

# Why school buildings matter

### Presenters

**Craig Schiller** CHPS Executive Director Shania Prokes Sourcewell

### Before — Freemont High School



### After — Quattrocchi Kwok Architects



### **CHPS modernization results**

- Reduced absenteeism
- Improved student performance
- Employee attraction & retention
- Reduced operating costs
- Environmentally sustainable



High-performance schools rely on decades of design evolution, feedback, and research, all focused on improving **student outcomes** through optimized learning environments.

### **CHPS** mission

We aspire to make every school an ideal place to learn.

For over 20 years, CHPS has developed and maintained the nation's only third-party building standard explicitly designed for K-12 schools and focused on improving student performance.



Abbott Downing, Concord NH (NE-CHPS)



### **CHPS** mission

We aspire to make every school an ideal place to learn.

### **Priorities:**

- Increase student performance and health of students and staff
- Reduce operating costs through better design
- Enhance environmental stewardship





## **CHPS** impact

- Over 800 CHPS projects nationwide
- 70+ school districts have used CHPS
- 11 states use CHPS as their state-specific criteria
- 4 of the top 20 largest school districts require that CHPS be followed for new school and school renovation projects



CHPS

Longmeadow High School, OMR Architects CHPS Verified

# **CHPS** impact

 3 states tie CHPS compliance to project funding



- Washington used CHPS as the basis for their required Washington Sustainable Schools Protocol (WSSP)
- Increase student performance and health of students and staff
- Reduce operating costs through better design
- Enhance environmental stewardship



Longmeadow High School, OMR Architects CHPS Verified

# Impact of high-performance schools

### Total cost of ownership (TCO)



**Traditional schools** 

# Impact of high-performance schools

### Total cost of ownership (TCO)



**High-perfomance schools** 



# **1975 Oldsmobile Cutlass**



# 2023 Tesla Model Y

### Comparisons

- Which is **safer**?
- Which has **lower operating costs**?
- Which is healthier for the driver?
  For the community?
- Which is more **sustainable**?





### Factors affecting the learning process



Source: Clever classrooms: Summary report of the HEAD project. Authors: Barrett, PS, Zhang, Y, Davies, F and Barrett, LC http://usir.salford.ac.uk/35221/

Background

- Constructed in 1920, an industrial corridor developed along Alameda Avenue around the school
- Property abuts a local metal recycling plant, which negatively impacts air quality
- As a result, the surrounding Watts neighborhood has experienced high asthma rates
- 99% of students are non-white
- 98% of students qualify for free or reduced lunch

Jordan High School with Neighboring Metal Recycler



### **Project scope**

- Renovation of two main classroom buildings and the administration building
- Construction of two new three-story classroom buildings (92,230 SF)
- 61% increase of conditioned space to the campus
- Sitewide improvements to garden and electrical infrastructure



### **High performance features**

- Reduced water use for landscaping by installing a native garden with bioswales and an efficient irrigation system
- Installed cool roofs to mitigate the urban heat island effect and reduce use of cooling system
- Minimized construction waste by reusing 94% of the existing structural elements
- Reused 94% of existing structure and diverted 77% of construction waste
- 447 kW photovoltaic system



Positive impacts since construction completed in 2016



**Reduced energy use** intensity from 22 to 14 kBtu/sq. ft./year



69% reduction in annual water use = \$80,000 in annual water utility savings



24% increase in **students meeting state English testing** standards

Source: California Assessment of Student Performance & Progress & English Language Proficiency Assessments for California





### Case study #2 – First Street Elementary, CA Background

- Constructed after the 1933 Long Beach earthquake
- Operated as an assimilation center for immigrant families, providing lessons in English and on American culture
- In 2014 the East Building was determined to be eligible for national, state, and city historic registers



- 97% non-white student body
- 98% of students qualify for free or reduced lunch

**First Street Main Entrance** 

# Case study #2 – First Street Elementary, CA

**Project scope** 

- Seismic retrofit of an existing 2-story classroom building
- Modernizing 10 classrooms and food service building
- Construction of a new lunch pavilion



# Case study #2 – First Street Elementary, CA

**High performance features** 

- Cool roofs to mitigate the local urban heat island effect and reduce reliance on cooling systems
- Superior energy efficient design, targeting a 22% increase in performance over Title-24
- 12 solar tubes provide natural daylight in the cafeteria
- Received full points from CHPS in the recycled materials, certified wood, and low-emitting building material categories



# Case study #2 – First Street Elementary, CA

**Positive impacts since construction completed in 2018** 



**22% reduction in energy use** = \$23,000 in avoided costs annually



244% Increase in students meeting state math Standards



80% increase in students meeting state English standards





### What can you do tomorrow?

What can you do tomorrow?

- Declutter your classrooms
- Open the blinds



### What can you do next?

# What can you do next?

- Get new collaborative and adaptive furniture
- Get a facility master plan
  - Including a facility audit



### Who we are

Sourcewell is a government organization that helps school districts save time and money through cooperative purchasing. As an AASA partner, we offer competitively solicited contracts with trusted suppliers, making procurement easier so educators can focus on students.



# Cutting procurement in half

### Purchasing process

- Identify need
- Discuss with procurement
- Develop scope
- Advertise
- Proposal opening
- Evaluation
- Award contract
- Protest period
- Issue a P.O.
- Receive goods/services

### Purchasing process with a cooperative

- Identify need
- Discuss with procurement
- Use a cooperative contract
- Issue a P.O.
- Receive goods/services

### Governments making cooperative purchases



GovWin By Deltek Oct 2023

### Time savings: CP vs. Own RFP



## Furniture, for example

- 13 suppliers on contract
- \$88 million in furniture sales in 2024
- 1,200 public-sector purchasers
  - 623 K-12 buyers
- Leasing and rental are increasing popular because of budget flexibility

### Top K-12 contract options for facilities



HVAC

Construction

Lighting





Flooring

Furniture

### TABLE 1. BIOPHILIA IMPACTS FOR POSITIVE RETURNS

INDICATOR	HEALTH & WELL-BEING IMPACTS	FINANCIAL IMPACTS	
SECTOR		DIRECT	INDIRECT
OFFICES	presenteeism, performance, productivity	absenteeism, staff retention; lease rate, churn	talent acquisition, health claims, employee satisfaction
EDUCATION	attention, learning rate	absenteeism, test scores	graduation rates
RETAIL	customer attention, brand perception	hedonic value, sales; staff retention	dwell time, return patronage, social media attention
HEALTHCARE	healing rate, analgesic intake	patient turnover; staff retention	visitor perception
HOSPITALITY	staff performance, perception of place	average daily room rate (ADR, RevPAR)	employee satisfaction, brand loyalty, social media attention; total revenue per available room (TRevPAR)
COMMUNITIES	perception of safety, crime rate; overall public health	tourism; crime rate	investment attraction, migration; real estate value, tax base; climate change adaptability, resilience, equity; incarceration rate

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# The Impact of Biophilic Design on Student Success

Bill Browning, Hon AIA, Terrapin Bright Green Jim Determan, FAIA, Craig Gaulden Davis Mary Anne Akers, PhD, Morgan State University

Green Street Academy - Experiment Site

### **Control Classroom**



# biophilic Classroom

The Impact of Biophilic Design on Student Success

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### View to Nature + Dynamic & Diffuse Light

The Impact of Biophilic Design on Student Success

AMA



### **LEARNING OUTCOMES**

### Comparing the differences



Traditional

Modern

Biophilic





### Thank you!