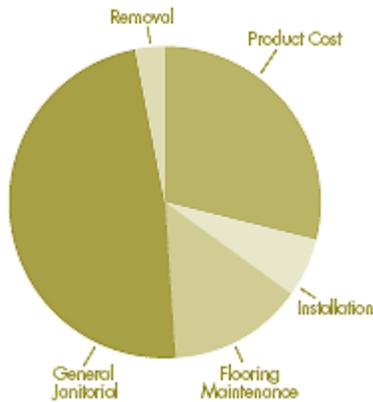




## Carpet maintenance

It may not be the first thing on your mind when you purchase commercial flooring. But it's the secret behind keeping your carpet looking and performing its best for years to come. Of course, your initial line of defense against soil is proper carpet selection. This includes specifying a well-constructed, quality-engineered carpet and having it installed by experts. DuPont introduced nylon, the world's first man-made fiber, in 1938.

Since that time, DuPont, now INVISTA, has accumulated more knowledge on carpet fiber performance than anyone in the Floorcovering industry. And out of all we have learned, one basic fact is critical: A well-planned maintenance program—that includes both preventive maintenance and regular, proper cleaning—is key to making sure your carpet retains its appearance over time.



An ineffective maintenance program can result in a soiled carpet that requires more frequent replacement. This brochure is designed to give you the information you need to create an effective maintenance program that will extend the life of your carpet—reducing life cycle costs and maximizing your commercial floor covering investment.

## Why carpet maintenance is important

### Maintenance protects your investment

Commercial flooring is a substantial investment for any business—one you'll want to protect for years to come. After all, the longer your flooring lasts, the less it costs. The initial cost for floor covering materials and installation does not fully encompass your total floor covering investment.

The life cycle cost also factors in life expectancy of the carpet, costs for removal/disposal, lost revenues during renovations and maintenance costs over the life of the carpet. Good maintenance helps protect your total flooring investment.

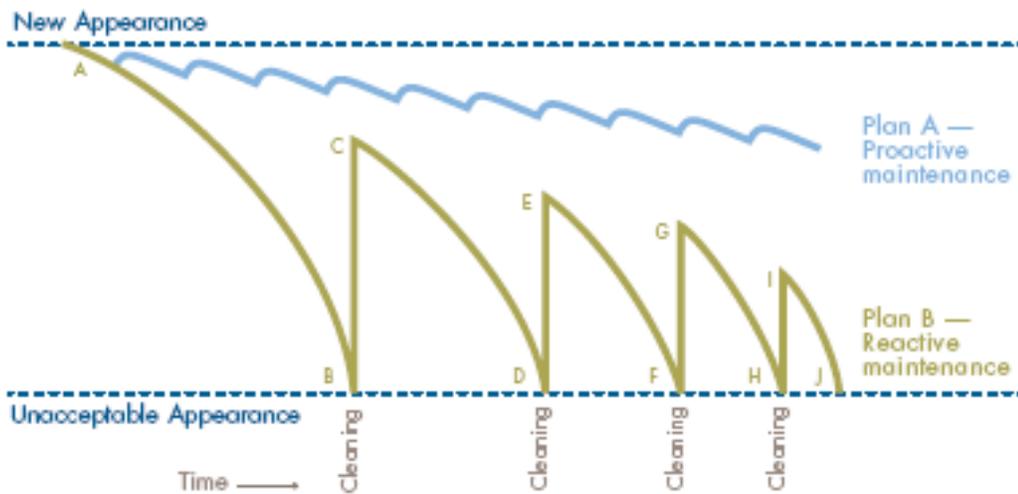
### Maintenance helps carpet last longer and cost less

Proactive, regularly scheduled maintenance removes soil before it can build up and damage carpet fibers. This can actually extend the life of the carpet, reducing the costs of restoration, replacement and disposal. Reactive maintenance cannot fully restore a carpet to a like-new appearance. This results in shorter carpet life and higher carpet life cycle costs. This chart demonstrates how proactive and reactive maintenance compare over time.

### Maintenance is good for the environment

Our life cycle analysis of commercial carpet shows that increasing the amount of time a carpet remains on the floor reduces the overall environmental footprint of carpet. A consistent, proactive maintenance program can significantly improve the appearance retention throughout the life of the carpet. Less carpet waste going to landfills is always good for the environment.

## Appearance Over Time



Plan A shows that with a proactive maintenance program, carpet retains most of its original appearance over time.

Plan B illustrates that reactive maintenance cannot bring carpet appearance back to the levels maintained with a proactive program.

## Maintenance of commercial floor coverings

While the cost of carpet maintenance may seem significant, carpet is actually easier and costs less to maintain than other types of commercial floor coverings. Carpet requires fewer chemicals for maintenance. Hard surface floors require sweeping, mopping, buffing, stripping and waxing. Carpet, on the other hand, requires three basic maintenance operations: vacuuming, spot cleaning, and regularly scheduled maintenance or periodic deep cleaning. When it comes to hours spent on maintenance, carpet is clearly the economical choice.

### Flooring Cost Comparisons A Maintenance Program for Carpet and VCT

	Carpet:		VCT:	
	School Year Total Minutes/1M Sq. Ft.	Cost/School Year \$/Sq. Ft.	School Year Total Minutes/1M Sq. Ft.	Cost/School Year \$/Sq. Ft.
Vacuuming	1,800	\$0.2934		
Spot removal	1,440	\$0.2347	1,440	\$0.237
Rinse Cleaning	120	\$0.196		
Deep cleaning	360	\$0.587		
Dust mopping			1,440	\$0.2347
Wet mopping			4,860	\$0.7922
Spray burnishing			1,728	\$0.2817
Scrub/recoat			600	\$0.0978
Strip/finish			300	\$0.0489
Chemical costs		\$0.004		\$0.034
<b>Total</b>	<b>3,720</b>	<b>\$0.6104</b>	<b>10,368</b>	<b>\$1.724</b>

### Long-term, carpet costs less to maintain than other floor coverings

This life cycle cost analysis of carpet and vinyl composition tile (VCT) floor covering in school facilities is a method of depicting the true overall cost of each floor covering over a predetermined period of time. These maintenance figures are based on a 36-week school schedule in heavy traffic areas and a labor cost of \$9.76/hr.

**Source:** ISSA (International Sanitary Supply Association) cleaning rates— courtesy of Carpet and Rug Institute.

## Soil and your carpet

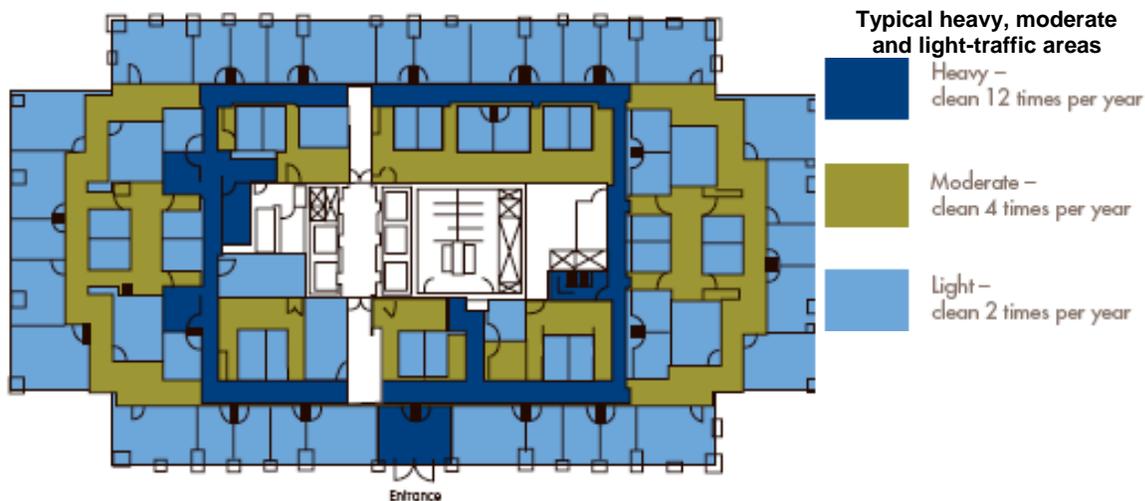
### How different soil types affect carpet

Carpet soil is made up of two components: dry soil and oily soil. Clay, dust and silicates are the dry soiling agents that can destroy the appearance of carpet. Fortunately, most dry soil found in a typical commercial environment can be removed by regular vacuuming.

Oily soil, including resins, gums, greases and fats, act like binders—attracting and holding dry soil to the carpet. This results in a dingy gray or brown appearance. Oily soil is the largest contributor to poor carpet appearance. It adheres to carpet fibers, cannot be easily removed and continues to attract more dry soil. **ResisTech™** neutralizes oily soil so it can be easily removed with regular vacuuming.

### Understand how traffic affects soiling

Soil that does make it into your building will be most visible—and potentially damaging—in high-traffic, high-volume areas. These include entrances, elevator lobbies and corridors, doorways, and the natural paths between furnishings. These areas will have more visible soil than under desks and around the perimeters of offices and conference rooms. These typical traffic patterns, along with cleaning requirements for each area, are illustrated in the office floor plan below.



## Creating a carpet maintenance program

Once you understand the importance of proper carpet maintenance, you are ready to create a comprehensive maintenance program for your facility.

### Step 1: Make preventive maintenance a priority

Preventing soil from entering the environment is easier and less expensive than removing it from the carpet. Here are five simple but important steps in a preventive maintenance program:

#### Keep outside areas clean

Outside maintenance helps minimize immediate sources of soil. The cleaner you keep sidewalks, parking lots, garages and other areas around the perimeter of your building, the less dirt that will be tracked inside. During winter months, remove as much snow and ice as possible rather than treating it with chemicals or sand.

#### Use soil barriers

Walk-off mats, grates and removable elevator carpets help collect soil before it can be tracked throughout the building. Be sure soil barriers are large enough to allow for at least five steps across. Vacuum daily, clean frequently and change often for best results.

### Composition of Typical Carpet Soil

Component	Weight (%)
<b>Dry Soils</b>	
Silica and silicates	30–40
Oxides, carbonates and phosphates	6–24
Animal and cellulosic fibers	0–24
<b>Oily Soils</b>	
Resins and gums	6–10
Greases and fats	3–8
Moisture	3

### **Protect desk areas**

Chair pads under desk chairs prevent casters from crushing carpet and grinding in soil.

### **Specify eating, drinking and smoking areas**

By restricting these activities to limited areas, you can help confine certain difficult kinds of soil.

### **Maintain your HVAC system**

To remove many airborne particles before they are re-circulated, regularly replace or clean filters on air-handling equipment. Airborne soil includes industrial wastes, auto emissions, tobacco smoke and pollen.

### **Step 2: Manage soil with regular vacuuming**

Vacuuming is the most important dry soil management procedure. Effective vacuuming removes dry soil so that it cannot spread to other carpeted areas. The level of effective vacuuming has two components: frequency and equipment type.

#### **Vacuuming frequency**

- ▶ Heavy- to moderate-traffic areas (entrances, elevator lobbies, reception areas, busy corridors, cafeterias, vending machine areas, employee lounges) should be vacuumed daily.
- ▶ Light-traffic areas (offices, conference rooms) should be vacuumed at least two to three times per week.

#### **EQUIPMENT TYPE**

- ▶ Dual-motor vacuums are very effective machines for thoroughly cleaning heavy- to moderate traffic areas. This vacuum uses two motors to clean. One motor drives a beater-brush bar that knocks dirt loose, while the second motor provides suction that pulls dirt into the vacuum bag.
- ▶ Single-motor vacuums can be very effective machines depending upon their design. For the most part, they should only be used in light-traffic areas. They are generally less powerful than dual-motor vacuums, but easier to maneuver around furniture.
- ▶ Detail vacuums can be used to clean around the edges of a room or in confined areas around furniture.
- ▶ Carpet sweepers may be used to remove larger particle-sized surface dirt and small litter in high-visibility areas during the business day. However, they are not an effective cleaning method and should not take the place of thorough vacuuming.

*The Carpet and Rug Institute has identified vacuum cleaners that meet industry criteria for removal efficacy, particulate emission and carpet damage. To learn more about CRI Green Label approved vacuum cleaners visit their web site at [www.carpet-rug.com](http://www.carpet-rug.com).*

### **Step 3: Promptly remove spills and stains**

Although spills are inevitable, permanent stains do not have to be. Most stains can be avoided or removed by immediate, or at least same-day, treatment. It is good practice to have spot and stain removal products and equipment on hand for immediate use. Correct identification of spots and stains is the first step in proper removal because some types of spills may require special cleaning solutions and techniques. But for most spills, the basic removal procedure is the same:

- ▶ Blot as much of the spill as you can with an absorbent towel. Always work toward the center of the spill. Do not rub! If the spill is solid or semisolid, gently scrape off what you can using a dull knife.
- ▶ Apply a general-purpose carpet spotter to the spill. This is a detergent solution that is specially made for use on carpets. Never use other kinds of cleaning solutions, such as bleach. These may permanently damage the carpet.
- ▶ Tamp or pat in the carpet spotter with a tamping brush.
- ▶ Wait three minutes, then blot again.
- ▶ Rinse with clean water, then blot as dry as possible. If the stain remains, repeat the entire process. If the stain persists after the second time, contact a maintenance professional.

#### **Bleach is not recommended**

Bleach is never recommended as an alternative cleaning solution. If the carpet is not constructed with solutions dyed fibers, bleach will take the color out. Furthermore, over time, cleaning with concentrated bleach solutions can permanently damage the carpet.



As you can see from these photos, chlorine bleach has caused significant damage to the nylon fiber. Since this fiber is solution dyed, there has been only slight color loss.

**Step 4: Renew your carpet with proactive, periodic cleaning**

Even the most effective, consistent vacuuming may leave some soil behind. Periodic cleaning improves the appearance and extends the life of carpet. Periodic cleaning also removes oily, sticky soil from the carpet that attracts and holds additional soil. Depending on soiling conditions and other factors, there are a number of available cleaning methods. Your choice of method should be based on what will be the most effective and compatible with your carpet and its traffic levels.

If you are not familiar with the cleaning methods and products that are used in your facility, contact your maintenance provider. For carpet to look its best for the longest time, our research shows that only those cleaning methods and products that remove soil and reduce the likelihood of resoiling should be used. Resoil is the tendency for detergent that is left in the carpet after cleaning to continue to attract and hold soil.

**Choose the appropriate cleaning method for the job**

These carpets show the importance of selecting a cleaner that does not cause resoiling. Each carpet was subjected to 35,000 foot traffics in a busy New York City school.



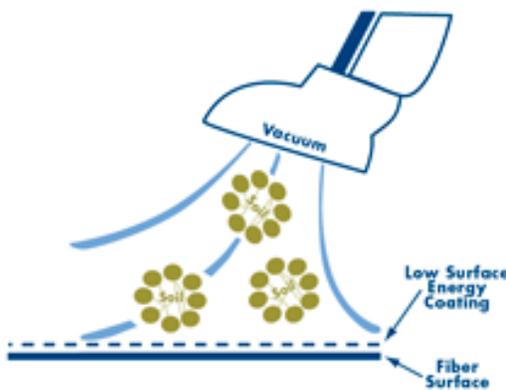
Carpet A was cleaned with the ResisTech™ carpet maintenance chemical method before trafficking.



Carpet B was not cleaned before trafficking.



Carpet C was cleaned with a conventional solution of detergent and water before trafficking.



**ResisTech™ chemistry**

A very effective method for cleaning commercial carpet is ResisTech™ carpet maintenance chemistry, which works by surrounding and neutralizing oily soil particles with a detergent that inhibits the attraction of other soils. This allows soil to be easily removed by routine vacuuming.

Patented ResisTech™ chemistry also reduces the surface energy of a carpet, by creating a “difficult-to-stick-to” surface that reduces the chance of carpet resoiling. As a result, carpet is much cleaner after vacuuming and actually improves in appearance over time.

This method is not a deep-cleaning method. For best results, the ResisTech™ chemistry method should be applied as a part of a periodic maintenance program that also includes hot water extraction.

**Hot water extraction**

Extraction machines clean carpet by first spraying hot water and detergent into the carpet pile under pressure, and then removing water, detergent and loosened soil with a powerful vacuum. This method is the most frequently used type of cleaning in the industry and is very effective for deep-cleaning carpet.

**Caution:** Detergent left in the carpet will continue to attract soil (resoil) causing a dingy, dirty appearance.

**Dry compound**

In this method, dry compound is sprinkled on carpet to attract soil and absorb oil. A mechanical brush with counter-

rotating agitation knocks soil from carpet fibers. The compound is then vacuumed up. Less moisture is used with this method than with hot water extraction, which means a shorter drying time is required for the carpet.

**Caution:** Carpet can appear clean in some areas and less than clean in others due to inconsistent application of the dry compound.

**Foam shampoo**

This method uses a machine to create foam by air compression and agitation. A revolving cylindrical brush combs foam through carpet pile. Like dry compound, the foam shampoo method uses less moisture, resulting in short drying times.

**Caution:** A dingy, dirty appearance may result from detergent left in the carpet, and some areas may appear less clean due to inconsistent foam application.

**Rotary shampoo**

With this method, a solution of detergent and water is fed through a brush into the carpet. A rotating brush agitates the solution into the carpet pile, loosening soil particles from the carpet fibers. This method is usually used in conjunction with the hot water extraction method.

**Caution:** The rotary shampoo method requires the use of a heavy machine that can cause pile distortion or even carpet damage. Damage can also result if the rotating brush dries out during cleaning.

**Bonnet**

This technique involves spraying a solution of detergent and water onto the carpet and then using a rotating absorbent pad to agitate carpet tufts. Alternately, the absorbent pad is soaked in a detergent solution and then applied to the floor. This is generally used as an interim method for appearance purposes only. It is not recommended as an effective cleaning method.

**Caution:** If the rotating pad dries out during cleaning, carpet damage can occur. The heavy machines required may also cause pile distortion or carpet damage. The bonnet method is very likely to leave detergent in the carpet, increasing the likelihood of carpet resoil.

**Cleaning Methods for Different Soil Levels**

	<b>Light Soil</b>	<b>Moderate Soil</b>	<b>Heavy Soil</b>
ResisTech™ Chemistry	X	X	X
Hot Water Extraction	X	X	X
Dry Absorbent Compound	X	X	
Foam Shampoo	X	X	
Rotary Shampoo	X	X	
Rotary Shampoo and Hot Water Extraction	X	X	
Bonnet	X		

**Learn more about maintaining your carpet**

The following resources are available from **DFS Flooring** to assist you in maintaining your commercial floor covering:

**Carpet Specification Guide and Carpet Appearance Index**

This step-by-step guide will help you determine if a carpet is appropriate for a specific environment. Carpet fiber type and shape, color and pattern, texture, density/pile weight, and construction type are all considered.

**Evaluating Your Carpet Maintenance Effectiveness Index**

This tool helps you put together your own carpet maintenance program and gauge its effectiveness. Using the index to rate and score nine key factors on a scale from zero to ten will also help you assess the relationship between your current maintenance program and carpet appearance.