

## KNAUF IS YOUR ANSWER FOR IAQ

Today's lesson:

GREENGUARD For Children & Schools  
formula for IAQ excellence

GREENGUARD  
+ GREENGUARD For  
CHILDREN & SCHOOLS  
+ California Section 01350

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Knauf Insulation  
(pipe insulation, duct wrap, batts/rolls)



# GREENGUARD For Children

Individual VOCs:  $< 1/100$  TLV or  
 $1/2$  CA chronic REL  
(whichever is less)

Formaldehyde:  $< 0.022$  ppm/22ppb

TOTAL VOCs:  $< 215$   $\mu\text{g}/\text{m}^3$

## Knauf is your answer for IAQ

Knauf Insulation offers a total solution for healthy, energy-efficient schools. Knauf offers insulation products for wall cavities, ductwork and mechanical piping that meet the toughest indoor air quality standards while reducing operating costs and making classrooms quieter and more comfortable.

### Doing your homework on IAQ

Indoor air quality (IAQ) is a growing issue in the construction industry—especially schools. In

addition to children having a lower tolerance for many chemical emissions, classrooms also have much greater occupant density than the typical home or office. The Environmental Protection Agency ranks poor IAQ as a top-five environmental health threat, and estimates that more than half of U.S. schools have IAQ problems.

Poor air quality in schools can lead to conditions like asthma, allergies and endocrine disorders as well as contributing to symptoms like headaches, coughing, rashes and eye, nose and throat irritation.

Childhood asthma now accounts for more than 14 million missed school days every year.

One way to address IAQ concerns is to specify low-emitting building products for school construction and renovation projects—products like Knauf Insulation.

### Knauf Insulation: On the IAQ Honor Roll

Knauf Insulation has led the industry in addressing indoor air quality. In 2002, Knauf was the first insulation manufacturer to earn certification by the GREENGUARD Environmental Institute, the world's leading registry of low-emitting products. GREENGUARD provides a third-party guarantee of compliance with the most stringent industry IAQ standards, testing for more than 600 chemical emissions, including formaldehyde.

GREENGUARD Certification is based on criteria used by:

The U.S. Environmental Protection Agency

World Health Organization

U.S. Occupational Safety & Health Administration (OSHA)

State of Washington



# and Schools

TOTAL aldehydes: < 0.43 ppm/43ppb

TOTAL Phthalates: < 10  $\mu\text{g}/\text{m}^3$

TOTAL Particles: < 22  $\mu\text{g}/\text{m}^3$

## Another Perfect Score:

### GREENGUARD For Children & Schools

Now, several Knauf products—including Knauf ASJ/SSL 1000° Pipe Insulation, Friendly-Feel Duct Wrap and thermal/acoustical batts—have earned the new GREENGUARD For Children & Schools certification. This certification establishes the most stringent IAQ standards to accommodate the special health needs of children.

GREENGUARD For Children & Schools allows no greater than 1/100th of currently-published Threshold Limit Values or no more than half of California's Chronic Reference Exposure Levels for volatile organic compounds (including formaldehyde), whichever is lower. The new standard also establishes limits on VOCs, aldehydes and phthalates, a class of chemicals linked to asthma and developmental toxicity.

## Extra Credit

In addition to GREENGUARD and GREENGUARD For Children & Schools certifications, Knauf Batts, Duct Wrap and Pipe Insulation also meet the State of California's stringent Section 01350 IAQ standard.

Additionally, Knauf has become the first insulation manufacturer to join the Collaborative for High Performance Schools (CHPS). Knauf joined the Collaborative to help promote healthier schools, and to stay on the cutting-edge of issues impacting school construction. CHPS is a non-profit organization devoted to school construction issues like indoor air quality, operating costs (energy efficiency) and environmental sustainability, pushing for tougher construction and IAQ standards for schools.

## Final Exam

Specifying Knauf Insulation products for your school construction projects helps to insure healthy, energy-efficient building construction. Specify Knauf products on your next school project and pass your IAQ test with flying colors.



# School Issues 101

## Chapter 1 Burden of energy costs

What you need to know:

- Energy usage is the second largest operating expense for schools.
- Schools spend \$6 billion/year on energy alone.
- Energy costs could be cut by 25% through energy saving products.

You can help ease the burden by practicing value engineering and specifying energy-saving products like Knauf Insulation. The foundation for a cost-effective, energy-efficient school design is fiber glass insulation. From thermal and acoustical batts, to pipe insulation and duct wrap, Knauf products are designed and manufactured at the highest level of quality to insure system integrity and uniform installed performance.

Fiber glass insulation pays dividends to the school, beginning the day the first bell rings and continuing through the life of the building. Less money spent on energy means more that can be spent on the important things—like teachers and textbooks.

## Chapter 2 Student and teacher comfort

What you need to know:

- Comfortable students are more focused students.
- Temperature variation and sound transmission disrupt the classroom.

In addition to the energy saving benefits Knauf Insulation brings to schools, teachers and students will also feel and hear the difference of a well-insulated classroom. The thermal and acoustical performance of Knauf Batts will help to ensure more consistent temperatures and a quieter, more productive environment. Knauf Duct Wrap, with R-value of up to 8.4, controls condensation and makes duct systems more efficient, quieter and less expensive to operate...a winning combination for the school district and for students and teachers.

## Chapter 3 IAQ in the classroom

What you need to know:

- Poor indoor air quality plagues school buildings causing both student and teacher absences.
- Students in “green” schools earn 20% higher test scores.

The products used in the walls and ceilings of schools have an impact on IAQ and student performance. With Knauf Batts, Duct Wrap and Pipe Insulation, you can rest assured knowing that our products meet the most stringent IAQ tests in the industry. Tests that include GREENGUARD, GREENGUARD For Children & Schools and California's 01350 IAQ standard.

It's time to demand more from the building products you specify. Demand the quality performance and IAQ excellence of Knauf Pipe Insulation, Duct Wrap and Batts.

**For complete product performance data and specifications, please visit [www.KnaufInsulation.com](http://www.KnaufInsulation.com).**

For more information call (800) 825-4434 ext. 8283

or visit us online at [www.KnaufInsulation.com](http://www.KnaufInsulation.com)

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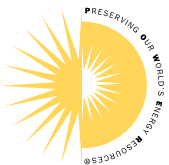
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At Knauf, we manufacture a wide variety of products that serve a common goal, helping to make the most of our planet's energy resources. A family-owned global company, we understand and are committed to high standards in quality, performance and environmental responsibility. Every step we take today toward energy conservation helps ensure better lives for generations to come.



#### LEED Eligible Product

Use of this product may help building projects meet green building standards as set by the Leadership in Energy and Environmental Design (LEED) Green Building Rating System.  
 Credit 4.1 - 4.2 Recycled Content  
 Credit 5.1 - 5.2 Regional Materials



The GREENGUARD Environmental Institute is a non-profit organization that is the world's leading authority on low-emitting interior products and building materials. A global organization, GREENGUARD'S mission is to improve public health by focusing on indoor air quality (IAQ) issues and encouraging manufacturers to produce safer, more environmentally-friendly products. GREENGUARD Certification is a multi-stage process that includes raw material and manufacturing facility reviews, annual certification testing and quarterly confirmation testing. To gain certification, a product is tested using stringent dynamic environmental chamber protocol to assure compliance with GREENGUARD'S Indoor Air Quality Standards. More information is available at [www.GREENGUARD.org](http://www.GREENGUARD.org).