CEILING&WALL | SYSTEMS

Between us, ideas become reality™

Reflect your school's personality with high performance ceilings

Armstrong®
CEILING & WALL SOLUTIONS

Fine Fissured

IMPROVING THE LEARNING ENVIRONMENT.

High performance schools provide better learning environments for students and teachers, cost less to operate, and help protect the environment. Armstrong is the one-stop solution for ceilings that deliver the performance that schools need – room by room – from high acoustics in the classroom to high durability in the hallways.

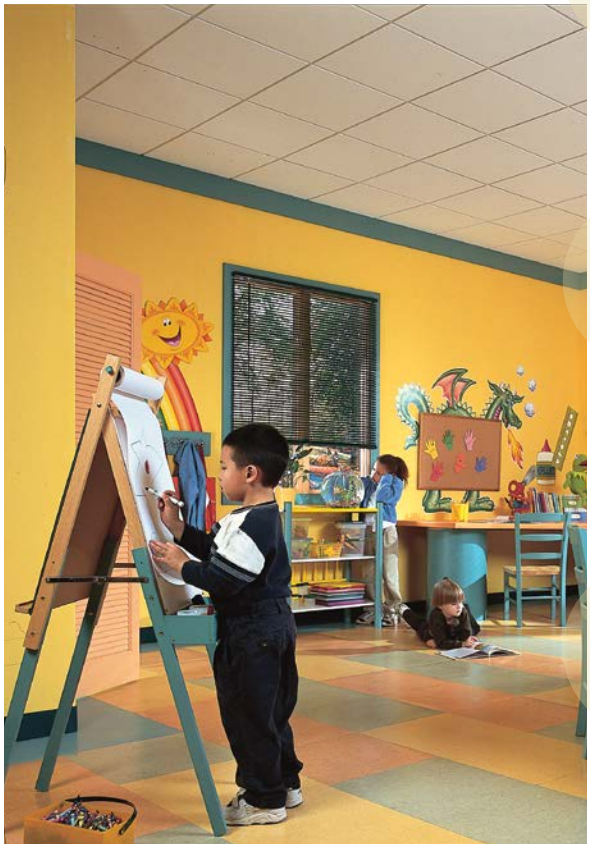
School Zone™
Fine Fissured™
Lay-in

ON AVERAGE, STUDENTS HEAR ONLY THREE OUT OF EVERY FOUR WORDS IN THE CLASSROOM.

Your acoustical design is the key to understanding the fourth word.

ACOUSTICS AND LEARNING

Teachers and students will do their best in an environment that is conducive to learning. Teachers can't teach and students can't learn in a noisy classroom that is full of distractions. Not hearing clearly increases stress, decreases concentration, and interferes with learning. Proper classroom acoustics are extremely important for younger children, students with learning disabilities, the hearing impaired, and those for whom English is a second language. And let's not forget teachers; teacher surveys consistently rank noisy classrooms high on their list of frustrations.



MEETING ANSI STANDARD S12.60

Many states have already adopted ANSI Standard S12.60 in recognition of the importance of good hearing environments to learning. This Standard addresses reverberation time and background noise and their effect on speech intelligibility by placing limitations on their permissible levels.

Designing a classroom to meet the acoustical requirements of the ANSI Standard is neither difficult nor costly, if addressed early in the planning and design stages.

REDUCE REFLECTED SOUND – The level of reflected sound and the reverberation time can be reduced by adding sound absorbing material. For classrooms, especially in younger grade levels where teachers move throughout the classroom, and where ceiling heights are less than ten feet, the best placement of the sound absorbing material is the ceiling plane. An NRC or noise reduction coefficient of at least 0.70 is recommended, meaning it will absorb 70% of the sound that strikes it.

2 **REDUCE PLENUM NOISE –** When walls don't extend all the way from the floor to the deck above, noise can travel through the ceiling plenum from one classroom to another. To reduce the noise intrusion between classrooms, use an acoustical ceiling panel that has a high CAC or ceiling attenuation class value. The higher the value, the better it performs as a barrier to sound intrusion.

3 **REDUCE NOISE THROUGH WALLS –** Most interior walls are lightweight in design. As a result, noise transmission between rooms is a problem. The ANSI Standard specifies that the STC or sound transmission class of a wall separating two adjacent classrooms be 50 or greater. Adding fiberglass insulation in the wall cavity, adding a layer of gypsum board, and sealing infiltration gaps will help reduce noise transmission between rooms.

4 **REDUCE HVAC NOISE –** The main source of background noise in classrooms is often the HVAC system. The best acoustical design utilizes a centralized system, rather than individual room units. Air handlers and mechanical equipment should be located away from classrooms. Position rooftop equipment over hallways, cafeterias, and gymnasiums.

A MEMORABLE PERFORMANCE

Students are looking for excellence in an institution of higher learning. And they expect to find it everywhere on campus – from the classroom to the auditorium.

INHIBITING THE SPREAD OF MOLD AND MILDEW

High humidity, high temperatures, and poor air movement contribute to the growth of mold and mildew within the school. The problem is even more critical for schools when handling systems are shut down over the summer. Mold and mildew can appear on surfaces such as ceiling panels, and steel suspension components can develop rust and corrosion. The growth of mold and mildew can also affect maintenance and replacement costs. High humidity can cause ceiling panels to sag and suspension systems to rust and corrode. Armstrong has designed HumiGuard® ceiling systems that feature:

Untreated ceiling.

Armstrong HumiGuard ceiling with BioBlock

- Special BioBlock® paint on the front and back of the ceiling panels to inhibit the surface growth of mold and mildew
- 30-Year Limited Warranty against warping and sagging
- Hot-dipped galvanized grid systems that inhibit rust and corrosion 10 times better than other grid systems

MEETING STRINGENT VOC EMISSION STANDARDS

Increasing attention is being given to the quality of the indoor environment and the presence of Volatile Organic Compounds (VOCs) within it. One of the common occurring VOCs is formaldehyde. Formaldehyde is normally present and naturally occurring in interior spaces and can potentially cause illness or discomfort to occupants.

Armstrong offers the widest selection of acoustical ceilings that satisfy stringent indoor environmental quality requirements for formaldehyde and VOC emissions according to the California Department of Public Health Standard Method for the Testing and Evaluation of VOC Emissions (CDPH Standard). In addition, the majority of Armstrong mineral fiber and fiberglass ceilings are listed on CHPS High Performance Products Database for Low-Emitting Materials, and can contribute to LEED® Indoor Environmental Credit 4.6 for Low-Emitting Materials.

Ultima

Ultima® Tegular with
4" Axiom® Classic and
Optima® Plank Clouds

WoodWorks

WoodWorks® Radial Custom in
Natural Variations™ Light Cherry

SET EXPECTATIONS HIGH

Why settle for ordinary? The unexpected can set you apart and add to the personality and image of your school.

IMAGE BUILDING

All schools, especially institutions of higher learning, have signature spaces that tell the world who they are. Presenting a professional, innovative, and sophisticated sense of your school has never been more important. Armstrong makes it easy with WoodWorks®, MetalWorks™, Infusions®, and TechZone™.

SUSTAINABILITY

Just as it's important to teach students about environmental awareness and responsibility, it's important to practice it. Armstrong is committed to helping schools with environmentally preferable products and ceiling recycling. Armstrong ceiling systems can make an important difference because they:

- Contain up to 55-82% recycled content (both post-consumer and post-industrial). And some of our ceilings with post-consumer content are made from recycled ceilings in our Ceiling-2-Ceiling™ program.
- Can reduce landfill disposal through our Ceiling Recycling Program – the first and only one of its kind. Reclaimed ceilings are used in the manufacture of new ceilings. You can select these items for your schools. Look for the Ceiling-2-Ceiling icon.
- Resist sagging, corrosion, and damage for a long life.
- Can reduce lighting energy consumption by up to 18%.
- Help achieve LEED® credits.

Choose Ceiling-2-Ceiling products and reclaim old ceilings. Here's the difference you can make with your school:

SoundScapes

SoundScapes® Shapes Acoustical Clouds;
Circle, Concave, and Convex in White

AS QUIET AS A MUSE

To inspire creative minds, a learning environment needs to balance stimulating visuals with high performance. Armstrong offers an extensive portfolio of Ceiling & Wall Systems so you can provide it all – acoustics, durability, and even environmental benefits.

Visit our web site to explore all your options. And use the Reverberation Tool to hear how each material affects speech intelligibility.

armstrong.com/schools 1 877 ARMSTRONG

LIGHT REFLECTANCE

Just as acoustics matter, proper lighting is critical to effective learning. Quite simply, poor lighting and glare in the classroom can cause eye strain and fatigue, which can hamper a student's ability to concentrate. Our high light reflectance ceilings can brighten the classroom by:

- Reflecting up to 90% of the light striking their surfaces – creating brighter, more evenly lit spaces
- Reducing glare and enhancing daylighting in classrooms
- Reducing energy costs by as much as 18%

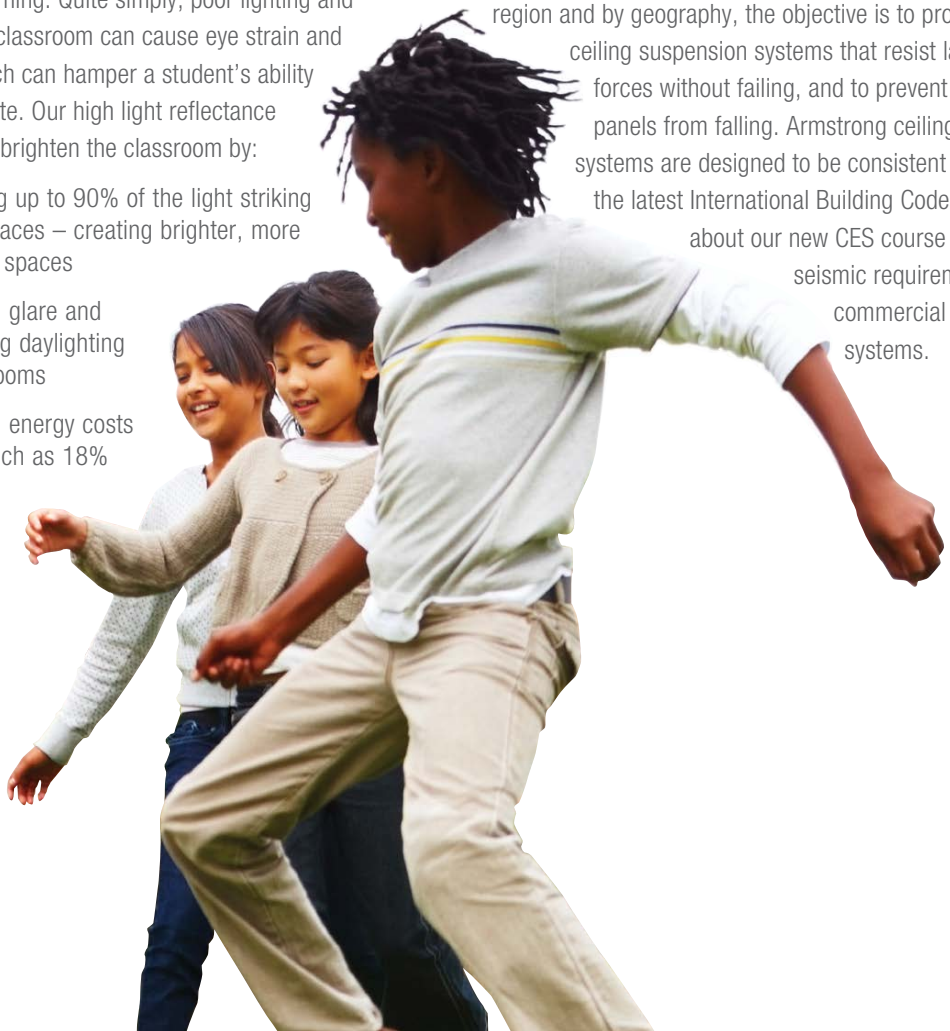
DURABILITY AND HORSEPLAY

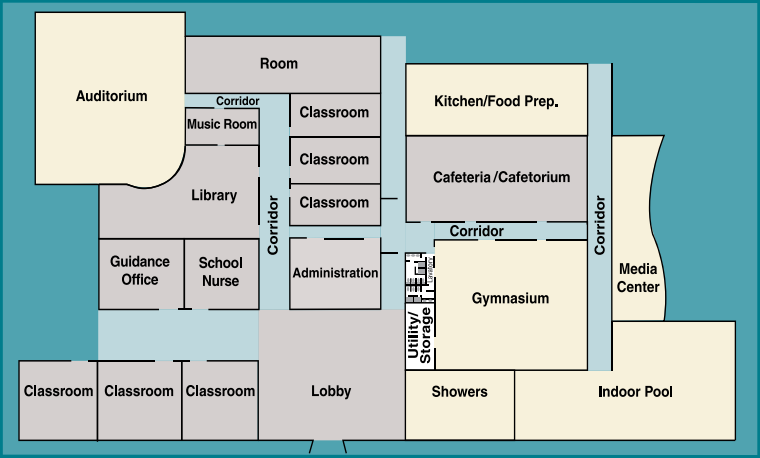
Whether by accident or by malice, students put hallways to the test every day in ways that are hard to imagine. School Zone™ Fine Fissured™ High Durability Ceilings have been designed to handle the horseplay and to stay good looking longer.

SEISMIC SAFETY

The potential for damage from earthquakes and other natural disasters is affecting building requirements for schools. Currently all 55 states are using the International Building Code or IBC. Since schools are often designated as emergency shelters, they need to be designed for extraordinary conditions.

While specific IBC requirements for schools vary by region and by geography, the objective is to provide ceiling suspension systems that resist lateral forces without failing, and to prevent border panels from falling. Armstrong ceiling systems are designed to be consistent with the latest International Building Codes. Ask about our new CES course on seismic requirements for commercial ceiling systems.





Areas Requiring

KEY — High Durability | High Acoustics | Special Performance

	Ceiling Panels
Administrative Offices	Ultima® Ultima Vector® Cirrus® Fine Fissured™ Fine Fissured High NRC/CAC
Auditoriums/Media Centers	Optima® Open Plan (CAC Backed) Optima Vector (CAC Backed) Capz™ TechZone™ Ceiling Systems
Cafeterias/Cafetoriums	Capz™ SoundScapes® Shapes and Canopies Formations™ Clouds
Classrooms	Ultima Fine Fissured High NRC/CAC Fine Fissured
Corridors/Hallways	Ultima Optima Ultima Planks Optima Planks Armatuff® Tundra® Fine Fissured High Durability
Exterior Corridors/Soffits	MetalWorks™ Vector Exterior Ceramaguard® Fine Fissured (Unperforated)
Gymnasiums	Optima Open Plan (CAC Backed) Armatuff
Kitchens/Food Prep Areas	Ceramaguard Fine Fissured (Unperforated) Clean Room™ VL (Unperforated) Clean Room FL Georgian™ High Washability Health Zone™ Ultima Health Zone Optima
Laboratories	Clean Room FL Clean Room VL (Unperforated) Ceramaguard Fine Fissured Ultima Health Zone Ultima
Lobbies	Optima Large Sizes Ultima Plank SoundScapes Shapes and Canopies Formations Clouds
Locker Rooms/Shower Areas/Indoor Pools	Ceramaguard Fine Fissured
Music/Band Rooms	Cirrus Open Plan Fine Fissured High NRC/CAC Optima Open Plan (CAC Backed)

SCHOOL ZONE CEILING RESOURCES

- Web site – armstrong.com/schools
  - Product selection for schools
  - Understanding ANSI S12.60
  - Case studies
- CES Course information on classroom acoustics, sustainability, and seismic requirements can be found at armstrongceilings.com/ces
- Seismic code requirements and reverberation calculations are available through TechLine℠ at 1 877 ARMSTRONG
- Armstrong Ceiling Recycling Brochure (CS-3238) and case studies
- Your Armstrong Ceiling Systems representative at 1 877 ARMSTRONG

CEILING and WALL SYSTEMS 1 877 ARMSTRONG (276-7876)

- Customer Service Representatives 7:45 a.m. to 5:00 p.m. EST, Monday through Friday
- TechLine – Technical information 8 a.m. to 5:30 p.m. EST, Monday through Friday FA X 1-800-572-8324 or email: techline@armstrongceilings.com
- Product literature and samples – Express service or regular delivery
- Request a personal copy of our catalog

armstrongceilings.com/ceilings

- Latest product and program news
- Real time selection and specification information
- Glossary of technical terms
- Contacts – reps, where to buy, who will install
- Submittal pages
- Specification writing tool
- Literature and samples information
- Revit and CAD files
- Interactive tools

CS-3551A-211

Armstrong®
CEILING & WALL SOLUTIONS