Protection & Dust Control

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Key points:
1. Control dust:
   a. Create effective barriers between work area and rest of house.
   b. Set up negative air whenever practical. HEPA air filtration machine, or other air filtration when impossible.
   c. Block off or filter HVAC ductwork.
   d. Minimize dust within the work space: use wet methods, vacuum collection, etc.
2. Protect floors well; refinishing is expensive.
3. Protect cabinets, tile, etc. that are being saved.

Details:
Dust Control
Section 1: Dust Walls

1. The key to effective dust control is ‘negative pressure’ within the work space enclosure (see more below).
2. Dust walls should be strong enough for the loads that will be imposed. When windows or doors are open, wind can push hard.
3. Three standard ways to build dust walls:
a. For long term or high strength walls, constructed wood frames covered with plastic or sheet goods are the most durable. Seal perimeter with tape or sill sealer foam.

b. For short-term use, pole-type systems (such as Zip Wall) are easy and inexpensive.

c. Simply taping plastic to ceiling and walls can work for short term, if no wind load.
4. Three ways to build the main entry through a dust enclosure:
   a. Use an actual, hinged door (such as an interior door being demo’d from the project area, a sheet of plywood on hinges, or a $50 home center screen door, with plastic stapled to it).

   b. Double-zipper door with self-sticking zippers. Some brands come with metal hooks to hold the “door” out of the way:

   c. Overlapped plastic sheeting works well: inexpensive, convenient, and with negative air keeps dust in the work area. Cut a vertical slit in dust wall plastic, then tape a 3-4’ wide piece to cover. Even endorsed by the EPA Lead Paint training.
5. Suggestion: foam board is great for doorways. The foil-faced R-Max type is easier to cut, and tape sticks better to it, compared to blueboard or other foam boards. “Box out” into adjacent room to allow floor finishing into doorway.

6. Suggestion: When possible, set up dust enclosures where they won’t need to be moved for the duration of the project including painting and floor finishing.

7. Suggestion: install furnace filters in the dust wall, to allow wind to blow in and out, without carrying too much dust through.
Dust Protection Section 2: Negative Air

1. The basic idea is to blow air out of the work area, so the work area is under lower pressure than the rest of the house. (It is ‘negative’ in pressure.)
   All dust walls have small holes. If the work area is negative and the house is positive, air has to blow into the work area through these small holes.
   Dust can’t move into the house, if all the air is moving out of the house.

2. Easy to tell if work area is at correct, negative pressure: just look to see that plastic is sucking into work space.
   a. If plastic is bowing outward, wind is stronger than fan, and dust will escape.
b. To fix, either seal more holes or use more powerful fan (see below.)

3. Usually all holes to the house need to be blocked off pretty well. Tape plastic, block off framing bays.

4. Fan options:
   a. Box or window fan $8-25 can do a good job for a small area (one or maybe two rooms). Not acceptable for condos—not strong enough.
      Use cardboard, foam board, or plywood to fill around fan in window. Also, a furnace filter can help keep fan clean and running well.

   b. Restoration ‘carpet dryer’ fan, $200, can be installed with ductwork on inlet or outlet side. Available for rent. Use filter to protect motor from dust.

   c. Suggestion: Woodworking dust extractor, (under $200), can be placed outdoors with 4” flexible drain pipe used as duct into interior room work space
d. Suggestion: Air Filtration Device (also called “Negative Air Machine”, “Powered Air Scrubber”), $500-1500, available for rent. Designed to move large amounts of air and to filter it, most with HEPA filters. Good for small lots, townhouses, condos where blowing dust out the window would be bad.

![Air Filtration Device](image1.png)

![Air Filtration Device](image2.png)

e. Fan options not recommended: homemade, not-exactly-safe-or-legally-wired “Salvaged furnace fan” or “Gable vent fan installed in plywood”  

![Avoid](image3.png)

f. Suggestion: use filters to protect fan and reduce dust outside

![BOWA suggestion](image4.png)

5. Air filtration: much less effective than negative air.  
   a. Use “shop dust trap” machines, or “Powered Air Scrubber” or “HEPA Negative Air” machines commonly rented or sold by restoration or abatement industry suppliers.
Dust Protection Section 3: HVAC Dust Protection

1. Keep system fan off as much as possible, consistent with owner comfort. Definitely off during dustiest tasks.
2. Block off all supply and return ducts in work areas.
3. Use filters on returns to reduce dust entry.
   a. Best is middle-level pleated-media filters. Finest filters clog too quickly, and cheapest don’t catch much. They don’t need to exactly fit the duct opening; tape to wall over entire return grill.
   b. Consider using an inexpensive pre-filter material in addition, so expensive filter will last longer.
   c. Any filter is better than none and will do in a pinch.
   d. Vacuum or clean outside of filter daily to extend life. Turn system fan off before vacuuming!
   e. Check main system filter regularly and clean/change as needed.
4. Vacuum accessible ducts after demo complete and at end of job. Consider duct cleaning service.
5. Verify coil area is clean after we work. Dust on coils and heat exchangers cause inefficiencies, clogged condensate lines, and unhealthy biological growth.
Dust Protection Section 4: Dust Reduction Methods

1. Wet Methods:
   a. Using a bit of water during demo can drastically reduce dust.
   b. For smaller jobs, a hand-held spray bottle (Home Depot, about $5) can be used.
   c. For larger jobs, pump-up garden sprayers may make sense.
   d. For exterior work, a hose with good spray nozzle is ideal.
   e. Lightly mist the work area before starting demolition. This alone traps huge amounts of dust.
   f. Misting as you go along also helps, for example, if you pop off a piece of window trim, spray a few pumps into the dusty area behind the jamb.
   g. Lightly misting before sweeping also knocks down tons of dust.
   h. Be careful about slip hazards when wetting floors that can turn slippery. Masonite floor protection doesn’t get too bad when wet, plastic does.

2. Local Collection: vacuums/shields

3. Active air filtration in and out of enclosure. In rare circumstances, negative pressure can’t be used; active air filtration is the best option. Filter air both in and out of work space for best containment.
# Surface Protection

<table>
<thead>
<tr>
<th>Product</th>
<th>Supplier</th>
<th>Use</th>
<th>Size</th>
<th>Price (reference)</th>
<th>$/sf</th>
<th>$/lf</th>
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<tbody>
<tr>
<td>“Econo Runner:” Tacky felt with plastic facer</td>
<td>Protective Products</td>
<td>Hardwood, tile, rails, cabs</td>
<td>32” x 100</td>
<td>$ 108.90</td>
<td>$ 0.41</td>
<td>$ 1.09</td>
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<td>“Surface Pro:” Tacky felt with NO plastic facer</td>
<td>KS International</td>
<td>hardwood newly finished</td>
<td>40” x 82’</td>
<td>$ 138.95</td>
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<td>Carpet</td>
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<td></td>
<td></td>
<td></td>
<td>24” x 500’</td>
<td>$ 109.00</td>
<td>$ 0.11</td>
<td>$ 0.22</td>
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<tr>
<td></td>
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<td>36” x 200’</td>
<td>$ 75.90</td>
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<td>36” x 500’</td>
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<td>Stairs--non-reverse-wound</td>
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<td>“Floor Protection”</td>
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<td>36” x 500’</td>
<td>$ 154.90</td>
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<td>Hardboard</td>
<td>Home Center</td>
<td>Extra layer on hard floors</td>
<td>4 x 8</td>
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<td>1/8” structural board</td>
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<td>Wall protection</td>
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1. **First, do no harm.** Avoid adhesives on surfaces that are hard to repair.
   a. Don’t tape to wallpaper, faux finishes, cabinets, or hardwood floors.
   b. Tape to shoe molding or painted baseboard, rather than hardwood floor.
   c. Tape to trim or painted ceiling, rather than faux-finished walls or wallpaper.
   
   d. Tape can be removed in a more safe manner:
      i. Pull slowly and at an angle, parallel to the surface (instead of pulling straight out away from the surface)
      ii. Use a hair dryer to warm up the adhesive. (Not a heat gun, a hair dryer.)
2. **Hardwood Floor protection:**
   a. Standard is two layers—one soft layer sealed against dust, a second strong layer for impact protection and easy cleaning

b. Standard Base layer is “unfaced tacky felt” for newly-finished hardwood, and “tacky felt with plastic facer” for most floors.
   i. An example “unfaced tacky felt” is Surface Pro from KS International (dropcloth.com). It is not liquid proof and allows floor to cure. It should not be covered with airtight materials during the curing phase.

   ii. An example “tacky felt with plastic facer” is Econo Runner from Protective Products. It has a plastic top surface that blocks liquids.

c. Other base layers are less protective, more expensive, or more slippery.
i. Paper layers are not protective enough, even when fully taped.
ii. Engineered Floor Underlayment (felt with plastic top), found at home centers, is protective but slippery and expensive. Use if you don’t have time to get tacky felt with plastic facer.

iii. Cardboard can serve as either layer, but we don’t have a good source for large pieces at the moment.

iv. Taped sheet goods provide physical protection. Hardboard, 1/8” structural board such as ThermoPly, or cardboard such as Ram Board or Flex Board are good options.

i. Hardboard is most durable and easy to clean. Painted version is less slippery.
ii. 1/8” Structural Board is easy to fold for stairs, jambs, etc.
iii. Cardboard is less expensive and easy to install, but not nearly as protective, and hard to clean.
iv. Only cardboard should be used on newly-finished floors as it allows curing to take place.
3. **Carpet Protection**—use “Carpet Protection” adhesive roll plastic
   
a. Careful to use proven brands. Protective Products is known quantity. Others have left residue.

   b. Must be removed & replaced or can become very sticky and hard to remove. Limited life, usually under two weeks.
   
c. Tacky felt products work OK even on carpet.
   
d. 2-mil or thicker plastic can be used to cover entire room.

   e. Tarps OK for short term use, but can be a trip hazard. Caution.
4. **Tile protection:** use adhesive or other roll material  
   a. Blue “Floor Protection” adhesive plastic works well, but no physical protection. Add layer for impact protection.

5. **Stair protection for carpet**  
   a. “Carpet Protection” adhesive plastic works well. A 24” strip is usually easier to install than a 36” complete cover. Use special “stair” roll with reverse adhesive winding.

   b. Use strips to hold roll materials (plastic and/or drop cloths). Nail to riser with 18ga nails.
   c. Tacky Felt products also good
   d. Drop cloths are a trip hazard.
6. **Stair protection for hardwood**
   a. Hardboard or plywood tread covers can be tacked with 18ga or smaller nails, holes are usually not visible later. Use tacky felt below for dust protection.
   b. Tread covers can be built with a cleat at the back and attached to risers, or cleats at side attached to skirts, if holes in treads are unacceptable.
   c. Tacky felt products a good medium-term option; use strips tacked with 18ga nails to hold in place.
   d. Other roll protection OK if can tape to skirt boards and/or risers.

7. **Plastic Added Layer** can be used usually on top of or under sheet goods. Plastic doesn’t prevent physical damage but does control dust and liquids.
8. **Vertical protection of walls**: foam board, roll foam sheet, cardboard, fanfold, or corrugated plastic sheet are good. Even 6-mil plastic fairly protective.

9. **Railings and fixtures**: Sill sealer or other flexible foam good for wrapping railings, fixtures. Tacky felt also good and can be cut on the roll with a miter saw into narrower widths.

10. **Thresholds**: use non-residue duct tape. Blue threshold tape gets stuck and damages the thresholds.
11. **Appliances and other heavy objects:** 1/8” masonite is perfect for sliding appliances out onto finished floors.

12. **Driveways:** Plywood or OSB for driveways.

   a. 2x12s for under dumpsters to keep wheels from denting driveway. Place tarp under low end of dumpster to direct runoff water off driveway so it won’t stain.