

Innovative Sustainable Design: Green Modular Classrooms

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The State of California Schools

- California's public education system has more than 6 million students in about 9,800 schools
- The need for more school buildings stems from growth in student population, aging facilities and changes in educational programs
- Nearly 75% of California's public school buildings are more than 25 years old

Source: California Department of Education

The State of California Schools

- Schools increasing class size from 13% in 2008-09 to 44% in 2009-10
- Schools deferring maintenance increased from 21% in 2008-09 to 33% in 2009-10
- Green education buildings (K-12 and higher) are expected to grow to as much as 30% of market share by 2013

Sources: AASA – “Looking Back, Looking Forward: How the Economic Downturn Continues to Impact School Districts” and “High Performance Affordable Green School Design”

Benefits of Green Classrooms

- Healthier Learning Environment
- Higher test scores
- Lower faculty and student absenteeism
- Lower ambient noise
- Direct and long-term cost savings



Healthier Learning Environment

- Over 10 million missed school days each year due to asthma
 - Low- and zero-VOC and non-toxic materials help keep students healthy and in school
- Improved ventilation and air quality reduces colds and flu, an average of 51%
 - A state-of-the-art HVAC and TDV system means cleaner air and fewer missed days

Source: "Greening America's Schools Costs and Benefits, Gregory Kats (www.cap-e.com)

Higher Test Scores

- Test scores in green schools show a 20% improvement over non-green schools
- Natural light can improve math test scores by 20%
- Students using natural light progressed 26% faster on reading tests
 - A smart lighting system automatically optimizes outside light with energy-efficient lights and blinds

Sources: Heschong Mahone Group and "Greening America's Schools Costs and Benefits, Gregory Kats (www.cap-e.com)

Lower Absenteeism

- Teacher productivity, measured by absenteeism, may be affected by indoor air quality
- With health benefits like 100% fresh air exchange and CO² monitoring, smart HVAC system promotes better learning with an energy savings of 35%

Lower Ambient Noise

- Ambient noise has a negative impact on student concentration and comprehension
 - Quiet HVAC system lowers dB(A) to only 35 inside, improving learning
 - Thermal Displacement Ventilation and thermal chimney design are almost undetectable
- Sound reverberation strains teachers' voices and distorts words
 - Acoustically designed ceilings absorb more sound and stop echo

Direct and Long-Term Cost Savings

- Lower faculty healthcare costs
- Higher teacher retention
- Natural light harvesting system reduces lighting costs by 50%
- Schools benefit from direct cost savings — up to \$100,000 per year

Source: U.S. Green Building Council

Benefits of Gen7 Green Classrooms

- Lower maintenance
- Energy-savings
- Reduced carbon footprint
- Fulfill modernization and expansion needs quickly and affordably

Lower Maintenance

- All-steel “moment” frame construction
 - No pest treatments required, no mold, low maintenance
- 100% recycled, formaldehyde-free, mineral board sheathing for roof and wall backing
 - Less maintenance, mold- and pest-resistant

Energy Savings



- Smart HVAC system reduces electricity use and costs by 35%
- Gen7 exceeds the new 2008 energy code by about 26.2%
- Exceeds the new Title 24 energy code by an average of 33%
- First DSA PC to obtain California Energy Code approval

Reduced Carbon Footprint

- Clean manufacturing, 90% off-site construction
- Exceed LEED/CHPS minimum standards
- Gen7 is 100% recyclable, with most materials containing high amounts of recycled content

Fulfill Modernization and Expansion Needs

- Fast, easy installation with little jobsite disruption
- Flexible, scalable design – customized to fit many architectural needs
- DSA and piggyback approval saves time and money
- DSA-approved PC
- Fast procurement and delivery can save up to a year of construction time

Conclusion

Clean, healthy learning environments not only benefit the planet, but our children. Green schools enjoy higher test scores, fewer absences and higher teacher retention, providing an optimal educational experience for generations to come

Questions?

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