

## Carpet vs. Hard Surfaces in Schools



### *Why Carpet?*

The aesthetic and physical attributes of carpet provide proven benefits for the learning environment. Carpet creates a warm and friendly environment that enhances how students perform in the classroom.

### **Safety**

Carpet can help prevent injuries where falls may occur. The cushioning softens the impact. And when someone does fall, there are fewer injuries – a real value in today's litigious world. Similarly, large mats make entrances less dangerous in inclement weather, catching outdoor soils and moisture.

### **Acoustics**

Carpet is a super sound-absorber, ten times more efficient in airborne noise reduction than any other floor covering, creating a more pleasing atmosphere for students and faculty.

### **Warmth**

Carpet's insulating characteristics reduce the amount of energy needed to keep temperatures comfortable, providing actual thermal resistance, or R-value

### **Ergonomics/ Comfort**

When compared with hard-surface flooring, working on carpet reduces leg fatigue caused by constant walking, lecturing, pacing, and moving from student to student.

Carpet provides a soft spot for young students to expand their learning space onto the floor. Pleasant and comfortable surroundings can boost a child's morale and make him or her feel better about going to school.

## Lower Maintenance Cost

Comparing the cost of maintenance for different floor covering helps give a true perspective of what can be expected with each type of floor covering and what each will cost. Carpet is less expensive to maintain than hard-surface flooring, when both are maintained properly.

Carpet has the advantage because of its construction. Carpet's textile surface holds dirt and dust particles until they are vacuumed. Hard-surface flooring cannot trap the dust and must be swept or wet-mopped almost daily to keep the room clean. Wet spots must be attended to immediately to avoid a hazard. Even though carpet in high-traffic areas should be vacuumed daily, it is usually less labor and time-intensive than mopping, stripping, and resurfacing.

## Indoor Air Quality and Use of an Antimicrobial

Carpet helps control airborne allergens and microscopic particles by trapping them until vacuumed, and its antimicrobial compound inhibits the growth of bacteria and fungi. Hard surfaces allow dust and allergens to recirculate and remain airborne.

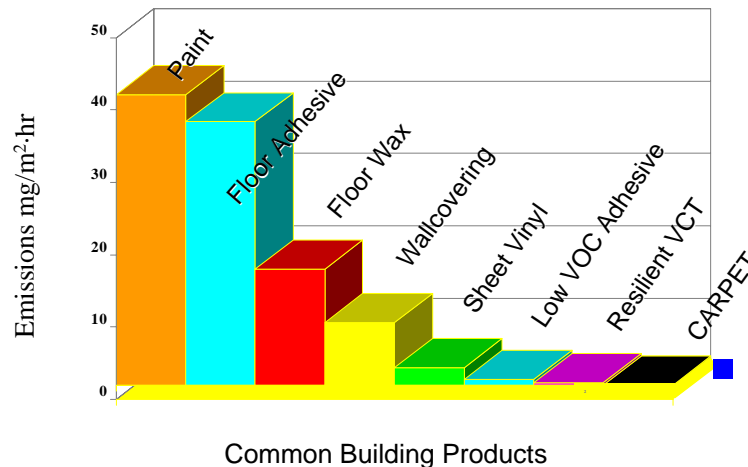
## Factors Affecting Indoor Emissions Quality (IEQ)

All man-made products impact indoor air. Common sources of VOC's include:

- Building Materials (paints, adhesives, etc.)
- Furnishings (furniture, wall coverings, textiles, carpets)
- Activities (cleaning products, fuels, solvents, pesticides, tobacco smoke).

Chemical emissions from common building products have VOC levels up to ten times higher than carpet, as illustrated in the graph below.

## Chemical Emissions



Scientific research studies, including those done by the EPA and independent laboratories, conclude that carpet is one of the lowest emitters of volatile organic compounds (VOCs).

Poor indoor air quality usually results from inadequate ventilation and chemical emissions from multiple indoor sources. These emissions sometimes linger in the environment for many weeks or months longer than carpet. With good ventilation, the minimal VOC emissions and the nonhazardous odor from new carpet dissipates within the first 48 to 72 hours after installation.

## Effects of Moisture

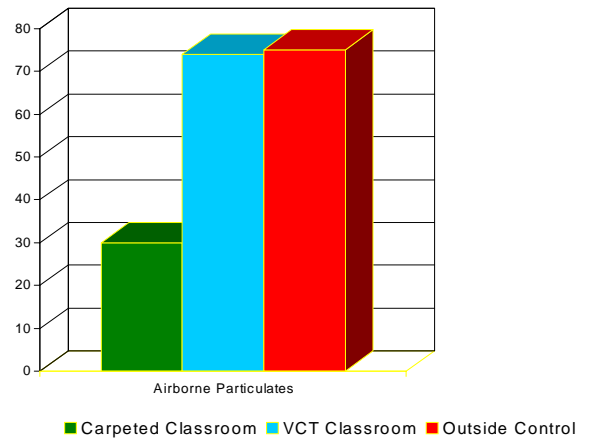
Recent research conducted at Hydrolab compared the effects of moisture on new vs. used school-type carpet and used/new VCT. The flooring systems were compared in incubators under controlled environmental conditions. At Low Temp/Low Humidity (65°F, 65% RH), no microbial growth was found on either surface. At High Temp/ High Humidity (80°F, 80% RH), no microbial growth was found on either new material or either soiled material. The study concluded that control of humidity is the best means for avoiding IEQ problems in buildings.

## Allergy Concerns

### Does Carpet Removal Help?

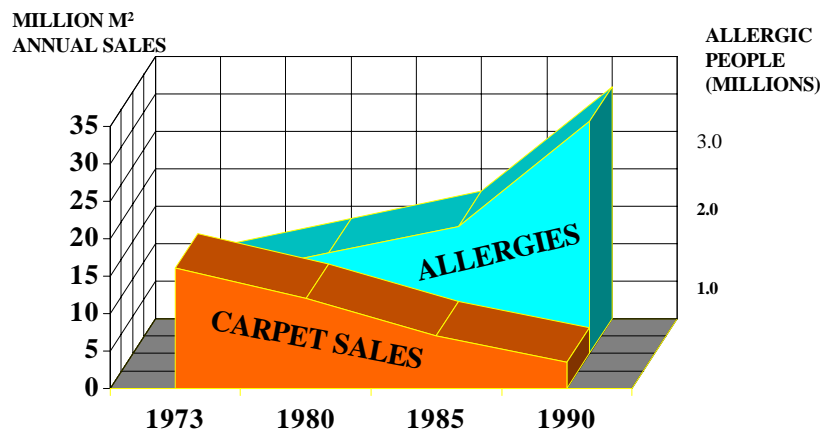
As the result of children with allergies and asthma, some people have suggested the removal of carpet. However, because carpet fibers hold dust, allergens, and other particles down and out of the air, they can be extracted by vacuuming and cleaning. With hard surface flooring, particles circulate and redistribute into the air with activity in the room. However, to be completely effective, carpet must be vacuumed regularly.

**Airborne Particles  
Carpet vs. Hard Surface  
Occupied Classrooms**



A study conducted by the Sales Swedish Institute of Fiber and Polymer Research showed that as carpet sales declined and were replaced by hard surfaces, the occurrence of allergies dramatically increased.

### CARPET SALES AND ALLERGIES IN SWEDEN



Data Source: Allergy - Swedish Statistical Central Bureau  
Sales Swedish Institute of Fiber and Polymer Research

## Dust Mites

A real concern for students with allergies is dust mites. However, studies show there are fewer dust mites in schools than in homes.

Most mite allergen is found in bedding and upholstered furniture. Exposure to mite allergen usually occurs while sleeping, sitting, or through direct surface contact with the allergen itself. Dust mite allergen is very large and is not released from carpet into the breathing zone, even during periods of heavy activity. Maintaining humidity levels below 65% and regular vacuuming and cleaning will minimize mite population.