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High Performance Schools: Market Research



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General Background

Department of Education's 6 Principles of Successful Schools

- Enhance teaching and learning
- Are centers of the community
- Involve all stakeholders
- Assure health and safety
- Use resources responsibly
- Allow flexibility



Characteristics / Needs By Location

- Urban - older facilities, more major remodel than new, large demand for special needs, weakening tax base
- Suburban - high growth areas, overcrowding/temporary facilities, stronger economic base but tax limits
- Rural - weakening economies and tax base, population decline, aging facilities



Energy Efficiency Experience

- Some experience with energy management and efficiency improvements.
- Partnership with utility conservation programs, state sponsored grant, financing & technical assistance programs, federal initiatives, regional / third party and private offerings



Increasing State Role

- SDs are increasingly charged with implementing policies and directives set at the state and national levels.
- These include school operations, facility health and safety, bidding/project management requirements, conservation practices, requirements for and constraints on local bonds/levies, and new construction and commissioning requirements.





Market Barriers

Market Barriers

- Lack of information
- First costs instead of lifecycle costs
- Lack of definition of "high performance" that considers educational priorities and energy
- Misperceptions, bad past experiences
- Fragmented decision making - VE
- Distinction between capital and operations
- Facility managers are reluctant to embrace
- Uneven experience of A and E firms





Market Actors

School Districts Decision Makers

- Construction Managers
- School Administrators / Business Managers
- Facility Managers
- Construction Committees
- Resource Conservation Managers



School Construction Professionals

- Architects
- Engineers
- Lighting Designers
- Contrators
 - Electrical
 - Mechanical



Trade Groups

- Council of Educational Facility Planners
- Association of School Administrators
- Association of School Facility Planners
- Resource Conservation Mangers (informal)
- USGBC Cascadia Chapter



WA State Agencies

- Office of Superintendent of Public Instruction (OSPI)- primary responsibility for administering state education policies, reviewing school districts performance, reviewing and funding school construction and improvement projects.
- General Administration (GA) - Responsible for overseeing the Life Cycle Cost Analysis component of all public buildings.



Research and Programs

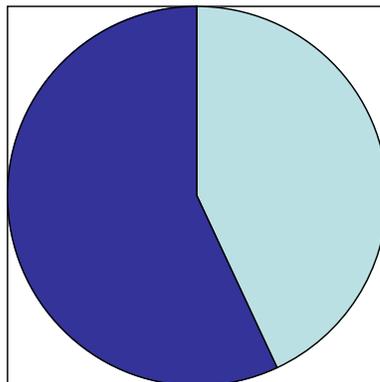
- Daylighting Research
- CHPS
- DOE / SBIS
- Green Schools
- Energy Star Schools
- LRC - Capturing the Daylight Dividend





How Schools Use Energy

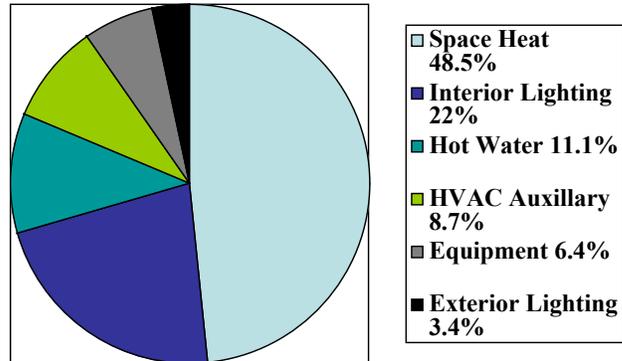
Fuel Use in Schools



Electricity 43%
Fossil 57%



Energy End Use Split in Schools



Relevant Research and Programs

Relevant Research

- Daylighting improves test scores (HMG)
 - 21,000 students, 3 districts (CA, CO, WA)
 - Controlled for 50 variables
 - 21% faster learning rate (standardized test)
 - “Better” teachers not assigned to daylit classrooms
 - Teachers want more space, good location, quite, storage and water



Relevant Programs

- Collaborative for High Performance Schools (CHPS)
- DOE National Best Practices Manual and Design Guidelines for Building High Performance Schools
- Sustainable Building Industry Council Resource and Strategy Guide



Other programs and research

- Energy Star Schools
- Green Schools program
- LRC Capturing the Daylighting Dividend



School's Process for New Construction

Priorities

- The timelines are accelerated compared to other commercial buildings.
- Buildings go from conceptual to occupied in 3 years or less.
- Priorities in new school construction are maximizing space, budgets and keeping first costs down.
- Other priorities mentioned include windows and creating community gathering places.



Budgeting

- Planning is based on student population needs and projections.
- SDs prepare a design concept and capital budget estimate before they offer a bond measure.
- Bonds are supplemented with state subsidies including direct grants, interest buy-downs
- The final budget is determined by work done in the pre-design phase. It is difficult to implement changes after the pre-design phase.



Timing

- Typically, larger districts conduct master planning, while smaller districts may move past conceptual into a programming or schematic design phase before a bond is passed.
- By the time a bond is issued, it may be past the point of cost effectively incorporating energy considerations and daylighting into a school design.



WA OSPI

- Washington state has the most formal process for new school construction of the four Northwest states.
- 75% of schools go through the state School Facility Development Process
- OSPI has a School Facilities Advisory board that meets to discuss policies and procedures



Project Concentration

- 67% of Washington state school construction activities take place in six counties
- # of major projects 2000-2003
- King - 59, Pierce - 40, Clark - 22, Snohomish - 21, Yakima -21, Spokane - 17, Thurston - 11, Cowlitz - 10



In Summary...

- Many school districts are undergoing/facing considerable construction activity
- Increasing state role in school capital projects
- New school decisions still reside at the local level
- Key players in school design = construction/facility managers, A/E firms
- Key design priorities = health, IAQ, operating costs, educational priorities, voter support



Summary, continued

- Operating costs are now a high priority
- Considerable interest in: efficient HVAC, daylighting, etc.
- Lukewarm attitude toward LEEDS
- Very responsive to HPS concept and CHPS-type guidelines



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Proposed New School Construction Strategy

Market Transformation Vision

- All new k-12 schools in the Northwest are High Performance Schools
 - Better for students and teachers
 - Reduced operating and maintenance costs
 - Better for the environment
 - Rating system is used



Goals

- NW design teams use tools (rating system, early involvement energy modeling) that support improved school design
- Schools adopt rating system and use guidelines to achieve it
- WA state adopts rating system
- Schools community and green building community understand BB schools program and perceive Alliance as a key partner



Strategy

- Establish a process to define and develop a rating system for High Performance Schools for Washington State
 - Involve schools districts, school designers, state and utilities
 - Start with the CHPS model, adapt to needs here
- BetterBricks can support process and modify technical documents



Strategy

- Develop a school's "package", based on the CHPS model, to assist understanding, planning and designing HPS
 - Collateral materials and case studies that discuss/ demonstrate the value of HPS
 - Planning guides for school districts
 - Design guidelines for architects, engineers and contractors



Strategy

- Assist design teams with direct services, connections to resources
 - Provide training on HPS design issues
 - Support through Daylighting Labs
 - Custom support on specific projects



Strategy

- Link the Washington school process and package to other NW states and the USGBC
 - Develop an effort that defines best practice
 - Work to achieve consistency where possible across states and with USGBC





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Thank You

David Hewitt

dhewitt@nwalliance.org

(503) 827-8416 x233