

Carpet Makes The Grade In Schools



WHY CHOOSE CARPET?

Making the right decisions starts with having the facts. There is a lot of information about carpet in schools, but it's important to have the right information, supported by scientific study. The Carpet and Rug Institute (CRI), the source for science-based facts on carpet and rugs, wants you to have that information at your fingertips. That way, we believe you will understand how carpet has clear advantages over other flooring — from reducing noise in classrooms, to proving more cost-effective over time to helping improve indoor air quality.

Carpet and rugs in schools contribute to a better environment for students, teachers and all school personnel in several critical ways:

▶ NOISE REDUCTION

Research shows that background noise from inside and outside the classroom negatively affects learning, especially for young children who require optimal conditions for hearing and comprehension. As a result, school districts, voluntarily or by state mandate, are adopting classroom acoustics standards. Carpet helps meet these standards because it is *10 times more efficient* in reducing noise compared to other flooring options.¹

▷ SAFETY

Carpet cushions the impact of slips and falls and lessens the chance of injury. This is borne out by a study of 225 “slip and fall incidents” from hospital records of older patients. Of the group falling on carpet, only 17 percent sustained injury. In the group falling on hard surface flooring, nearly 50 percent sustained injury.² Injuries from falls not only lead to absenteeism, but also pose liability issues for schools.

▷ WARMTH AND COMFORT

Carpet “feels” warmer in two ways. It provides actual thermal resistance, or R-value. In an independent study, carpet, compared to other flooring materials, created a truly warmer building.³ But beyond the R-value advantage, people perceive that carpet is warmer and more comfortable. Carpet or rugs produce a comfortable place for teachers and young students to expand their learning space onto the floor. A majority of public school teachers surveyed in 2001 said they preferred carpet for its comfort, noise reduction and safety benefits.⁴

▷ IMPROVED INDOOR AIR QUALITY

Effective school cleaning has health-related benefits. Carpet traps allergens and other particles that fall to the floor so they don’t circulate in the air. Studies have been done on the distribution of airborne dust associated with normal activities on hard and carpeted flooring surfaces. Their findings showed that walking on hard surfaces disturbed more particles. These particles became airborne and entered the breathing zone. In contrast, carpeted surfaces trapped more particles so that walking disturbed fewer particles, resulting in less dust in the breathing zone.⁵

WHAT TO KNOW ABOUT CARPET COSTS AND MAINTENANCE

▷ COST EFFECTIVE OVER TIME

Carpet that is properly selected, installed and maintained lasts up to 10 years – or even longer. And right now, the carpet industry is working to make carpet even longer lasting in schools by creating more durable fibers and fabrication methods, improving primary and secondary backings and increasing the number of different design and performance options. For example, modular carpets provide the option of replacing parts of a carpeted surface, instead of the entire carpet.

Even so, with increasing pressure on school district budgets, school administrators and facility managers want to know they are getting the best value when making flooring purchasing decisions.

A life cycle cost analysis is the key to answering this question.

A 2002 report, “Life-cycle Cost Analysis for Floor Covering in School Facilities,” prepared by the Institute of Inspection, Cleaning and Restoration Certification (IICRC), found that carpet could be 65 percent less expensive to maintain than hard surface flooring.⁶

In the study, buying and installing the hard surface flooring was less expensive than carpet. But when labor, supplies and equipment costs were calculated over a 22-year life cycle, carpet proved to be



more cost effective. Twenty-two years was the life expectancy of the hard surface flooring. The cost of replacing carpet after 11 years was factored into the analysis.

The study also found that hard surface floors require two and one-half times more cleaning than carpet and that hard surface cleaning supplies are about seven times more expensive than supplies for carpeted floors.

▶ USING THE RIGHT CLEANING PRODUCTS



Carpets are more stain resistant than ever, making them easier to clean and maintain. However, maintaining the life and beauty of carpet depends on several factors: the quality of products and equipment used to clean carpets; the frequency and methods by which carpets are cleaned; and the skill and knowledge of the people doing the cleaning.

Vacuuming is the single most effective and economical means of keeping carpet in schools clean. The majority of dry soil can be removed from carpet by following scheduled, routine vacuuming procedures. Through independent testing, CRI certifies high performance vacuums that are effective in removing soil and

keeping dust and other particles within the canister so they do not circulate back into the air. A list of them can be found at carpet-rug.org.

In caring for carpet, schools are advised to follow a regular maintenance program. Daily vacuuming is advised for carpeted areas with heavy foot traffic. Other areas should be vacuumed two or three times a week. Twice a year, carpet should undergo extraction cleaning by trained custodians or professional cleaning services. Suggested times are just prior to the school year and during winter holiday break.

CRI also utilizes an independent laboratory to test high performing extractors and cleaning agents that remove stains and spots. Choosing the *right* cleaning products is critical to carpet care because some products and equipment are much more effective than others. Only those products that meet rigorous standards receive the CRI Seal of Approval. A list of Seal of Approval certified carpet-cleaning products is available at carpet-rug.org.

MORE ABOUT CARPET IN THE CLASSROOM

It is true that new carpet can emit volatile organic compounds into the air at very low levels – much lower levels than floor adhesives or paint. To keep emissions to a minimum, schools should only purchase carpet that bears the CRI Green Label or Green Label Plus, which certifies the carpet has met the rigorous testing standards for low-emitting materials. Green Label Plus meets and even exceeds the standard set by the Collaborative for High Performing Schools and the state of California. Green Label and Green Label Plus carpets and their manufacturers are listed on carpet-rug.org.

Another issue is that of carpet and mold. Clean carpet does not support mold growth even at prolonged and elevated temperatures.⁷ For mold to grow, it needs water, oxygen, a warm temperature and something that contains nutrients to feed on, such as dirt, wood or paper. Left unresolved, leaks and spills, heavy condensation and localized flooding, especially when followed by prolonged high humidity, can lead to mold growth in many areas of a school. The key to eliminating mold indoors is to keep schools clean and dry.

Creating and maintaining a positive learning environment is a shared responsibility. We at CRI are committed to conducting research and providing information that will help principals, teachers, facility managers and parents make informed decisions about school materials and furnishings.

AVAILABLE THROUGH CRI

The following reference materials are available through CRI and can be ordered or accessed for free by visiting the following webpages:

- carpet-rug.org – “Research” and “Publications” sections
- carpet-rug.org/schools

PUBLICATIONS

- Beautiful Spaces for Children: Building High Performance Schools (video)
- Carpet and Rug Care Guide
- Carpet: How it Affects Indoor Air Quality in Schools (video)
- Carpet – The Educated Choice for Schools – Life-Cycle Cost Analysis
- Carpet Maintenance for School Facilities
- Carpet Maintenance Guidelines for Commercial Applications
- Myths and Truths about Carpet – a reference guide to identifying the misconceptions surrounding carpet
- CRI 104 – Standard for Installation Specification of Commercial Carpet
- CRI Sustainability Report
- Take a deep breath and thank your custodian – Tips and tools for improving IAQ in schools
- Why test vacuum cleaners

ABSTRACTS, STUDIES, AND RELEVANT PAPERS

- Carpet in the Modern Indoor Environment: Summary of a Science-Based Assessment of Carpet
- Ergonomic Design Issues and Carpet: A Review
- The Impact of Carpet on Indoor Air Quality and Health Effects: An Annotated Bibliography
- Carpets, Rugs and Health - A Current Perspective
- Floor Coverings, Dust and Airborne Contaminants
- Microorganisms in Carpet
- Measurement of Biocontaminant Levels in Two Schools: The Impact of Carpet vs. Hard Floor Covering
- Retention and Removal of House Dust Contaminants from Carpet: Integrating our Knowledge of Source Dusts, Carpet Properties, and Carpet Cleaning for a Healthier Indoor Environment
- The Science of Carpet Cleaning
- Cases of Effective Carpet Cleaning
- A Systems Modeling Approach to Assessing Carpet and Environmental Risk
- Cleaning and Foot Traffic Emissions Analysis
- Educational Performance, Environmental Management, and Cleaning Effectiveness in School Environments
- Healthy School Environment and Enhanced Educational Performance: The Case of Charles Young Elementary School Washington, DC
- Indoor Environment Characterization of a Non-Problem Building: Assessment of Cleaning Effectiveness
- Cleaning Effectiveness Demonstration In A Carpet School
- Final Report of the Hydrolab Project 2001: Flooring, Humidity, and Mold Growth
- “Carpets in schools don’t compromise indoor air quality, says Cornell researcher”
- “CU expert: Carpets in schools benefit indoor air quality”
- A Life-Cycle Cost Analysis for Floor Coverings in School Facilities
- Ideal Learning Environment Study
- Do Indoor Pollutants and Thermal Conditions in Schools Influence Student Performance? A Critical Review of the Literature
- Relationship Between Outdoor and Indoor Air Quality in Eight French Schools.
- Effect of Flooring on Standing Comfort and Fatigue.
- Experimental Methodologies and Preliminary Transfer Factor Data for Estimation of Dermal Exposures to Particles
- Classroom Acoustics: A Resource for Creating Learning Environments with Desirable Listening Conditions
- The Influence of Flooring on Standing Comfort and Fatigue
- Peak Flow Variability in Asthmatic Children is not Related to Wall-to-wall Carpeting on Classroom Floors
- Relationship of Reported Allergy Symptoms, Relative Humidity and Airborne Biologicals in Thirteen Florida Classrooms

CRI TECHNICAL BULLETINS

- Accessible & Usable Buildings & Facilities
- Acoustical Characteristics of Carpet
- Carpet and Indoor Air Quality
- Florida Schools Carpet Indoor Air Quality Study
- Formaldehyde Statement
- Mold and Indoor Air Quality
- Recommended Indoor Air Quality Specifications
- School Carpet Minimum Average Specifications
- Schools Carpet Maintenance Program
- Standard Laboratory Test Practice For Evaluation of Carpet Solid Particulate Removal Effectiveness of Residential/ Commercial and Central Vacuum Cleaners

¹ American Society of Interior Designers. (1996). “Sound Solutions: Increasing Office Productivity Through Integrated Acoustic Planning and Noise Reduction Strategies.”

² Healy, F. (1994). “Does Flooring Type Affect Risk of Injury in Older Patients?” Nursing Times, July, pp. 40-41. London: Tower Publishing Services LTD.

³ The Carpet and Rug Institute. (1977). “Advantages of Carpet and Rugs in Energy Conservation.”

⁴ Beth Schapiro & Associates. (2001). “National Survey of Public School Teachers.”

⁵ Asbury, G., & Professional Testing Laboratory, Inc. (2002). “Cleaning and Foot Traffic Emissions Analysis, Test Number 0072198.”

⁶ Bishop, J., & Institute of Inspection, Cleaning and Restoration Certification. (2002). “A Life-Cycle Cost Analysis for Floor Coverings in School Facilities.”

⁷ Berry, M.A., et al. (2001). “Flooring, Humidity and Mold Growth. Final Report of the Hydrolab Project.”