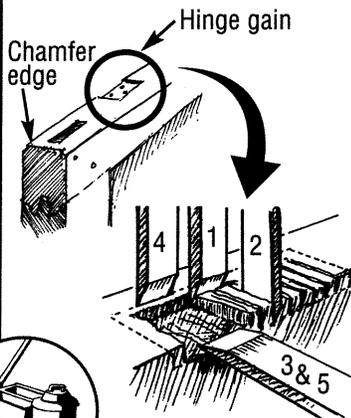
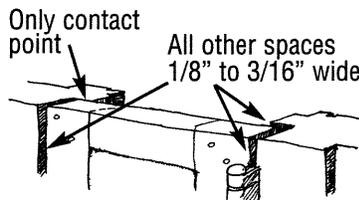
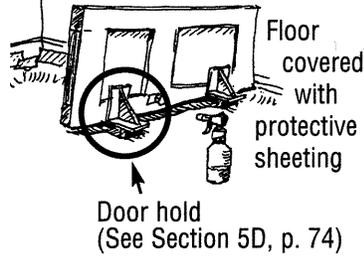
- Then, recut gains as necessary so hinge leaf is set about halfway into gain.

Seal Edges

- Seal edges of door, particularly the bottom, and rehang.

Clean Up and Clear

- See Section 4, p. 47.



DOING THE WORK

CHIPPING PAINT ON STAIRS OR FLOOR

PROBLEM

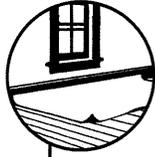
Painted staircase treads, risers or floors are worn, or the paint is chipping. Paint and other coatings used on staircases and floors in older homes often contain lead. Everyday friction and wear can produce paint chips and dust.

SOLUTION

Cover portions of stairs or floor that are worn with durable material.

Set Up

- See Section 2, p. 13.



Stairs – Option #1: Install Tread Covers and Riser Enclosures

Wet Scrape

- Mist and wet scrape any loose paint on treads and risers, particularly on edges.

Prime and Paint

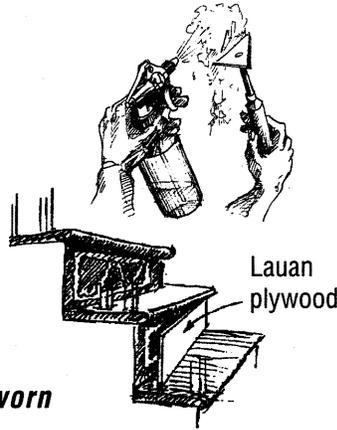
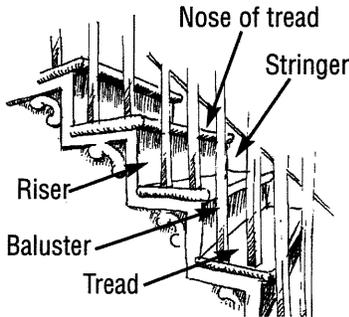
- Prime treads and risers. Paint edges that will not be covered by enclosures.

Install Riser Enclosure

- Cut 1/4 inch lauan plywood to fit each riser. Sand exposed edges of lauan.

Fasten

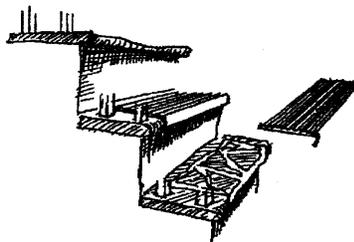
- Back caulk perimeter of riser with adhesive caulk. Press tight or nail with finish nails.



If nose tread is not worn

Cut and Install Tread Cover

- Cut cover to fit over the tread and nose.
- Install cover with adhesive caulk or screws.

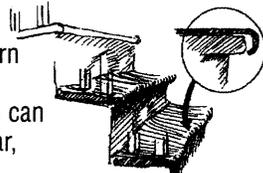


DOING THE WORK

If nose tread is worn

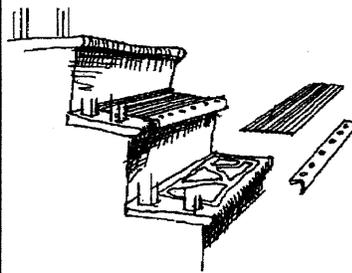
PROBLEM

Installing a rubber tread over a worn tread nose creates a hollow space under the rubber tread cover. This can cause the rubber tread cover to tear, posing a tripping hazard.



Cut and Install Tread Cover

- Cut tread cover to fit from the riser to rear edge of nose. Install with adhesive caulk or screws.



Install Metal Nose Cover

- Screw metal cover over edge of tread nose. It will span the worn area of the nose.

Stairs – Option #2: Install Staircase Runner

Wet Scrape

- Mist and wet scrape any loose paint on tread and riser, particularly on edges.

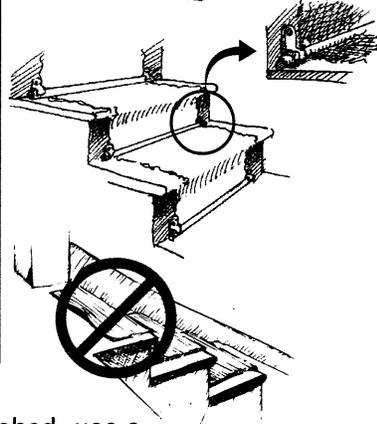


Prime and Paint

- Prime and paint treads and risers.

Install Runner

- Staple runner to top of top riser. Then fasten with staircase bars so runner may be easily removed for cleaning.



Important: Do not install runner or tread cover on landing of upper floor where its rear edge may become a tripping hazard.

Floors

Prep Surface

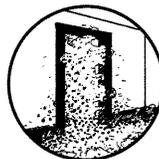
- If a floor needs to be refinished, use a floor sander attached to a HEPA vacuum.



Cover

Caution: High dust potential.

- Apply a coating to the floor to keep it smooth and cleanable.
- To maintain a smooth and cleanable surface, it is recommended that the use of wall-to-wall carpeting be avoided. Area rugs can be used instead.



Clean Up and Clear

- See Section 4, p. 47.

CHIPPED OR DAMAGED IMPACT SURFACES

PROBLEM Outside corners of walls, edges at passages, as well as trim, base cap, and shoe molding are being chipped due to impact from doors, furniture, and other objects. If these surfaces are covered with lead-based paint, the paint chips and the dust created may pose a health threat.

SOLUTION Protecting these surfaces with a durable material can prevent the creation of paint chips and dust.

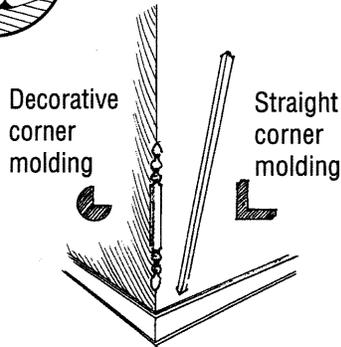
Set Up

- See Section 2, p. 13.



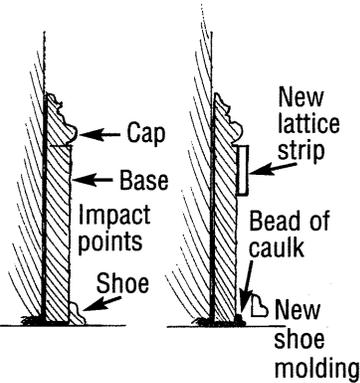
Enclose Outside Corner

- Cover outside corners of walls with corner molding. Attach with nails and/or with a bead of adhesive.



Protect Base

- In places where a baseboard shows signs of impact, replace shoe and protect cap with lattice strip.
- When replacing shoe, bed new shoe in bead of caulk to seal out moisture and prevent infiltration of dust.



Clean Up and Clear

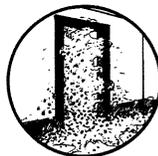
- See Section 4, p. 47.



DOING THE WORK

H I G H D U S T J O B S

Some jobs create large amounts of dust. To be safe, workers doing this type of work should:



1. Wear half-mask respirators rated by NIOSH as N100 (or HEPA) at a minimum and be trained to wear and maintain them, or conduct air monitoring to show that they are not needed. (See Section 5D: Respiratory Protection, p. 69.)
2. Completely isolate the work space from occupied spaces and use containment to protect other workers. (See next page.)
3. Receive lead worker or supervisor training from an accredited trainer. In most states, accredited courses are available. To locate a course in your state, contact the Leadlisting at 1-888-Leadlist (1-888-532-3547) or www.leadlisting.org.



Remember: All house dust is unhealthy to breathe. It may contain lead, mold, asbestos, gypsum, roach waste, dust mites, coal dust, fiberglass, etc.

Examples of High Dust Jobs

The following types of work are likely to create high levels of dust:

Demolition. Demolition includes tearing off siding and/or demolishing old plaster walls or ceilings.



Removing old paneling can release large amounts of dust.

Opening Up Wall Cavities. These jobs include:

- Removing old paneling and baseboards
- Removing door casings and frames or window casings or jambs

*"It's not just what's on the wall,
it's the dust behind it."*

Removing Old Drop Ceilings. Lots of dust can accumulate above ceiling panels.

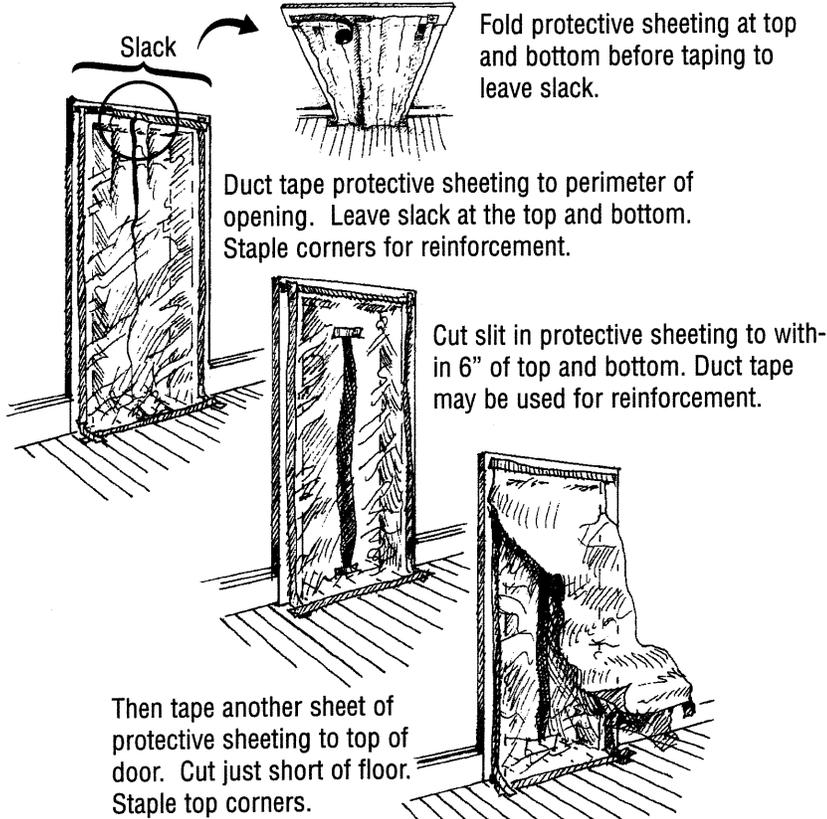
Improperly Removing Wall-To-Wall Carpet. A carpet that's been on the floor for many years has gathered large amounts of household dust, which may include lead dust. Improperly removing it can release a large amount of dust.

DOING THE WORK

Paint Scraping. Scraping large painted areas, such as the side of a house or an entire room, even when done correctly, can create a large amount of dust.

Containing Dust

Use this system to keep dust from spreading to another room.



If a job creates extremely high amounts of dust (for example, demolition) or large amounts of dust in the air for more than short periods, the protective flap system shown above may not be sufficient to prevent dust from spreading beyond the work area.

For these types of jobs, a more protective system called "isolation" is needed so that dust does not spread beyond the work area. Isolation means that the work area is sealed with no direct access to occupied areas of the home. Workers need to use an entrance that is separate from occupants until cleanup is completed.

C L E A N I N G U P

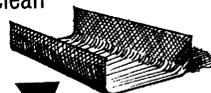
It is very important to use proper cleanup procedures at the end of the job. Dust and paint chips left behind at the end of the job may contain lead and may endanger children. Have dust wipe samples collected at the end of the job to be sure that it is safe for children to return.



Pick Up Work Area

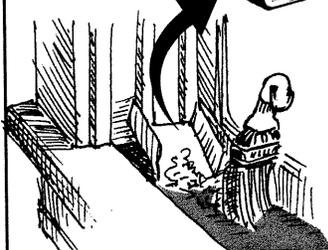
- Pick up large chips with damp paper towel.
- AND/OR**
- Mist then push dust into dust pan.

Make dust pan from flashing and clean with a whisk broom.



Pick Up Protective Sheeting

- Clean off protective sheeting. Fold dirty side inward (dirty side to dirty side). Dispose of protective sheeting at the end of each job. Protective sheeting may be used again within the same work area if it has not already been folded.

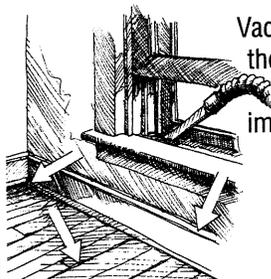


Mist and push dust



Vacuum

- HEPA vacuum all horizontal surfaces—slowly.
- Vacuum all ledges, sills, stools, molding tops, dusty surfaces, etc.
- Vacuum floor under work area. Use corner tool in corners, cracks of trim, and between floor boards.
- Vacuum floor with floor brush and carpet with a carpet tool.



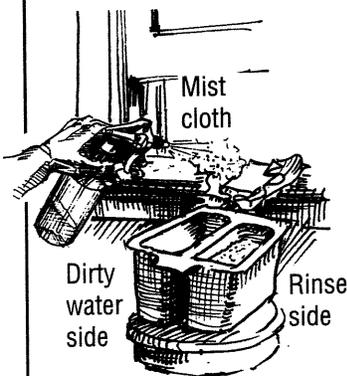
Vacuuming the cracks is very important.



Mist and Scrub

Important: Vacuum carpet very slowly.

- Wet rag with detergent then wring out.
- Mist surface or rag as you clean.
- Lead needs scrubbing, not just wiping.



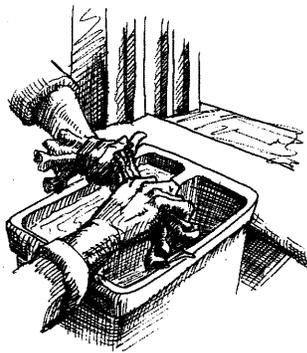
Dirty water side

Rinse side

AT THE END OF THE JOB

Rinse Rag

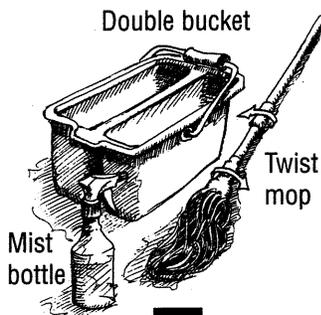
- Squeeze rag into empty side of split bucket. Rinse-out rag. Squeeze into empty side. Repeat as needed.
- Change rinse water often.
 - Use paper towels first if surfaces are very dirty.
 - Replace rag when it looks dirty.
- Clean until dust and debris are removed.



Cleaning Floors

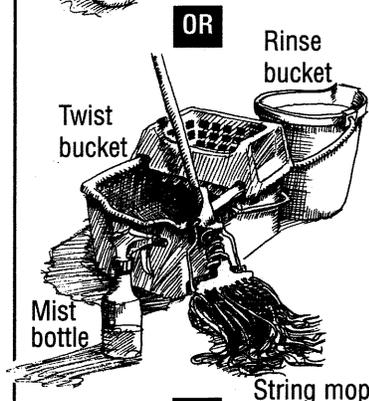
Mist and Scrub

- At start of cleaning, soak mop in detergent water then mist small area with detergent before mopping.
- Scrub with mop.



Squeeze Out and Wash

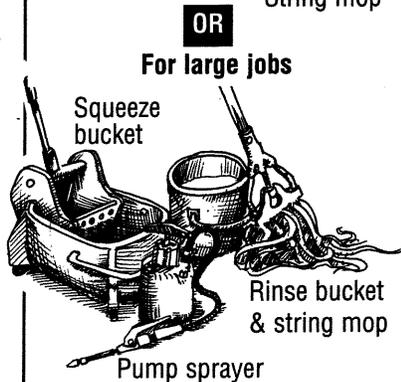
- Squeeze mop into empty bucket then rinse in rinse water. Rinse often. Squeeze out and rinse again. Mop small areas at a time.



Rinse

- Repeat above process using clean water rather than detergent. When cleaning up a work site, use a new mop head for rinse stage.

Recommendation: Make a final pass with a HEPA vacuum.



Dispose of Waste

- See following section.

Take Dust Wipe Sample

- See Section 5D: Testing Dust for Lead, p. 71.

DISPOSAL OF WASTE

After cleanup of the work area, take care to safely handle and remove dust and debris from the job. Supervisors should check with the EPA and their state's agency responsible for waste to find out about specific Federal, state, and local regulations regarding disposal of waste that may contain lead-based paint.

Key Principle:

Confine dust and waste to the work area that will be cleaned.

Disposal Practices

Specific guidelines are:

- Avoid carrying construction waste through an occupied space. If you must carry it through an occupied space, first place it in a heavy duty plastic bag or wrap it in protective sheeting and seal with tape.
- When a dumpster is used, keep the dumpster covered. If a chute is used, cover the chute (or use a barrel chute) and cover the dumpster.
- Store all waste in a secure container or dumpster until disposal. Do not transport waste in an open truck, unless it is bagged and sealed.

Water

Water used for clean up should be dumped into a toilet. Never dump this water in a sink, tub, on the ground, or down a storm drain.

Water used to remove paint through pressure washing must be collected in drums and may need to be tested to determine if it is hazardous. Check with your state agency responsible for waste.

CHECK YOUR WORK!

Check Quality of Work & Cleanup

Check work quality **during the job** and at the **end of the job**.

- **Was the cause of the problem corrected?**
- **Were proper work practices used?**
- **Was cleanup done thoroughly?**

How to Check:

Checking your work involves two important steps.

1. Visual Checks

Use the checklist inside the back cover of this guide when performing visual checks.

- **During the Job.** Be sure that:
 - the cause of the problem is being corrected;
 - the work area is safely set up;
 - the practices in this guide are being used; and
 - dust and debris are not spreading beyond the work area.
- **End of the Job.** Be sure that the repairs were done properly and that no dust or paint chips remain.

2. Take a Dust Wipe Sample

When interior work disturbs painted surfaces or produces dust, have dust wipe samples taken at the end of the job to check for harmful levels of lead-contaminated dust.

To be accurate, these tests must be done according to specific procedures. See Section 5D, p. 71, for more information about these tests, and who should perform them.

AT THE END OF THE JOB

**How to
Check
Cont'd**

Dust wipe testing is recommended at the end of any job that disturbs paint or produces dust. It is **strongly recommended** when:

- Work that disturbs paint is done in homes built before 1978.
- A young child or pregnant woman lives in the home.
- Performing unit turnover or regular maintenance in rental properties.

**Why Is It
Important
to Check
Work?**

Checking that work was done properly is important because:

- Failing to correct conditions causing damage or deterioration results in repairs that do not last.
- Work that fails to follow the recommendations in this guide may spread dust and paint chips beyond the work area and may endanger children in the home.
- Dust and paint chips left behind due to poor cleaning may contain lead and may also endanger children in the home.
- For contractors, checking your work improves the quality of a job and is likely to reduce the risk of a lawsuit in the event a child in the home is later found to have high levels of lead in his/her blood.
- Leaving a clean job site is greatly appreciated by customers.

ONGOING MONITORING & MAINTENANCE

Regularly Check Repairs for Deterioration, Paint Chips, and Dust

Property owners should regularly monitor painted surfaces where maintenance or improvements were performed.

Check to see if:

- New evidence of deterioration or paint failure is present.
- The cause of the problem was corrected.
- Lead dust hazards are present. *Important: This can only be done by dust wipe sampling.*

Maintain Surfaces and Thoroughly Clean

Then:

- Perform repairs, as needed, to maintain surfaces in a smooth and cleanable condition using the methods recommended in this guide; and
- Clean the area thoroughly using the practices described earlier in this section.

Methods of Monitoring

Follow the same methods used to check your work:

- **Visual Check.** Look for deterioration, paint failure, dust and paint chips. Use the checklist inside the back cover of this guide.
- **Test for Lead Dust.** Have dust wipe samples taken to check for dust that may be contaminated with lead. A test is needed to determine when dust contains harmful amounts of lead.

To be accurate, these tests must be done according to specific procedures. See Section 5D, p. 71, for more information about these tests, and who should perform them.

When to Monitor?

- **Annually.** Perform a visual check of past repairs and improvements involving painted surfaces.
- **During Unit Turnover or Routine Maintenance.** Perform a visual check of past repairs and improvements involving painted surfaces.
- **Every Two Years.** Get a dust wipe test done at least every two years. This type of test is **strongly recommended** when a young child or pregnant woman lives in the home.

AT THE END OF THE JOB

**Why Is It
Important to
Monitor &
Maintain
Work?**

Monitoring and maintenance helps:

- Plan and implement maintenance tasks
- Protect occupants and neighbors, particularly children, from lead exposure
- Give owners, contractors, and residents a record of the condition of the unit

A . G L O S S A R Y

Aluminum flashing - thin aluminum sheeting, also known as coil stock.

Aviation snips - metal cutters.

Chamfer - a small bevel on an edge.

Enclosure - a rigid, durable construction material that is mechanically fastened to the structure to cover painted surfaces.

Fit testing - a method to check if a respirator fits properly over the face.

Gain - notch chiseled in a door for a hinge leaf.

HEPA filter - High-Efficiency Particulate Air filter. A filter that can remove particles of 0.3 micrometers or larger from the air at 99.97 percent or greater efficiency.

HEPA vacuum - a vacuum with a HEPA filter.

HUD Guidelines - HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

Interim controls - a set of measures to reduce exposure to lead hazards. Interim control measures include special cleaning, repairs, paint stabilization, enclosure, and containment. For a full discussion, see HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

Lauan plywood - 1/4 inch plywood made of lauan with a smooth face.

N100 - a NIOSH filter class that describes a respirator's ability to filter airborne particles. A respirator filter rated as N100 removes particles of 0.3 microns or larger from the air at 99.97 percent or greater efficiency.

NIOSH - National Institute for Occupational Safety and Health, an agency within the Centers for Disease Control and Prevention that tests and certifies safety equipment including respirators.

RESOURCES

OSHA - Occupational Safety and Health Administration, an agency of the U.S. Department of Labor that oversees worker safety.

Paint stabilization - a process of wet scraping, priming, and finish coating of a deteriorated painted surface to prevent further deterioration.

Permissible Exposure Limit (PEL) - a dust exposure threshold set by OSHA. Work that creates lead dust levels in the air greater than the PEL must meet OSHA lead safety requirements for workers. OSHA has set the PEL for airborne lead dust at 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) as a time weighted average. See Section 5D, p. 69, for technical information about OSHA requirements and Section 5B, p. 61, for information about OSHA regulations.

Pilot hole - a small hole drilled to guide the drilling of a larger hole.

Protective sheeting - made of plastic, poly or other material. Protective sheeting must be puncture and tear resistant, impermeable to liquids, durable, flexible, and lightweight.

R-value - a measure of heat containment; used for rating insulation effectiveness.

Shim - small piece of wood or metal used to fill space between two fastened components.

Shroud - a protective covering that contains dust and chips.

Substrate - a solid surface such as plaster, drywall, wood, etc.

Tack pad - a sticky pad that helps remove dust from shoes.

Window trough - the area of the sill between a window stool or interior sill and the frame of the storm window where the bottom sash rests when closed (also called a window well or exterior sill).

B. FOR MORE INFORMATION

This section lists useful documents, web sites, and other lead-based paint information resources. Additional sources also exist. Use the reference letter on the right to locate the contact for each information resource. Contacts are listed by letter on pages 62-64. Publications marked with an * are for sale; others are available for free.

Where can I get more information on...

Work practices and lead-safety?

Publications	Reference Letter
<ul style="list-style-type: none">• <i>Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (July 1995).</i>* Technical guidance on methods for identifying and controlling lead-based paint and lead-based paint hazards. The <i>Guidelines</i> can also be downloaded for free from the HUD Office of Lead Hazard Control web site. (About 750 pages)	B, C
<ul style="list-style-type: none">• <i>Residential Lead Desktop Reference (2nd Edition, June 1998).</i>* A CD-ROM containing a large variety of lead-based paint information resources.	C
<ul style="list-style-type: none">• <i>Maintaining a Lead Safe Home (1997).</i>* A do-it-yourself manual for homeowners and property managers. (89 pages)	B
<ul style="list-style-type: none">• <i>Lead-Based Paint: Operations and Maintenance Work Practices Manual for Homes and Buildings (May 1995).</i>* Technical guidance on safe work practices. (200 pages)	G
<ul style="list-style-type: none">• <i>Guide Specifications for Reducing Lead-Based Paint Hazards (May 1995).</i>* Technical guidance on purchasing lead-hazard control reduction services and developing lead-hazard reduction work specifications. (About 500 pages)	G
<ul style="list-style-type: none">• <i>Lead Safety for Nonprofit Property Owners, Developers, and Managers (July 1998).</i> Practical guide to developing policies and activities that incorporate lead safety in property management. (About 30 pages)	F

RESOURCES

**Reference
Letter**
Publications

- *Guide to Working Safely with Residential Lead Paint (1999)*. Pamphlet with key lead safety precautions to follow during repainting and home improvement.
- *Reducing Lead Hazards When Remodeling Your Home (September 1997)*. Pamphlet providing basic information about lead-based paint risks and precautions when remodeling pre-1978 homes.

F

B, I, K

Web Sites

- HUD, Office of Lead Hazard Control. Provides information on HUD regulations, technical and educational documents, and links to other lead resources.
- EPA, Office of Pollution Prevention and Toxics. Provides information on EPA regulations, technical and educational documents, and links to other lead resources.

B

K

Worker protection methods?
Publications

- *Protecting Workers and Their Communities from Lead Hazards: A Guide for Protective Work Practices and Effective Worker Training (1993)*.^{*} Guidance on worker protection methods, training workers, and complying with OSHA regulations. (About 500 pages)
- *Lead Exposure in the Construction Industry (1993)*. Fact sheets that describe worker protection measures needed to meet OSHA requirements for lead including respiratory protection and protective clothing. (Series of 6 fact sheets)

L

J

Web Site

- OSHA, Occupational Safety and Health Administration. Provides information on OSHA regulations, technical and educational documents, and links to other lead resources.

J

Preventing children's exposure to lead hazards?

Publications

- *Protect Your Family From Lead In Your Home (May 1995)*. Pamphlet that provides basic information about addressing and preventing lead-based paint hazards in the home.
- *Lead Poisoning Prevention: Directory of State Contacts (1997-98)*. * Booklet that contains profiles of state programs to reduce lead hazards. (150 pages)
- *Directory of State and Local Lead Poisoning Prevention Advocacy Organizations (1998)*. * List of state and local non-profit organizations that are working to prevent lead poisoning. (About 300 pages)

Web Site

- Alliance to End Childhood Lead Poisoning. Information on lead poisoning prevention, lead issues, and program design. Site has publications that can be copied from the web.

Public education and outreach materials?

Web Site and Hotline

- National Lead Information Center. Information about lead hazards and poisoning prevention.

Locating certified abatement contractors and clearance inspectors?

Web Site and Hotline

- Leadlisting. List of qualified lead professionals including inspectors, risk assessors, abatement contractors, and analysis laboratories.

Reference Letter

B, I, K

E

A

A

I

D

RESOURCES

Disclosure requirements?

Publications

- *Protect Your Family From Lead in Your Home (May 1995)*. Pamphlet that provides basic information about addressing and preventing lead-based paint hazards in the home.
- *Disclosure of Lead-Based Paint Hazards in Housing (March 1996)*. Fact sheet that provides information on how to meet Federal disclosure requirements.
- *Questions and Answers on the HUD/EPA Disclosure Rule*. Answers to commonly asked questions about Federal disclosure requirements. (5 pages)
- *Interpretive Guidance for the Real Estate Community on the Requirements for Disclosure of Information Concerning Lead-Based Paint in Housing, Parts I and II (1996)*. In-depth guidance on the disclosure requirements for real-estate professionals. (27 pages)
- *Resource Handbook on Lead Hazard Disclosure for Homes and Apartments (1996)*.* Comprehensive reference book on disclosure procedures including advice for renters and owners, a glossary of key terms, and copies of disclosure documents. (Approximately 300 pages)

Respirators?

Web Sites

- National Institute of Occupational Safety and Health. Provides information on the proper use of respiratory protection and various types of NIOSH-approved respirators that are available.
- Occupational Safety and Health Administration. Provides information on OSHA regulations regarding the use of respiratory protection.

Reference Letter

B, I, K

K

K

K

A

H

J

Where can I find...

HUD's lead regulations?

- 24 Code of Federal Regulations (CFR) 35 (Lead Rule). Contains lead hazard evaluation and reduction requirements for properties that receive HUD funding.

OSHA's lead regulations?

- 29 CFR 1926.62 (Lead in Construction) and 29 CFR 1910.1025 (Lead in General Industry). These regulations cover Federal worker protection requirements for workers in industry, construction, remodeling, and renovation.

EPA's lead regulations?

- 40 CFR 745 (Lead-Based Paint Poisoning Prevention in Certain Residential Structures). Contains the Federal regulations for the disposal of lead waste and contractor notification requirements.
- 40 CFR 745.80 (Residential Property Renovation). Federal rule requiring contractors to provide notification before the start of any work that disturbs a painted surface in pre-1978 homes.

Disclosure regulations?

- 24 CFR 35 (HUD) and 40 CFR 745 (EPA). Regulations for disclosure of known lead-based paint and lead-based paint hazards by home sellers and landlords. This rule was published jointly by HUD and EPA.

**Reference
Letter**

B

J

K

K

B, K

RESOURCES

State lead laws?**Publication**

- *Summary of Lead Poisoning Prevention Statutes (February 1999)*. A state-by-state listing of local lead-related regulations, such as waste disposal requirements. Available by fax. (24 pages)

Reference Letter**E****Contacts**

Reference Letter	Organization	Types of Resources
A	Alliance to End Childhood Lead Poisoning 227 Massachusetts Avenue, NE, Suite 200 Washington, DC 20002 202-543-1147 http://www.aeclp.org	Publications
B	Office of Lead Hazard Control (OLHC) U.S. Department of Housing and Urban Development (HUD) 451 Seventh Street, SW, Room P-3206 Washington, DC 20410 202-755-1785 http://www.hud.gov/lea/leahome.html	Publications Program development
C	HUD USER P.O. Box 6091 Rockville, MD 20849 1-800-245-2691 http://www.huduser.org	Publications
D	Leadlisting 1-888-Leadlist (1-888-532-3547) http://www.leadlisting.org	Technical consultation
E	National Conference of State Legislatures 1560 Broadway, Suite 700 Denver, CO 80202 303-830-2200 http://www.ncsl.org	Publications

**Reference
Letter****Organization****Types of
Resources****F**

National Center for Lead Safe
Housing
10227 Wincopin Circle, Suite 205
Columbia, MD 21044
410-992-0712
<http://www.lead safehousing.org>

Publications
Technical
consultation

G

National Institute of Building
Sciences (NIBS)
Publications Department
1201 L Street, NW, Suite 400
Washington, DC 20005-4014
202-289-7800
<http://www.nibs.org>

Publications
Training

H

National Institute of Occupational
Safety and Health (NIOSH)
Hubert H. Humphrey Building, Room
7154
200 Independence Avenue, SW
Washington, DC 20201
800-35-NIOSH (800-356-4674)
[http://www.cdc.gov/niosh/home-
page.html](http://www.cdc.gov/niosh/home-
page.html)

Publications

I

National Lead Information Center
(NLIC)
8601 Georgia Avenue, Suite 503
Silver Spring, MD 20910
Information Clearinghouse: 1-800-
424-Lead (1-800-424-5323)
<http://www.epa.gov/lead/nlic.htm>

Publications
Training

RESOURCES

**Reference
Letter****Organization****Types of
Resources****J**

Occupational Safety and Health
Administration (OSHA)
U.S. Department of Labor, OSHA
Publications Office
200 Constitution Avenue, NW, Room
N3101
Washington, DC 20210

OSHA Lead web page:

[http://www.osha-slc.gov/
SLTC/lead/index.html](http://www.osha-slc.gov/SLTC/lead/index.html)

OSHA Respirator web page:

[http://www.osha-slc.gov/SLTC/
respiratory_advisor/mainpage.html](http://www.osha-slc.gov/SLTC/respiratory_advisor/mainpage.html)

Technical
consultation
Enforcement

K

Office of Pollution Prevention and
Toxics (OPPT)
U.S. Environmental Protection
Agency (EPA)
401 M Street, SW (7401)
Washington, DC 20460
202-260-3810
<http://www.epa.gov/lead>

Publications
Program
development

L

Society for Occupational &
Environmental Health
6728 Old McLean Village Drive
McLean, VA 22101
703-556-9222
<http://www.soeh.org>

Publications

C. GETTING THE WORD OUT

How Owners and Occupants Can Work Together to Improve Lead Safety In Homes

Gaining tenant cooperation can help rental property owners and managers respond promptly to conditions that could pose a health threat to occupants.

Owner Responsibilities

1. Check the building to be sure that:

- The building shell is sound.
- Water isn't coming in from the outside and causing damage.
- Sources of moisture inside are not causing damage.
- Painted surfaces are intact.
- Doors and windows work properly.
- All surfaces are clean and cleanable.

2. Maintain the building.

- Train maintenance staff to minimize dust, clean up effectively, and protect themselves.
- Conduct regular building checks for potential problems, such as:
 - Flaking or peeling paint
 - Water damage to paint, plaster, or wood
 - Plumbing or roof leaks
 - Painted doors and windows that do not operate smoothly

3. Educate occupants and gain their cooperation.

- Fulfill Federal notice and disclosure requirements.
- Have occupants inform you of damaged paint and other maintenance problems.

When Maintenance or Renovation Work is Done

Give occupants the Lead Safety pamphlet required by Federal regulations (see page 66).

Tell occupants:

- ✓ Why repairs are necessary.
- ✓ The work schedule.
- ✓ How they and their possessions will be protected.
- ✓ Why they may need to leave during the work.

RESOURCES

- ❑ Explain to occupants why steps, such as regular cleaning, prevent lead-based paint hazards. (See below.)
- ❑ Consider providing cleaning supplies and tools (see page 75) to occupants to encourage cleaning.
- ❑ Remind tenants that it is a good practice to provide notice of problems in writing.
- ❑ Make sure occupants understand the property's maintenance reporting procedures and indicate that these problems require priority attention.

Precautions Tenants Can Take to Protect Their Family

Occupants should pay special attention to page 7 of the pamphlet *Protect Your Family From Lead In Your Home*. It describes steps that occupants can take to reduce the chance that they will be exposed to lead hazards. Suggestions from this pamphlet include:

- ❑ Clean floors, window frames, interior window sills, and other flat surfaces each week using warm water and an all-purpose cleaner.
- ❑ Clean up any paint chips immediately.
- ❑ Keep child play areas clean.
- ❑ Wash children's hands often.
- ❑ Keep children from chewing interior window sills and other painted surfaces.

Federal Notice and Disclosure Requirements

(24 CFR Part 35 or
40 CFR Part 745)

- ✓ Landlords and home sellers must notify future occupants about lead-based paint hazards by giving them the pamphlet *Protect Your Family From Lead in Your Home*.
- ✓ Landlords and home sellers must disclose information about known lead-based paint and/or lead-based paint hazards before dwelling leases or home sales contracts take effect. Leases and sales contracts must also include a form about lead-based paint that meets Federal requirements. Contact HUD or EPA for more information about these requirements (see Section 5B, p. 57).

Notice Prior to Renovation

Federal law requires contractors and owners of rental properties to inform occupants about the risks of lead-based paint before non-emergency repair, maintenance, and home renovation work begins. This law applies for all work on surfaces greater than 2 square feet per component. Contractors and property owners must distribute copies of the pamphlet *Protect Your Family From Lead In Your Home* before any work starts. See EPA's regulation at 40 CFR 745.80. Also see Section 5B, p. 57, for sources that can provide copies of this pamphlet.

Contractors and owners must make sure that occupants have received the pamphlet.

- For owner-occupied homes, the contractor must have the homeowner sign an acknowledgement form after receiving the pamphlet. Or, the contractor can send the pamphlet by certified mail.
- For tenants, the contractor or property owner must have an adult occupant sign an acknowledgement form after receiving the pamphlet. Or, the contractor or owner can send the pamphlet by certified mail. If the contractor cannot get a signed acknowledgement, the contractor must sign a statement documenting this.
- For work in common areas, such as the lobby, of an apartment building, the contractor must give the pamphlet to the owner and to the occupants of all affected areas and inform them of the nature, location, timing, and length of the job.

Why Lead Safety Makes Sense for Property Owners and Contractors

Property owners and contractors that use safe work practices benefit in several ways.

Advantages for Owners of Residential Rental Properties

Owners who maintain their rental properties using work practices that increase lead safety can use this information to attract tenants who are concerned for their child's health. Some local agencies may even maintain a listing of housing units that meet certain lead-safety standards. When giving prospective tenants the lead-based paint pamphlet and the required disclosure information, they can tell the tenant that the property has a program to minimize the risk of hazards from lead-based paint. A safety program would include:

RESOURCES

- Educating and training maintenance workers.
- Examining property at turnover and then every year for deteriorating paint.
- Correcting conditions that may cause paint to flake and peel (excessive moisture, binding doors, etc.).
- Doing work safely and cleaning up well.
- Making sure surfaces are cleanable and doing a professional cleaning at turnover.
- Performing dust wipe tests before occupancy, and after every maintenance job that disturbs old paint. It is also recommended to perform a dust wipe sample test at least every two years. Keep the results on file.
- Encouraging tenants to inform property owners if there is a problem.

Advantages for Contractors

Doing work safely can enhance a contractor's reputation, maintain the safety of workers, and protect the health of customers and their children.

A program for lead safety can also help contractors when bidding new jobs. For example, contractors performing repairs and improvements in homes built before 1978 must give potential customers a pamphlet about the risk of lead-based paint during renovation.

Contractors that follow practices for lead safety can demonstrate to customers that they understand the risks and show that their workers take specific precautions to protect against lead-based paint hazards. Lead-safety can help "*give you a leg up*" on the competition.

Safe work practices also offer benefits that are important to customers:

- Dust and debris are confined to the work area.
- A "clean" work area at the end of the job.
- Some work offers additional benefits. (*For example, repairs to windows can improve their operation, prevent damage from moisture, and lower energy and maintenance costs.*)
- Lead safety also helps protect you as a contractor. For example, having an independent, certified professional take dust wipe samples of the work area promptly after cleanup provides strong documentation that no lead hazards were present in the work area at the end of the job.

D. MORE ABOUT TECHNICAL TOPICS

Respiratory Protection

Respiratory protection helps prevent workers from breathing harmful amounts of lead and other substances, touching their mouths with dusty hands, or swallowing paint chips.

When work creates high levels of dust in the air, properly trained and certified lead-based paint professionals should do these high dust jobs. If you work for someone, and plan on doing this type of work, your employer must meet the requirements of the OSHA Lead in Construction Standard (29 CFR 1926.62). These requirements include respiratory protection when work creates lead dust in air that exceeds the "permissible exposure limit" (PEL) — see Air Monitoring and Results sections below. See Section 5B, p. 57, for sources of information about OSHA requirements.

Respirators may be required for activities that generate high levels of dust such as:

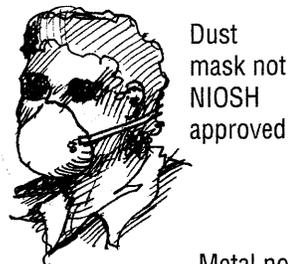
- Demolishing painted surfaces
- Opening up wall and ceiling cavities
- Using power tools on painted surfaces
- Dry scraping large painted areas

For this type of work, OSHA requirements include the following:

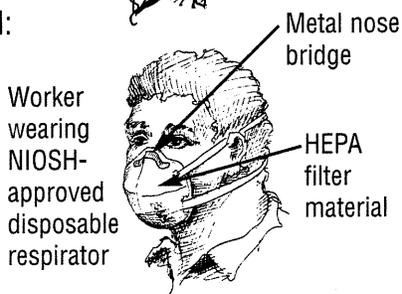
- Training workers on how to properly use and maintain respirators.
- Making sure proper respirators are always available and that workers have been fit tested. Where respirator use is required, workers must be part of a written respiratory protection program that meets OSHA standards (29 CFR 1910.134).

Many types of respirators can be used:

- Disposable respirators can be used if they are rated by NIOSH as N100 (or HEPA) — this information can be found on the respirator's package or the respirator itself.



Dust mask not NIOSH approved



Worker wearing NIOSH-approved disposable respirator

Metal nose bridge

HEPA filter material

— Non-disposable respirators, also rated by NIOSH as N100, often have replaceable cartridges and require regular maintenance.



Worker wearing a non-disposable respirator

- Having a trained person do air monitoring that measures the amount of dust in the air to determine if respirators are required by OSHA, and the appropriate level of protection. Workers must wear proper respirators while air monitoring is being done.

Air Monitoring

Air monitoring is done to ensure that workers are not being exposed to dangerous levels of lead dust in the air, and to comply with OSHA requirements. It must be done by a person with special training. A worker being monitored wears a small plastic canister clipped to his/her clothing near the face. A pump in a device clipped to the belt draws air and dust into the canister. The canister is then sent to a lab to measure how much lead dust was in the air.

What Do the Results Mean?

The results are measured in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). If the amount of lead dust in the air exceeds the permissible exposure limit (PEL) of $50 \mu\text{g}/\text{m}^3$, workers must wear at least a half-face respirator with an N100 (or HEPA) rating and certain OSHA requirements must be followed.

Results may show that respirators are not necessary or that a greater level of protection is needed. If the results show lead dust levels in the air above $500 \mu\text{g}/\text{m}^3$, a more protective respirator is required.

Other Protection

In addition to respiratory protection for activities that generate high levels of dust, compliance with OSHA's Lead in Construction Standard may involve blood tests for workers, medical monitoring, hand washing facilities, other personal protective equipment, shower and changing areas, and additional training.

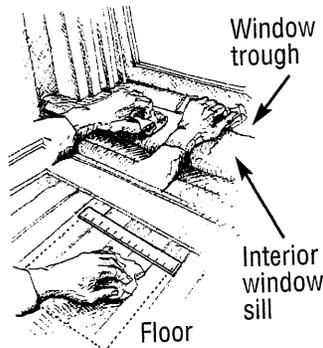
Testing Dust for Lead

By having dust wipe samples taken, job supervisors and property owners can locate dust lead hazards and test the effectiveness of cleaning at the end of a job.

Where Are Dust Samples Taken?

Samples are taken in the area of the dwelling where work has been completed. The following surfaces within the work area should be sampled:

- Floor
- Interior window sills (*also referred to as window stools*)
- Window troughs



When Should Dust Samples Be Taken?

- At the end of a job
- If there is a child or pregnant woman living in the home
- Before a family moves into a home

What Do the Results Mean?

The results of the laboratory analysis will show the amount of lead found in the dust from the area sampled. The results are measured in micrograms per square foot ($\mu\text{g}/\text{ft}^2$).

To determine if a lead-based paint hazard exists, based on HUD's requirements as of winter 1999, compare the results to the following standards.

- 100 $\mu\text{g}/\text{ft}^2$ on the floor
- 500 $\mu\text{g}/\text{ft}^2$ on the interior window sill (stool)
- 800 $\mu\text{g}/\text{ft}^2$ in the window trough

Note: The numbers for floor and interior window sills will likely change in the very near future to about half these levels.

If the results for a sample are higher than these standards, a dust lead hazard is present.

Who Can Take Dust Wipe Samples?

Following painting, home maintenance, and renovation work:

- In homes receiving Federal assistance, dust wipe samples, if required by regulations, must be taken by a trained and certified person.
- For all other homes, it is recommended that dust wipe samples be taken by a trained person, and it is preferable that they be certified. Some states require that dust wipe samples be taken by certified persons.

What Actions Do I Take Based On the Results?

If the results show dust lead levels higher than the standards listed above, the area where the work was performed should be cleaned to remove the dust lead hazard.

If the dust wipe samples were taken as part of ongoing monitoring by maintenance staff or the property owner, the surfaces where work was performed should be examined to see if the work has failed or new conditions that generate dust have developed. In either case, these conditions should be corrected using lead-safety principles and work practices.

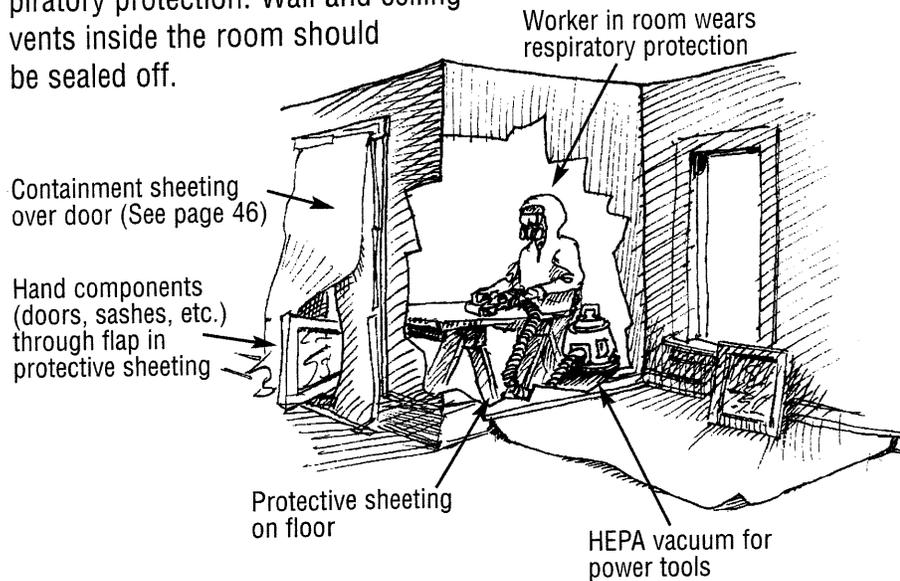
If the work required to correct the likely source of the dust lead hazard is beyond the scope of this guide, the property owner should seek the help of a lead-based paint professional trained to safely correct lead-based paint hazards.

Setting Up a Dust Room

A dust room can be useful for dusty work on building components that can be moved. For example, scraping or planing doors or window sashes can be done in a dust room. A dust room is particularly useful when working in occupied spaces.

The dust room can be any room that can be closed off. The door can be covered with a flap system (see page 46) and the floor can be covered with protective sheeting taped to the baseboard.

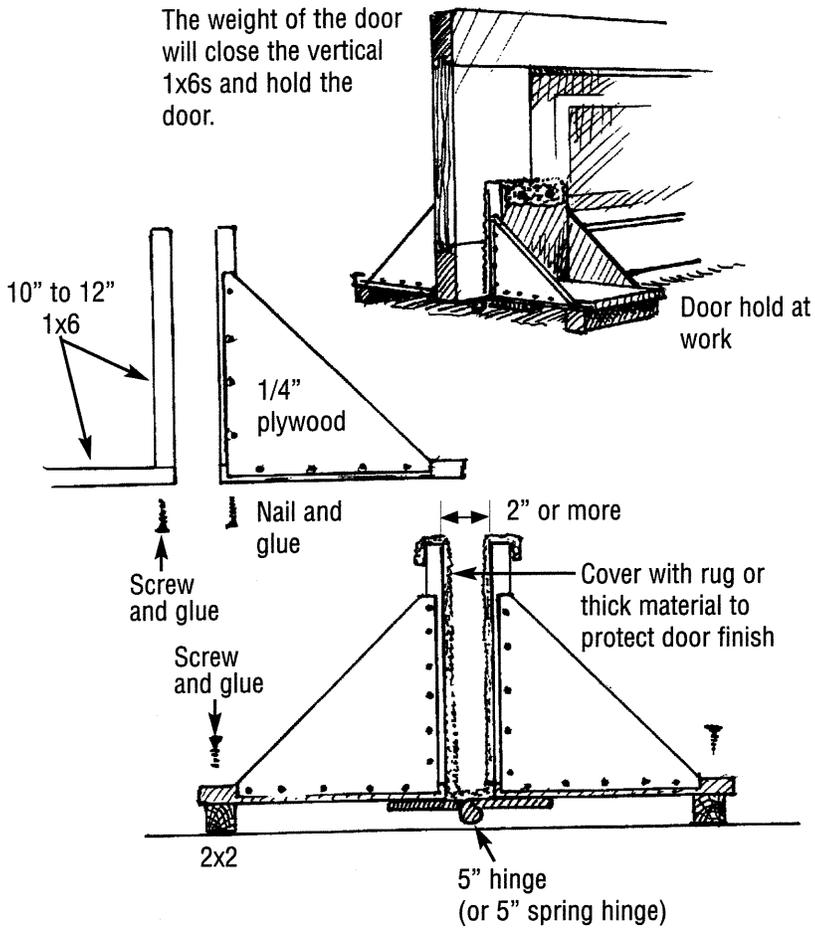
Workers in this room should wear disposable clothing and wear respiratory protection. Wall and ceiling vents inside the room should be sealed off.



Building a Door Hold

A door hold makes working on doors easier and safer.

The weight of the door will close the vertical 1x6s and hold the door.



E. TOOL AND SUPPLY LIST

Additional Tools Needed for Lead-Safety Work

(Not every tool is needed for every job.)

Paint scrapers - A variety of scrapers are useful; carbon blades last longest. A mill file works well to keep scraper blades sharp.

Sanding sponges and wet/dry sandpaper - Where areas need to be smoothed or feathered, these abrasive tools, when used wet, keep dust to a minimum.

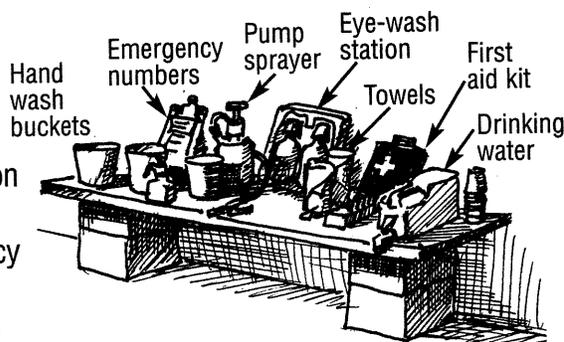
Mist bottles - Misting a surface being scraped or cut keeps down dust. Squeeze bottles work best in small areas. For larger jobs, a pump pressure sprayer in a knapsack works best.

Plane - A jack, smooth, or jointer (not block) plane. Hand planes are good for removing paint from edges such as the edge of a window, stool, or door. They create very little dust.

Cleanup station - A kitchen counter with a working sink is a good place for a cleanup station. If not available, set up a board with 3 buckets and a pump sprayer.

The station should have:

- Paper towels and soap
- Pads for cleaning respirators
- A 2-bottle eye-wash station
- A first aid kit
- Clipboard with emergency numbers
- Drinking water and cups



Personal Protective Clothing and Equipment

- A disposable respirator rated by NIOSH as N100 (or HEPA)
- A half-face, air cartridge respirator rated by NIOSH as N100 (or HEPA)
- Protective, lightweight, disposable suits with elastic sleeves and ankles
- Shoe covers (slip resistant is recommended)
- Safety glasses (vented goggles if working in high dust conditions or when using liquids or strippers)
- Ear protection if using power tools

RESOURCES

Cleaning Equipment

- Bottle mister and pump sprayer for detergent
- Mops and buckets
- Tack cloths for wiping furnishings that may be damaged by water
- Heavy-duty paper towels and/or rags

Vacuums - At the end of a job, use a HEPA vacuum because it will capture even the finest dust. For regular household cleaning, use a HEPA vacuum if available. If one is not available, use a fine filter in your vacuum known as micron or allergen bags.

Painting Supplies

- Use commercial grade cleaners; there are also lead-specific cleaners. (Note: Trisodium phosphate [TSP] is banned in some states.)
- Degreasers may be necessary on some walls.
- Use deglosser or wet sanding supplies.
- Where wood is exposed, use a sealer and then apply a best grade primer or primer-sealer.

Other Tools

- Coil stock for covering window troughs. Coil stock is available with white and brown sides to match window trim color (see page 36).
- Window opening tool for windows that are painted shut (see page 29).
- Brace with screwdriver tips for removing and replacing hinge screws.
- Power planer with exhaust port that can be attached to HEPA vacuum. A power planer can be used for stripping window sashes and doors in a contained work area with respiratory protection.

G . W O R K C H E C K L I S T

Before Work Begins

- Are the possible risks to occupants identified?
- Are the occupants informed of the possible risks and their responsibilities?
- Are the causes of the problems located?
- Is the work area set up?
- Is the work area closed off from occupants?

During Work

- Are dust and debris being contained in the work area?
- Are workers wearing necessary protective clothing and equipment?
- Are workers cleaning up each time they leave the work site?

At the End of the Job

- Did workers fix the cause of the problem?
- Did workers remove visible dust and debris?
- Did workers properly dispose of dust and debris?
- Did workers wet wash the surfaces?
- Were dust samples taken to make sure that cleanup worked?

For Long-Term Maintenance

Is there a plan to:

- Maintain painted surfaces?
- Keep surfaces clean and cleanable?
- Prevent water and moisture damage?

This Guide may be reproduced and distributed without prior permission from the U.S. Department of Housing and Urban Development or any other Federal Agency.

Disclaimer: The guidance offered in this document is based upon the latest lead hazard control knowledge and technology available at the time it was written. Users bear all risks associated with reliance on these work practices and have sole responsibility for evaluating the information it contains. Users bear sole responsibility to form their own independent judgments on the document's use, modification, and adaptation as appropriate. Neither the United States Government nor any of its employees makes any warranty, expressed or implied, or assumes any legal liability for any use of, or the results of, any information, product, or process discussed in this document.

Why Follow this Guide?

The Simple Work Practice Changes in this Guide Can Protect Children and Workers

- This Guide contains practical steps for lead safety.
- With small changes in work practices, workers can protect themselves, their families, and their customers, especially children, from lead exposure.

Painting, Home Improvement, and Maintenance Work in Older Homes Can Endanger Children

- Most homes built before 1978 contain lead-based paint.
- Doing work improperly can create a lot of paint chips and dust that may contain lead.
- Lead in paint chips, dust, and soil gets on children's hands and toys which they may put in their mouths.
- Lead can make children very sick and cause permanent brain and nerve damage, learning difficulties, and behavior problems.

Poor Maintenance Also Endangers Children

- Paint flaking and peeling is often caused by moisture.
- Rubbing or impact on doors, windows, and trim can cause paint failure.

Who Should Use This Guide?

- Building maintenance workers and supervisors
- Painters
- Repair, renovation, and remodeling contractors
- Property managers and owners
- Homeowners

Ordering Additional Copies

Single copies of *Lead Paint Safety: A Field Guide for Painting, Home Maintenance, and Renovation Work* on paper or on CD-ROM can be ordered from the National Lead Information Center at 1-800-424-5323 or downloaded from the HUD Office of Lead Hazard Control web site at www.hud.gov/lea/leahome.html.

For information about obtaining multiple copies, contact the National Lead Information Center.

June 1999
HUD-1779-LHC