THE COMMERCIAL FLOORING REPORT January 16, 2011

The Use of Solvent to Remove Old Flooring Adhesive

We've had several calls and emails over the last two months regarding the use of solvents to remove old adhesive, particularly the black asphaltic cut back type, used for old vinyl asbestos tiles. These tiles are present in many older buildings, many of them schools. When asbestos abatement initiatives are undertaken in these buildings, one of the materials removed and abated are the vinyl asbestos tiles and the cut back adhesive used to install them. It is wise to always assume, and rightfully so, that the cut back itself contains asbestos. Unfortunately, the cut back adhesive is commonly removed with a solvent based agent. Though the solvent will work well to remove the asphaltic based cut back it creates another problem. To understand this you have to understand that the solvent leaves a residue, that you can never remove all of the cut back with solvent, that the cut back will in fact impregnate the concrete or wood underlayment and that eventually both the solvent and the cut back will work themselves out of the substrate. If moisture is present in the substrate, which it will always be to some percentage and the new flooring material is non permeable, either hard surface flooring or carpet tiles with non-permeable backings, a reaction is most likely inevitable that will cause a failure in the installation.

This article was instigated by a flooring contractor friend of ours, Ray Cope of Cope Carpet Interiors in Allentown, Pennsylvania, who was faced with just such a condition. His story, written by Ray, is told here, with some editing and comments by me. It will be something you'll want to save and share so that you'll not get yourselves into trouble. At the end is a release Ray created.

Lew, Here is my study that all flooring contractors should see and pass on to general contractors and building owners. By doing this research and presenting it to the director of engineering of a major hospital, I've convinced them to never use solvents again. Ray

All of the information in this article as well as the release is yours to use or modify as you see fit. The information contained will help you avoid financial hardship, whether you're the building owner, architect, general contractor or flooring contractor. Ray writes; An end user wants a new floor, but there is an existing floor presently installed. As the building owner, OSHA & EPA states, the floors must be tested for asbestos containing material (ACM). If the flooring or adhesive contains asbestos, special work practices must be employed by certified asbestos removal contractors. If there is no ACM present in the flooring material or the adhesive, a general demolition company can remove the floor and scrape away the bulk of the adhesive. Generally that's when a floor covering contractor comes in. He must get documentation from the building owner that the adhesive does not contain asbestos.

Many times, the owner decides to install new floor covering over existing intact flooring. If so, no special removal practices are required. Other times, they choose to remove the existing flooring and the old adhesive is exposed.

If the adhesive is latex based (Cream Color) the excessive adhesive is scraped away, the flooring is skim coated and new flooring is adhered to the newly patched floors. Existing black adhesive is black asphaltic and must be tested for ACM. If it is ACM, the adhesive must be removed mechanically. There is no provision to remove it with solvents. Even if the black adhesive is not ACM, manufacturers won't warrant their product from staining or sticking to the black adhesive so it must be removed

The proper way to remove the adhesive is detailed in the RFCI (Resilient Floor Covering Institute) "Recommended work practices for removal of resilient floor covering."

> The removal of latex based adhesives commonly used with vinyl sheet floors and some tiles can be accomplished by wetting the adhesive residue (which will soften the adhesive) and scraping. Do not use an excessive amount of water which can damage wood subfloors.

If the black adhesive is non ACM, it can be mechanically scrapped; shot blasted, or ground using OSHA & EPA standards. This being done, the floor can then be skim coated with a cementitious type material.

Very often, asbestos abatement contractors use a solvent to remove the black adhesive. This is NOT acceptable as no floor patch companies will warrant their products if solvents are used. These selected verbatim warnings are from the respective manufacturers sub floor preparation requirements.

- Ardex: Substrate preparation must be by mechanical means, such as shot blasting. Do not use acid etching, sweeping compounds, solvents or adhesive removers
- Mapei: Do not use chemical solvents to remove cutback adhesive
- CMP: Never use Acid, Chemical or Mastic removers on any surface to which CMP products will be applied.

Floor covering companies will not warrant their products or adhesives if solvents were used.

- Armstrong: Armstrong does not recommend the use of solvents to remove paints or old adhesive residues because the solvents can remain in the concrete and negatively affect the new installation.
- Mannington: The Resilient Floor Covering Institute (RFCI) document "Recommended Work Practices for Removal of Resilient Floor Coverings" should be consulted for a defined set of instructions addressed to the task of removing all resilient floor covering structures.
- Forbo: Warning Regarding Complete Adhesive Removal: Some solvent based Asphaltic "Cut-Back" adhesive may contain asbestos fibers that are not readily

identifiable. Do not use power devises which create asbestos dust in removing these adhesives. The inhalation of asbestos dust may cause asbestosis or other serious bodily harm.

- Never use solvents or adhesive removers to remove old adhesive residue. Any residue left within the substrate may affect the new adhesive and new floor covering. Conducting PH tests and adhesive bond tests prior to the installation will help in identifying the possible use of these materials.
- Where existing asphaltic (cut-back) or other type of adhesive is present, it must be dealt with in one of three ways:
  - It may be mechanically removed by grinding, bead blasting, scarifying, etc.
  - The adhesive residue* may be encapsulated with a suitable self-leveling underlayment. Follow the self-leveling manufacturer's recommendations for intended use and application.
  - The adhesive residue may be encapsulated with Forbo Moisture Limitor. Refer to Moisture Limitor guidelines for complete instructions.
- Residue is defined as residual staining that is left after all adhesive has been scraped away down to the concrete surface.

As you can see by these examples, no floor covering manufacturer will warrant their products or the adhesive bond if solvents are used.

Why aren't solvents allowed? RFCI states

> There are commercial adhesives removal products containing solvents that are effective in removing cutback or emulsion adhesives and comply with OSHA requirements (e.g. flashpoint greater than 140 degrees Fahrenheit). These products may be used for adhesive removals; however, they may leave a solvent residue within the subfloor that can adversely affect the new adhesive or floor covering. Thus, the warranties provided by the manufacturers of new floor covering materials will not cover instances where subfloor conditions damage their products or affect their

installation.

Residual Asphaltic "Cutback" Adhesive

	CONCRETE SUBFLOOR		WOOD UNDERLAYMENT SUBFLOOR	
New Material to Be Installed	**Removal of Residual Adhesive**	**Alternative to Removal**	**Removal of Residual Adhesive**	**Alternative to Removal**
Resilient floor tile to be installed using cutback adhesive.	Residual adhesive must be wet-scraped so that no ridges or puddles are evident and what remains is a thin, smooth film. See wet-scraping of residual adhesive.	Application of a cementitious underlayment that is approved by the underlayment manufacturer for use over residual asphaltic "cutback" adhesive.	The use of a cutback adhesive over wood underlayment subfloor is not recommended.	The use of a cutback adhesive over wood underlayment subfloor is not recommended
Resilient floor tile to be installed using an adhesive other than cutback adhesive.	Residual adhesive must be wet-scraped so that no ridges or puddles are evident and what remains is a thin, smooth film. See wet-scraping of residual adhesive.	Application of a cementitious underlayment that is approved by the underlayment manufacturer for use over residual asphaltic "cutback" adhesive.	Complete removal of Wood Underlayment. See Complete Removal of Wood Underlayment Under Existing Tile.	Covering residual asphaltic "cutback" adhesive on an approved wood subfloor with a recommended wood underlayment.[2] When installing this new wood underlayment, felt or polyethylene sheeting may be placed over the residual adhesive to prevent a cracking or tacky sound when walking on the floor.
Any vinyl-backed sheet flooring	100% of the residual adhesive must be removed from the area to be covered. See removal of residual adhesive.	Application of a cementitious underlayment that is approved by the underlayment manufacturer for use over residual asphaltic "cutback" adhesive.	Complete removal of Wood Underlayment. See Complete Removal of Wood Underlayment Under Existing Tile	Covering residual asphaltic "cutback" adhesive on an approved wood subfloor with a recommended wood underlayment.[2] When installing this new wood underlayment, felt or polyethylene sheeting may be placed over the residual adhesive to prevent a cracking or tacky sound when walking on the floor.
Felt-backed sheet flooring.	Enough of the residual adhesive must be removed so that 80% to 100% of the original substrate of the overall area is exposed.[1] See removal of residual adhesive.	Application of a cementitious underlayment that is approved by the underlayment manufacturer for use over residual asphaltic "cutback" adhesive.	Complete removal of Wood Underlayment. See Complete Removal of Wood Underlayment Under Existing Tile	Covering residual asphaltic "cutback" adhesive on an approved wood subfloor with a recommended wood underlayment.[2] When installing this new wood underlayment, felt or polyethylene sheeting may be placed over the residual adhesive to prevent a cracking or tacky sound when walking on the floor.

If solvents have been used, installation of new flooring is severely compromised. Many asbestos abatement contractors use solvents because they are inexpensive, they work fast, and minimize Infection Control Risk Assessment (ICRA), and they have not experienced problems in the past. Today with more new "Green" products being developed, the residual solvent will readily affect them. I'll add that there may have been failures in the past that weren't recognized as being caused by the use of solvent based adhesive removers that got blamed on someone or something else. There is nothing easy about this process. As Ray states and we thank him for his contribution and research,

anyone involved in a situation like is faced with several issues all of which can compromise the installation and the flooring material. Ray also created the following release for solvent situations you can use.

COPE FLOORING RELEASE:

Project: Address: Location:

Concrete floors which have been treated with a solvent to remove old adhesive may still have residual adhesive present.

Even though shot blasting may be performed to remove the residual solvent, the porosity of and inconsistency of the concrete may still contain the solvent.

The residual solvent may migrate to the new patch, adhesive or floor covering and dissolve the materials, causing a failure.

The building representative is demanding that a new floor covering be installed even thought he cannot confirm that all the solvent has been removed.

Cope is in no way liable or responsible for a bond failure or floor discoloration of the flooring system (patch, adhesive or floor covering).

Cope will be paid time and material to install the new flooring

Date: Building Representative

Signature:
Print name:

Date: Cope Flooring Representative

Don't get stuck in a situation that involves a scenario like this. It can compromise all the initial work, effort and expense only to be undermined by an inappropriate activity that will cost exponentially more to correct; something no one wants to be faced with. If we can help, let us know, that's what we're here for.