



How Carpet Contributes to an "A+" Learning Environment

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It is surprising that flooring selection is often treated almost as an afterthought in schools. But the simple fact is, flooring has one of the most pervasive effects on the built environment when compared to all the other interior finishes found in schools, and because of this, it should be one of the most thoroughly studied and understood.

As the flooring industry's knowledge of the needs of teachers and students grows, so does the list of variables which designers and facility managers must address when selecting flooring.

Today, those who purchase and specify carpet in schools must be specialists on a variety of very technical subjects, including:

- *Health Concerns – flooring's role in transmitting disease and how it affects those who suffer from asthma and allergies*
- *Safety Issues – flooring's affect on the number and severity of non-playground injuries*
- *Ergonomic Considerations – flooring's anti-fatigue performance, which can impact the underfoot comfort for both teachers and students*
- *Acoustic Performance – flooring's ability to act as a noise management tool that enhances the learning environment*

Battling Bacteria with Carpet

With the recent concerns over the H1N1 virus, and seasonal influenza in general, flooring is increasingly the subject of debate and question as a factor in transmitting disease, as well as its affect on asthma and allergies, particularly among students in primary grades who often spend the majority of their time learning on the floor.

While scientific research related to the transmission of infections in schools is relatively scarce, the healthcare design industry has done significant meaningful research in hospitals, especially recently since regulations effective in 2008 now require that hospitals pay the expenses associated with hospital acquired infections, rather than government or private insurers. These studies are just as relevant to schools as they are to hospitals.

One recent study¹ reported that carpet surfaces are no more likely to transmit infections than hard surfaces. In fact, it was suggested that certain hard surface floors may indeed have higher potential to transmit infections. While no cause could be accurately defined for this observation, it has been hypothesized that carpets' textured surface limits hand surface contact area, and that carpets' tendency to increase the contact time of cleaning solutions allows it to perform more effectively. Further, it has been suggested that carpet appears to sequester biocontaminants, keeping them out of the range of contact for transmission and out of the breathing zone, with the understanding that periodic cleaning is needed for their removal, as required by any type of floor.

Of all the subjects pertaining to carpet and health in schools, none has been more thoroughly studied than asthma and allergies. Triggers for asthma and allergies are classified as irritants (chemical VOCs or volatile organic compounds) and allergens, such as pollens, animal dander, etc. To date, carpet has not been proven to provoke asthma and/or allergies. Carpet manufactured today that is certified by the Carpet and Rug Institute Green Label Plus program emits very low levels of VOCs for very short periods of time, and is unlikely to act as an activator of allergies.

Quite simply, the science available today concludes that carpet may be less likely to transmit infections than hard surface floors, does not cause asthma or allergies and does not increase the incidence or severity of asthma and/or allergy symptoms².

Cushioning Student and Teacher Falls

One source reports that 43 percent of non-playground injuries in schools are the result of trips and falls, and the costs of these are significant, quite possibly exceeding \$20 billion for medical treatment. These incidences do not only result in physical harm to the student or teacher, but can also contribute to absenteeism and liability issues³.

Carpet not only curbs falls, but when they do happen it lessens the impact, thus reducing the harm caused to the person who is falling. It has been shown that falls are less likely to occur on carpet than on hard surfaces, especially under wet conditions that are often associated with falls⁴. Also, when falls do occur, the

likelihood of a serious injury may possibly be lessened because of the potential for some types of carpet to disperse the energy of impact⁵.

Encouraging Classroom Comfort

Teaching is often considered a “safe” occupation, with only slight opportunity for traumatic foot injuries. Yet foot injuries contribute to 15 to 20 percent of all work-related disabling injuries for teachers.

Surveys show that a majority of teachers prefer a carpeted floor for comfort⁶, that advantage is often traded in favor of other properties. By one estimate, teachers spend up to 75 percent of their time at work standing.

Although the flooring industry does not have recognized standards for measuring anti-fatigue performance, the running shoe industry does. And tests by an independent laboratory have shown that carpet constructions, with and without attached cushion, can have anti-fatigue properties while few harder surfaces promoted as anti-fatigue actually did not meet the criteria.

Can You Hear Me Now

Last but certainly not least, the acoustic properties of carpet cannot be overlooked. Its effectiveness at reducing both airborne and structure-borne sound is unmatched by any other category of flooring. The advantages of this are many, including:

- *Carpeted classrooms facilitate better speech recognition, which improves student performance⁷;*
- *Its ability to mute background noise can reduce vocal strain and mental fatigue in teachers, because they simply do not have to speak as loudly to be understood;*
- *And finally, carpet has been shown to be most effective at tuning out reverberations associated with loud, sharp high-frequency sounds, which can result in lapses in concentration and interruption of the learning process.*

Considering all of the above facts about carpet and schools, it is clear why progressive school systems prefer carpet as their flooring of choice when seeking to provide

About Keith Gray

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Bibliography:

1 "Are those room finishes and surfaces safe?"; Roger Leib and Jane Rhode, Healthcare Design, Vol.7, No. 2.

2 "Carpet, Asthma and Allergies – Myth or Reality" MW Sauerhoff, International E-Journal of Flooring Sciences, May 19, 2008. p2.

3 Michigan State University Newsletter, November 2002.

4 "Age Related Effects of Transitional Floor Surfaces and Obstruction of View on Gait Characteristics Related to Slips and Falls", Y Bunternngchit , et.al., International Journal of Industrial Ergonomics, 25,(3), 223-232; 2000.

5 "Impact attenuation of floor coverings in simulated falling accidents" BE Maki and GR Fernie, Applied Ergonomics, 21, 107 – 114; 1990.

6 "National Survey of Public School Teachers", Beth Shapiro and Associates, Survey conducted by The Carpet and Rug Institute and The International Interior Design Association Foundation, March 2001.

7 "Acoustical Barriers to Learning: Children at Risk in Every Classroom", P Nelson and S Soli; Language, Speech and Hearing Services in Schools, 31, 358; 2000.