



TEDxCEFPI

stories of

Leadership | Creativity | Passion





inter+act : leadership from the practical to the poetic
DON PENDER, AIA, LEED BD+C



challenge convention : a journey to cultivate your creativity
WENDY ROGERS, AIA, LEED BD+C



prove it : bringing passion to the classroom
ERIK RING, PE, LEED BD+C



inter+act : leadership from the practical to the poetic

DON PENDER, AIA, LEED BD+C

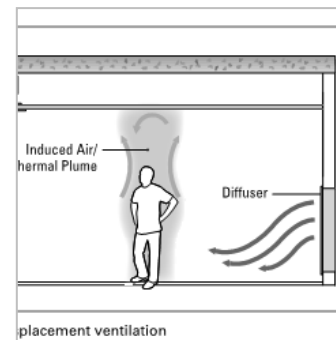
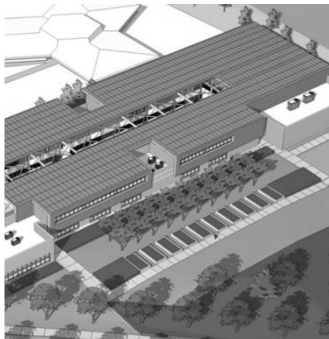


The Practical and the Poetic

Leadership | Creativity | Passion

LPA

15 SEP 2013



“two roads diverged in a yellow wood,
and sorry I could not travel both
and be one traveler, long i stood
and looked down one as far as i could
to where it bent in the undergrowth...”

“I admire poets. what they express
with a couple of words, requires us a
ton of brick.”

- joao batista vilanova artigas

the practical OR the poetic?



aspirational design



21st century learning environments
sustainability



safe and healthy
constructability, maintainability



program constraints
“on time, on budget”

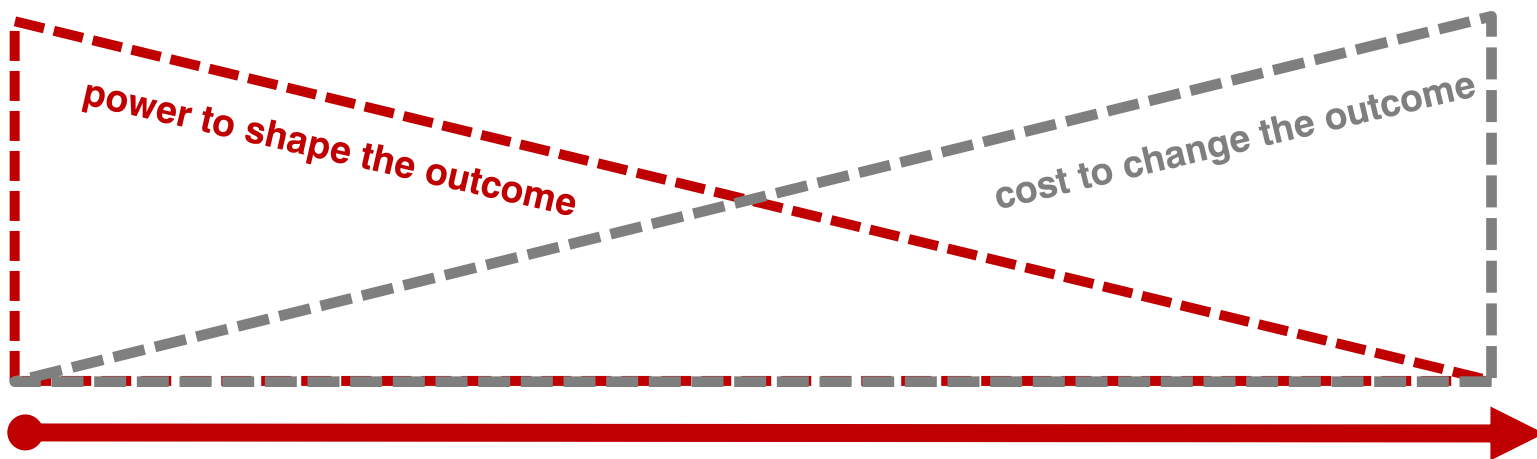


“get roofs over kids’
heads”

“more perhaps than the product of any other discipline – any of the arts, science, or technology – the artifacts which result from the act of building bespeak the character and aspirations of their makers.”

- lawrence speck
technology, sustainability & cultural identity

the practical shapes the poetic.





client /
stakeholders



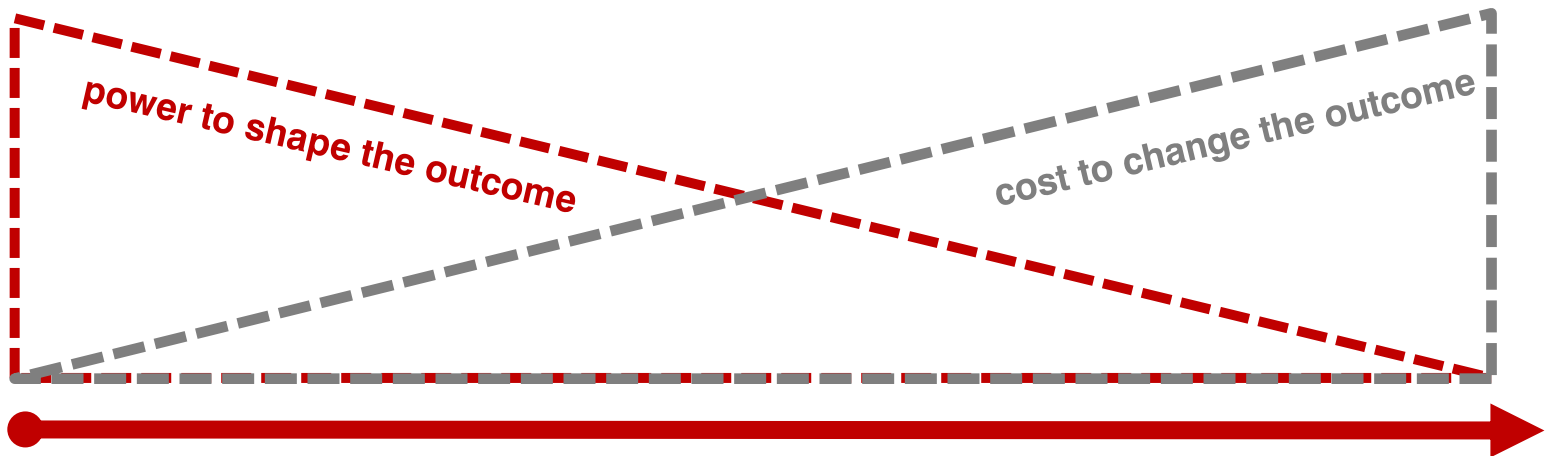
planners &
architects



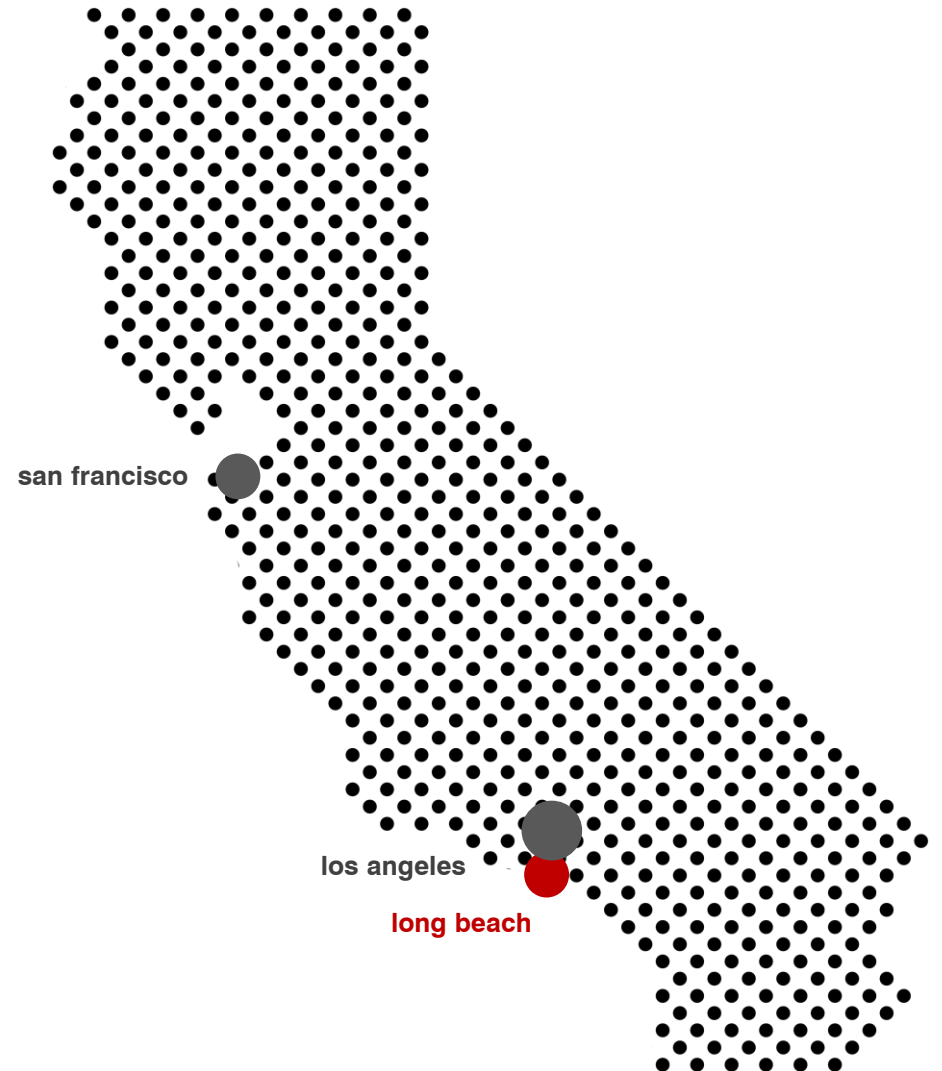
engineers



builders



long beach unified school district



mcbride high school



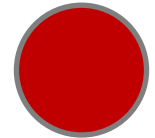
- 81,000 students
- 3rd largest district in california
- high attendance/low absenteeism
- broad prize for urban education
- global education study: recognized as one of the worlds 5 highest performing school districts

“a cultural expectation of value”

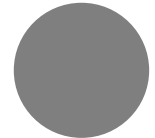


ideation to realization

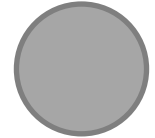
district wide master planning



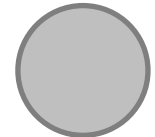
mcbride curriculum planning



mcbride design



mcbride construction



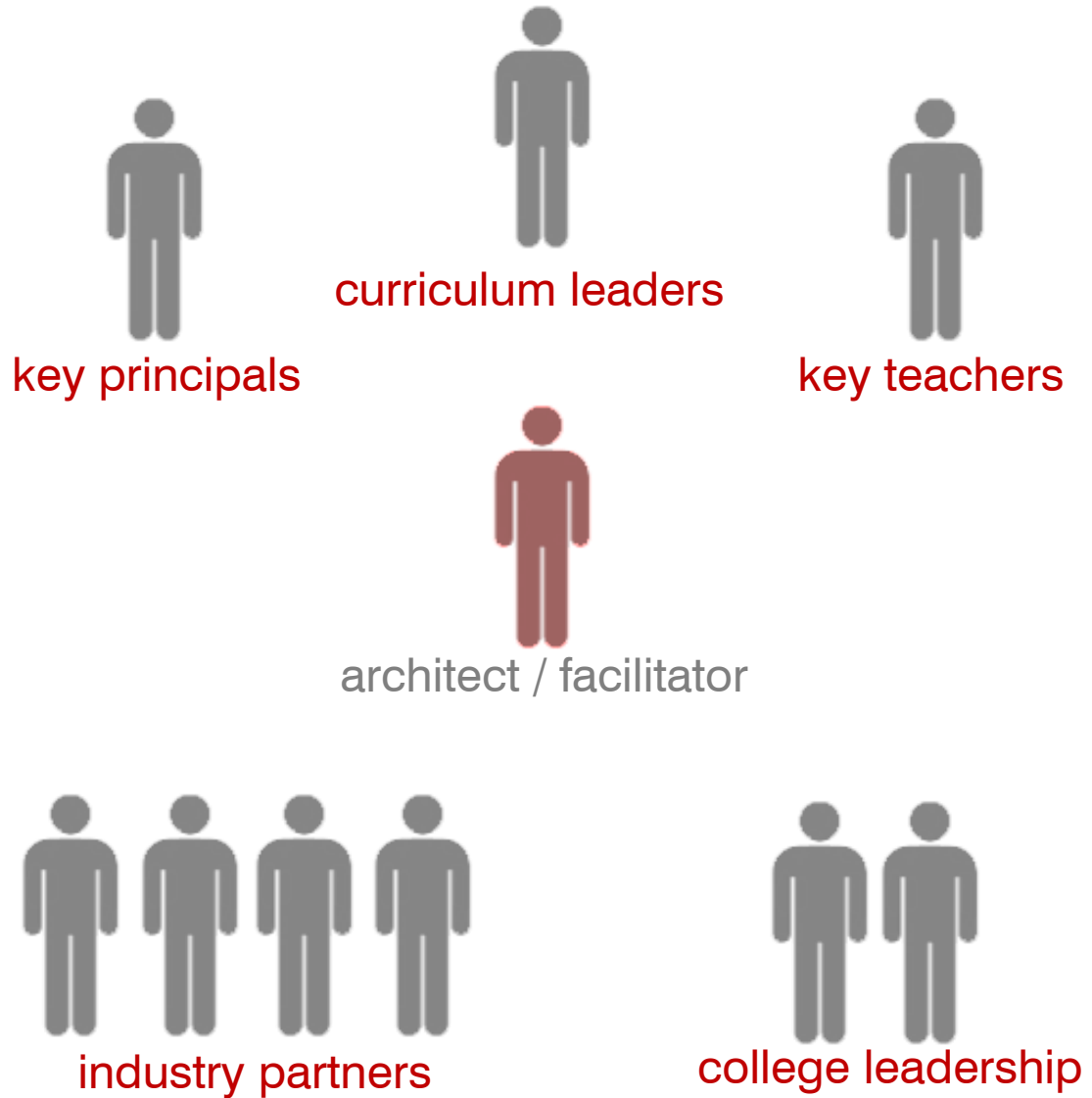
engagement:

- bill dejong and his team
- master architect
- survey architects
- engineering disciplines
- community advisory committee
- 7 district planning area committees
- input from thousands of stakeholders

key high school goals:

1. learning environments to support the next generation of students
2. develop small thematic high schools to reduce overcrowding

curriculum planning



curriculum planning

program goals:

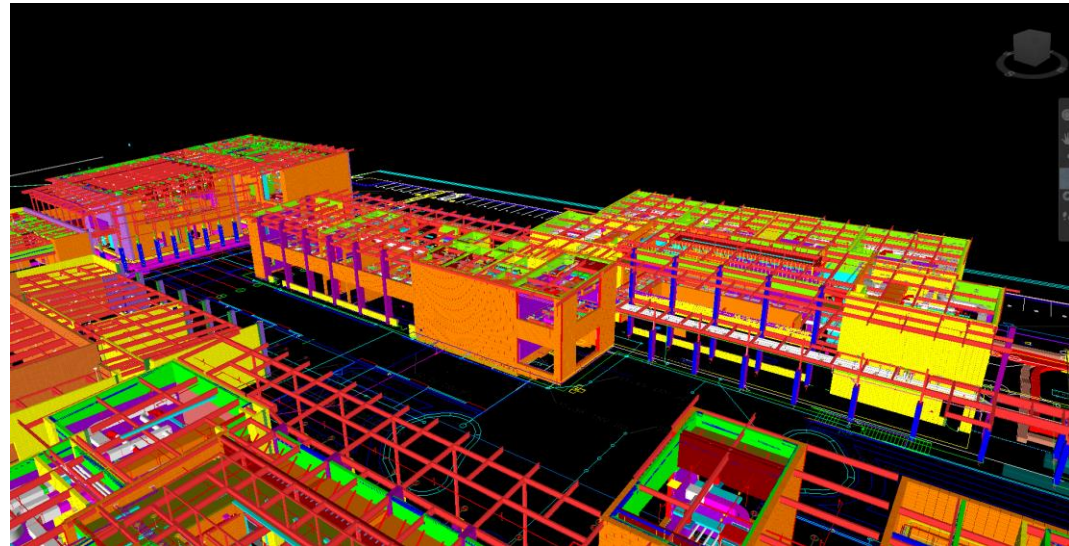
1. 4 career pathways
 2. distinct small learning communities
 3. inspire student aspiration
 4. sustainable focus
 5. authentic, integrated design
- lifelong learning
 - lifelong learning
 - success in college
 - career success





integrated team:

- district
- community
- integrated architects and
- builders



collegiate aspirations

learning happens everywhere



the value of our work, the value of learning



we are better together

collaborative and individual learning



sustainability

responsible design



community aspirations

engagement from inception to occupancy



“I shall be telling this with a sigh
somewhere ages and ages hence:
two roads diverged in a wood, and I-
I took the one less traveled by,
and that has made all the difference.”





challenge convention : a journey to cultivate your creativity
WENDY ROGERS, AIA, LEED BD+C



TEDxCEFPI

stories of

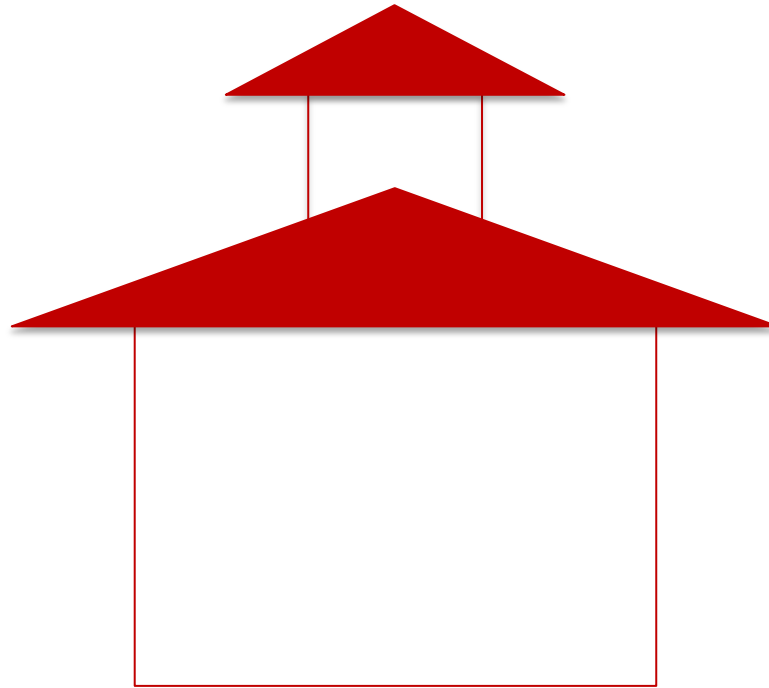
Leadership | Creativity | Passion

LPA

15 SEP 2013



Where We Learn Matters



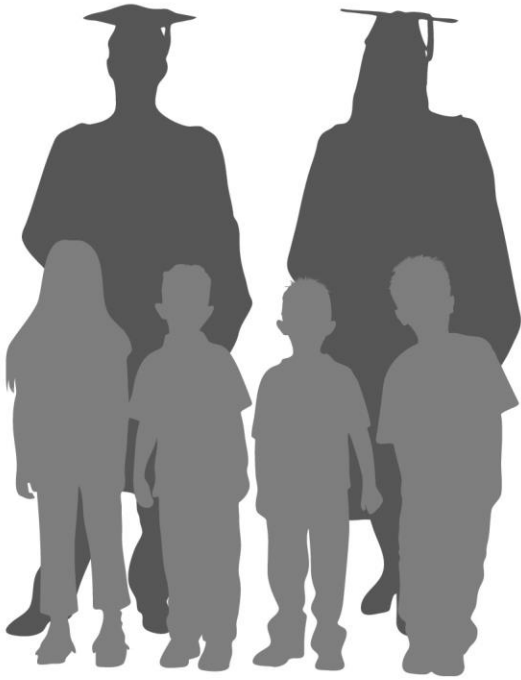
25% of the population goes to school every day

There are **133,000** K-12 schools and

4,300 colleges and universities

POTENTIAL BENEFACTORS

of GREEN SCHOOLS



STUDENTS



FACULTY



TAXPAYERS

how can you make a difference?

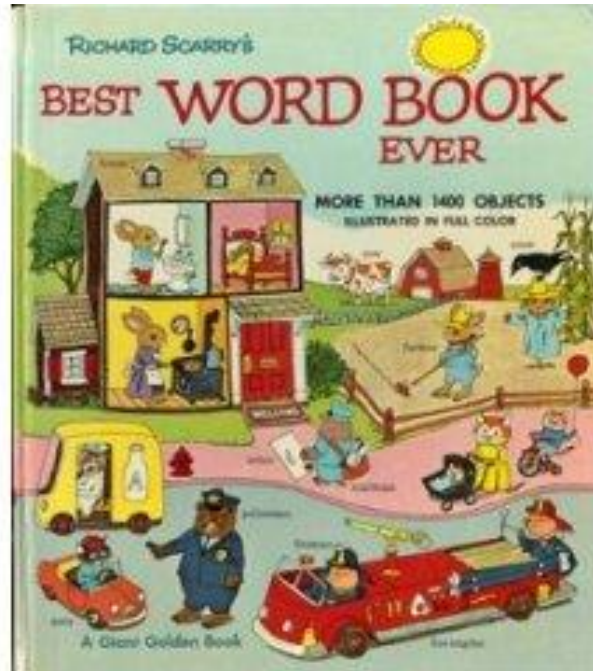




green school

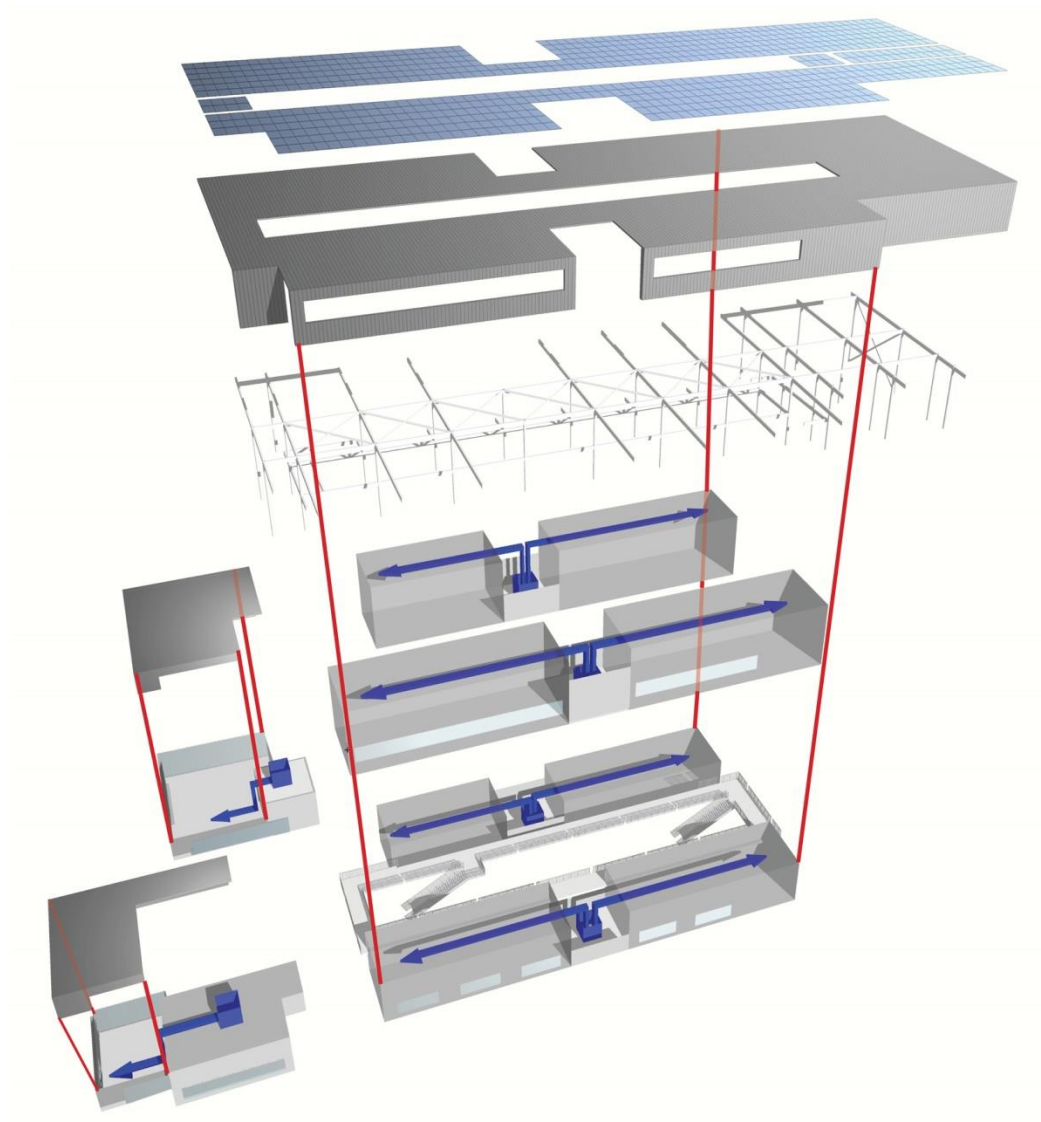
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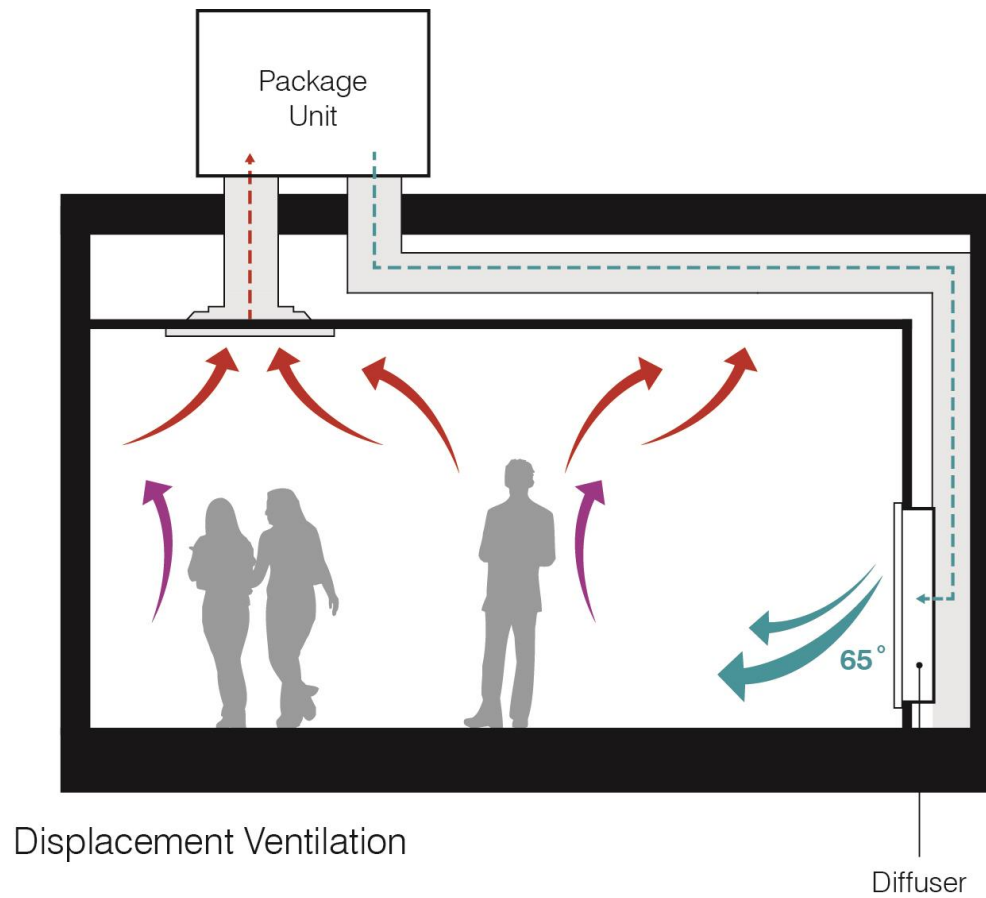
a school that creates a healthy environment that is conducive to learning while saving energy, resources and money













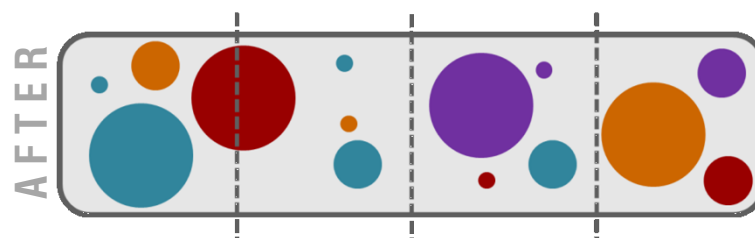
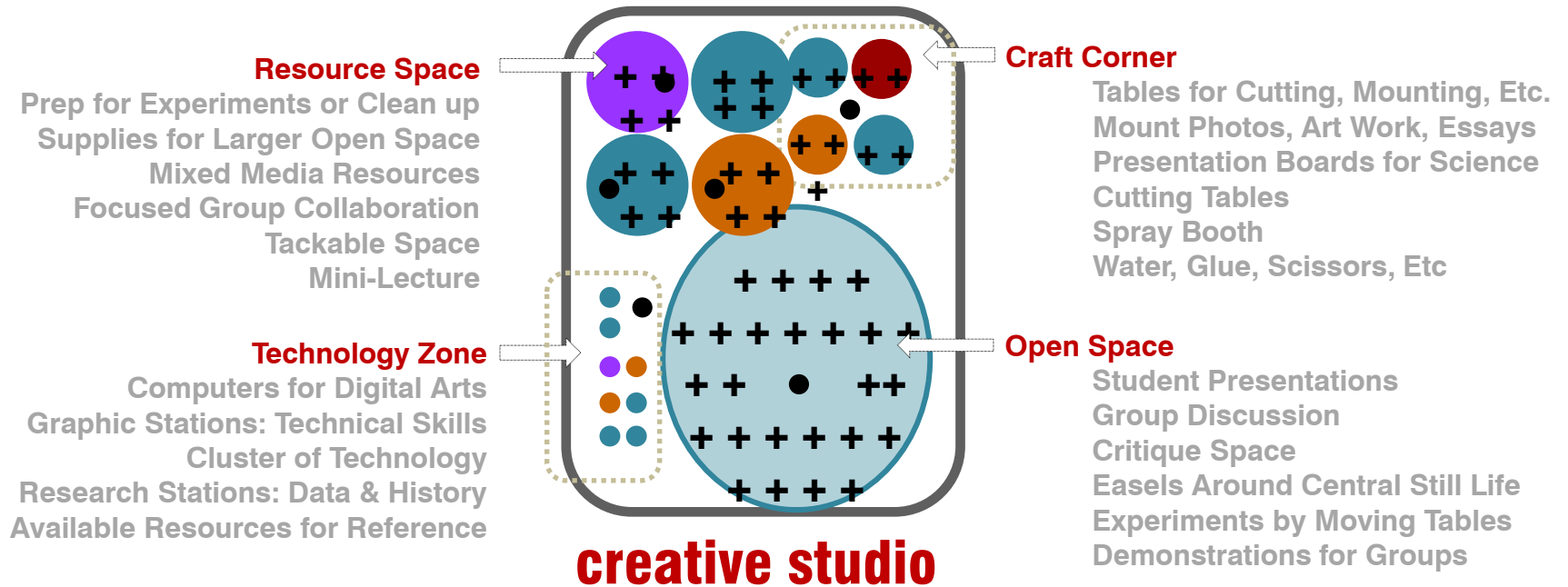
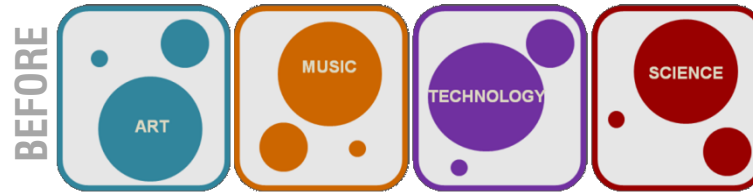


LEARN • ING STU • DI • O

[lur-ning] -n. [stoo-dee-oh] -n.

1. knowledge acquired by systematic study
2. the act or process of acquiring knowledge or skill
3. psychology – the modification of behavior through practice, training, or experience

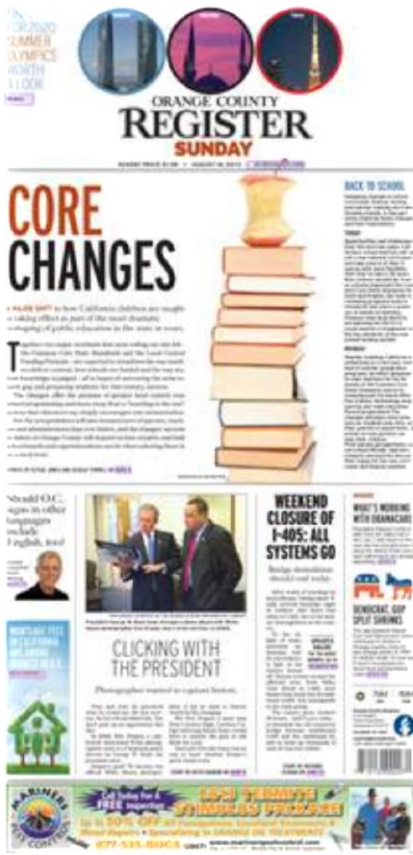
1. the workroom or atelier of an artist
2. a room or place for instruction or experimentation
3. a room or set of rooms specially equipped for radio, television and film







...she plans to take her Golden Elementary School students out of the classroom to a local park to observe habitats for local animals. Her students will write their observations and thesis and use math in their scientific calculations.



Problem solving can easily be linked to real-world applications, and students will see the connection across subjects, said Sandra Lapham, director of curriculum and instruction.

1. ADMINISTRATION
2. STUDENT GARDEN
3. FOOD SERVICE
4. MPR
5. ENVIRONMENTAL LAB
6. CLASSROOM BUILDINGS
7. GREEN CLASSROOM 7
8. CONTROL CLASSROOM 8
9. PLAYGROUND
10. PLAY FIELDS

PARTIAL SITE PLAN

0 30

recycling



science



composting



garden



experiment



ROOM 8

ROOM 7



0 2 MILES

BASELINE MONITORING OF CLASSROOMS 7 AND 8

PROVIDED BY SUN BELT CONTROLS

HVAC ENERGY TOTAL

HVAC COMPRESSOR ENERGY

LIGHTING ENERGY

PLUG LOAD ENERGY

ROOM TEMPERATURE

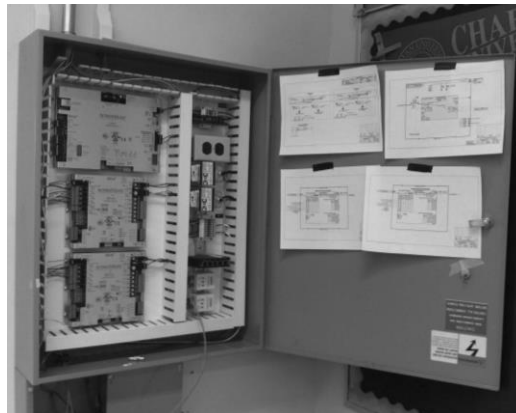
ROOM RELATIVE HUMIDITY

ROOM CO2

ROOM LIGHT LEVELS (INTERIOR &
PERIMETER)

DOOR MONITORING SWITCH

OUTSIDE AIR TEMPERATURE +
HUMIDITY



Ceilings:
improved acoustic
performance

Linoleum:
durable, healthy

Carpet:
walk-off

Carpet Tiles:
durable with
recycled content

Casework:
modular to allow for
flexible use and storage



CONTROL CLASSROOM #8

GREENOVATED CLASSROOM #7

Insulation:
insulate exterior walls

**Displacement
Ventilation:**
better air quality,
reduces energy
demands
located in each
corner

Lighting:
indirect direct with
whiteboard
lighting and lutron
controls system

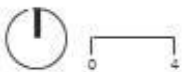


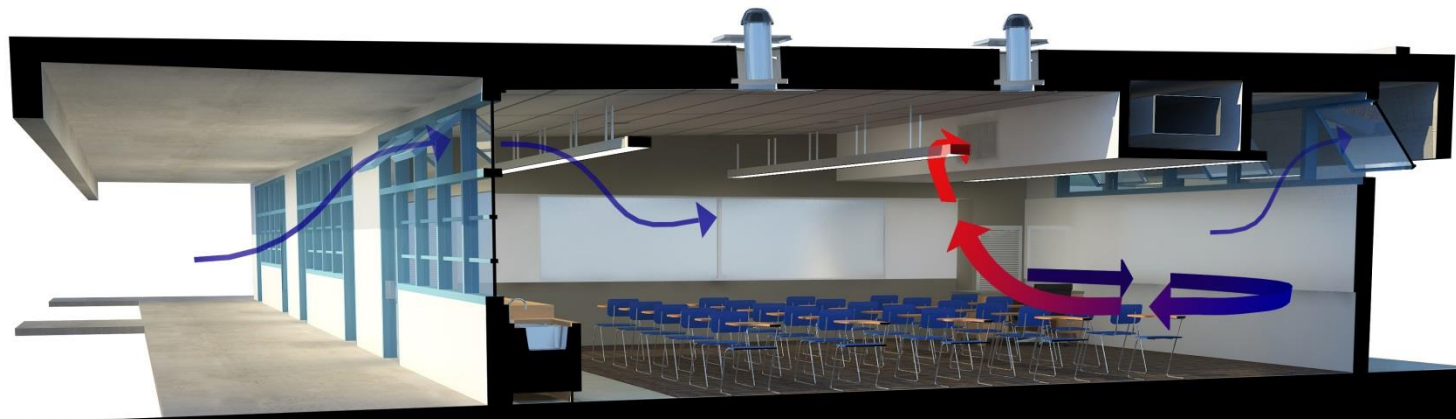
Technology:
integrate
technology
provided by
district

Tubular Daylighting:
natural daylight and
energy savings



FLOOR PLAN









\$25,000+

Title Partner/Living Green Classroom Champion
LPA, Inc.
McCarthy Building Companies, Inc.
Pacific Rim Mechanical
Sunbelt Controls

\$10,000-24,999

Platinum Green Classroom Champion
Disney
tk1sc

\$7,500-9,999

Gold Green Classroom Champion
Corporate Business Interiors (CBI)
ISEC, Inc.
TMAD Taylor & Gaines

\$5,000-7,400

Silver Green Classroom Champion
AAON/CMS
Norman Wright/Price
Shimahara Illustration, Inc.
Solatube

\$2,500-4,999

Bronze Green Classroom Champion
American Wrecking
Berg Electric
CMF Inc. (Custom Metal Fabricators)
Golden State Framing
Guida Surveying
HMC Architects
Ledalite
Letner
Lutron
Miller Environmental
Nevell Group Inc.
Patcraft
Performance Contracting Group
South Coast Coatings

\$1,000-2,499

Certified Green Classroom Champion
Arborite
Armstrong
Bragg Crane
Gensler
GMB Media Productions
Robert Ortiz
Saint-Gobain/Certain Teed

\$100-999

Friend of the Green Classroom

Alert Insulation	Tim Harrison
Alight	IMA + Design
CIR	Koroseal
CES - Burbank	Pan Pacific
Fashion Blinds	Prudential Lighting
Forbo	RBf, a Baker Company
3Form	Studio + Architects
Georgia Pacific	

orange county chapter
www.usgbc-oc.org

davis magnet school

may 2013

GREENOVATION

INFORMATION



Trends and Observations

HVAC ENERGY
Although the HVAC system in Room 7 is more energy efficient than Room 8, we are noticing these components are in two classrooms. This is a result, and we must care what may be causing this.

IMPROVED ACOUSTICS
The displacement ventilation system is significantly quieter in Room 7 than in Room 8. This success, we are continuing to study to measure its performance.



davis magnet school

june 2013

GREENOVATION

INFORMATION



Trends and Observations

HVAC ENERGY
Due to frequent maintenance, it has been difficult to compare between the two classrooms. Room 8 (the non-ventilated) is often turned off, but it is often turned on by the HVAC system.

IMPROVED ACOUSTICS
The acoustical study and the preliminary Room 7 is significantly quieter in the control classroom.

LIGHTING

davis magnet school

july 2013

GREENOVATION

INFORMATION



Trends and Observations

COMPARING DAVIS MAGNET SCHOOL STUDENT OUTCOMES!

While classroom monitoring continues, we are also beginning to gather analysis based on surveys aimed at helping us measure the 'green' knowledge and perceptions of students.

In January, a survey was sent home to parents of students in the 'greenovated' classroom, as well as the control classroom, asking how frequently students mentioned topics such as: HVAC, lighting, waste reduction, air quality etc. After conducting a thorough statistical analysis, team researcher, Nora Davis, has presented us with her initial findings:

Table 3: Comparing classrooms: by home, school or general

	Average - Green	Average - Control
Energy - General at School	2.02	1.32
Energy - HVAC: Merits, Use & Efficiency at General	1.98	1.46
Energy - Computers Use Energy & Turn Off Saves at School	2.13	1.29
Energy - HVAC: Merits, Use & Efficiency at School	2.11	1.43
Energy - Lighting at School (merits, energy use, daylight, automatic dimming)	1.92	1.29
Purchasing general at School	2.0	1.35

Table 4: Comparing classrooms: specific questions

	Average Across	Average - Green	Average - Control
Energy General - Use, energy conservation, or reducing energy use at school	1.87	2.21	1.43
Energy - Automatic dimming of lights at home	1.45	1.79	1.14
Energy - Natural lighting or lighting from windows/windows at school	1.65	1.88	1.06
Energy/HVAC Use at Home	1.84	2.15	1.29
Energy/HVAC Efficient Use in Classroom at School	2.03	2.21	1.43
Transit - Environmental benefits of bicycling at School	1.45	1.63	1.06
Transit - Environmental benefits of bicycling at Home	1.65	1.79	1.14

SUMMER IS HERE!

Our students in rooms 7 and 8 are now on their summer vacation. The first day of school is Tuesday, September 3, and we will get the opportunity to have two new groups of fourth grade students!



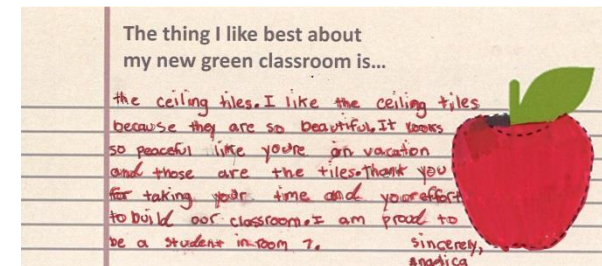
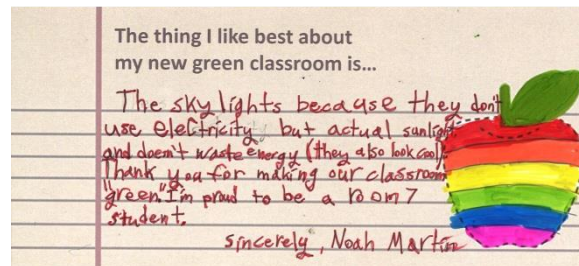
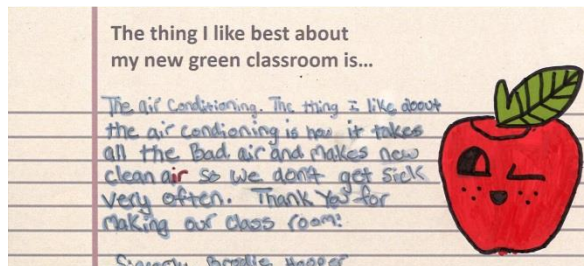
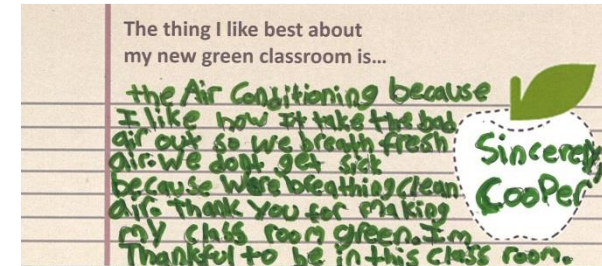
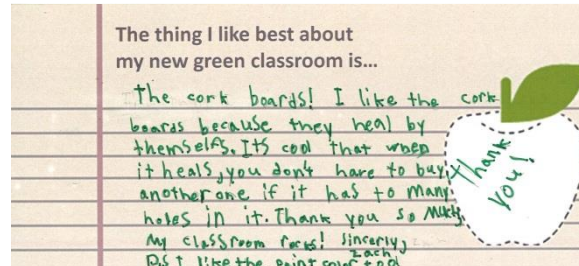
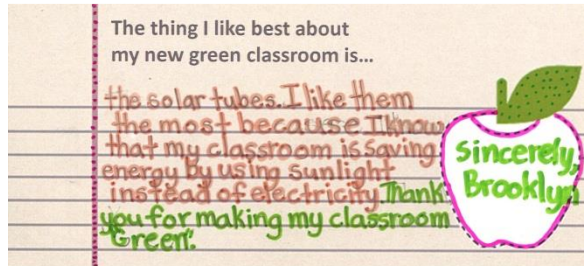
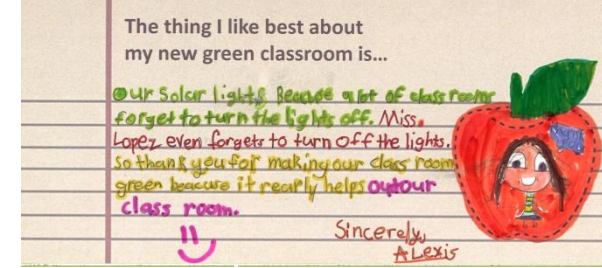
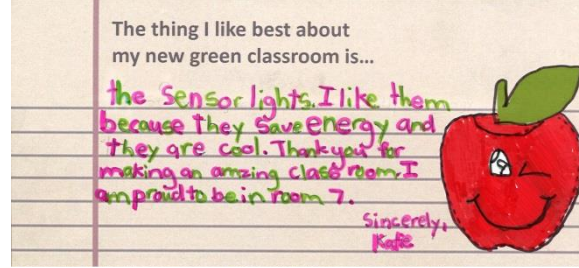
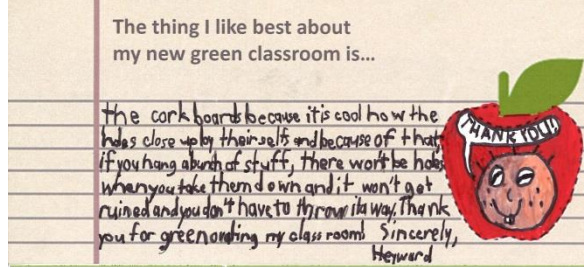
Will you join us?

The deadline to become a #greenapple mentor is: September 1, 2013.

U.S. Green Building Council • Orange County Chapter • (714) 832-3616 • www.usgbc-oc.org

SADFDSAF





Partnerships

Curriculum: PEAK

Research: University of California Irvine, Social Ecology

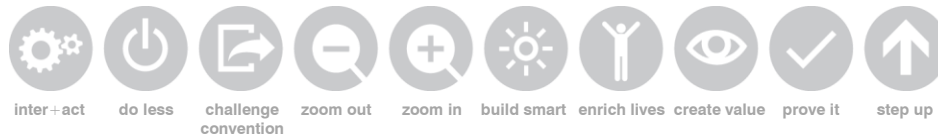
For more information:

www.usgbc-oc.org





prove it : bringing passion to the classroom
ERIK RING, PE, LEED BD+C

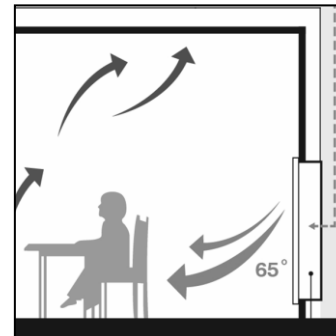
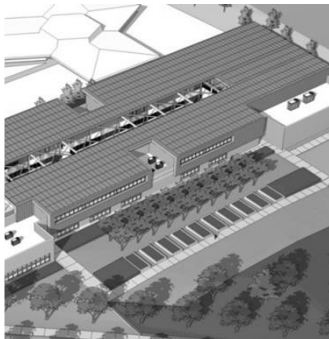


Assessing Learning Environments: Thinking inside the Box

Leadership | Creativity | Passion

LPA

22 SEP 2013





assessing classroom education



Efficient
Healthy **Beautiful**
Comfortable **Accessible**
Functional **Maintainable**
Adaptable **Inspiring**
Flexible **Innovative**

assessing classrooms



Indoor Environment Key to Green Schools

The Impact of School Buildings on Student Health and Performance (February 2012)

Lindsay Baker (UC Berkeley), Harvey Bernstein (McGraw Hill Construction)

How can school buildings impact how students...

...hear

...breathe

...see

...feel

...think & feel

...move



center for green schools



if all K12 classrooms in california
had proper ventilation:

3.4%

fewer
student
absences

\$4M

higher
energy
costs

\$33M

higher
state
funding

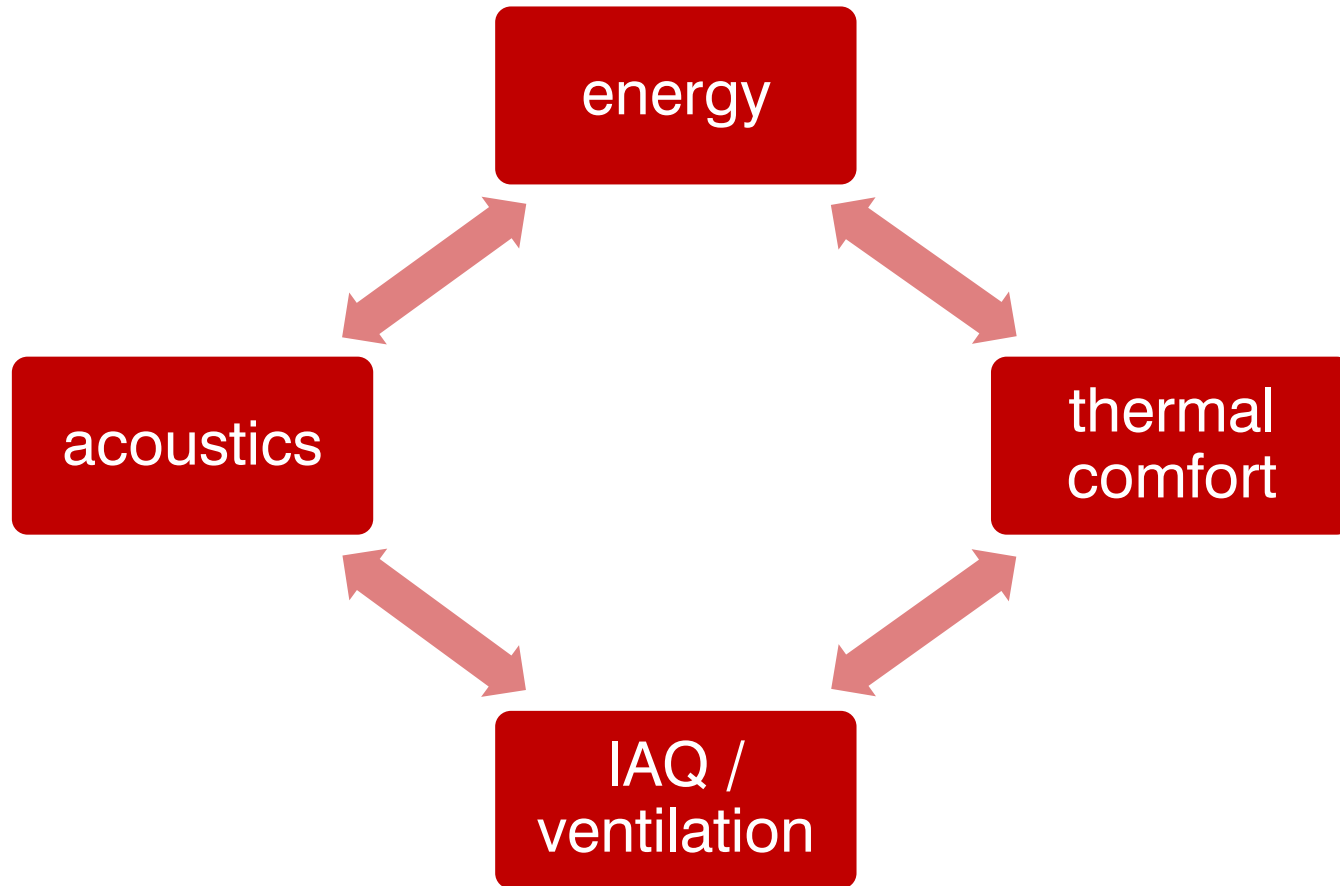
\$80M

reduced
caretaker
costs

lawrence berkeley national laboratory



LPA



assessing hvac systems in classrooms



davis magnet school

Costa Mesa, CA
Newport-Mesa Unified
School District

USGBC Orange County Chapter
“Greenovation” 4th Grade Classroom
with adjacent ‘Control’ Classroom

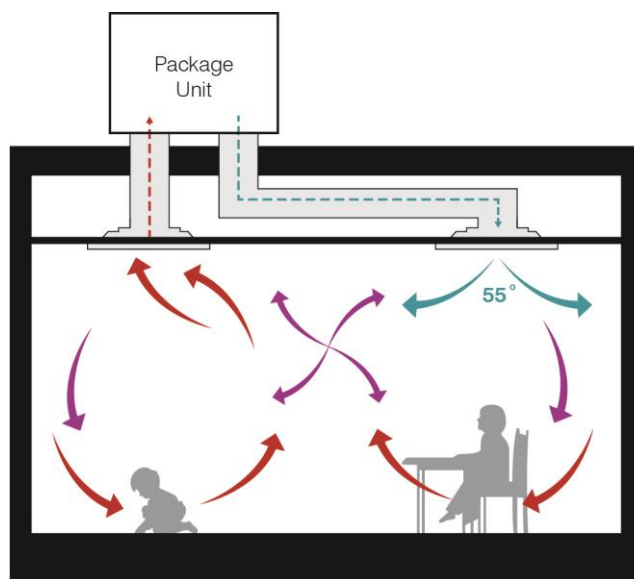
- thermal displacement ventilation
- lighting systems
- skylights
- new finishes



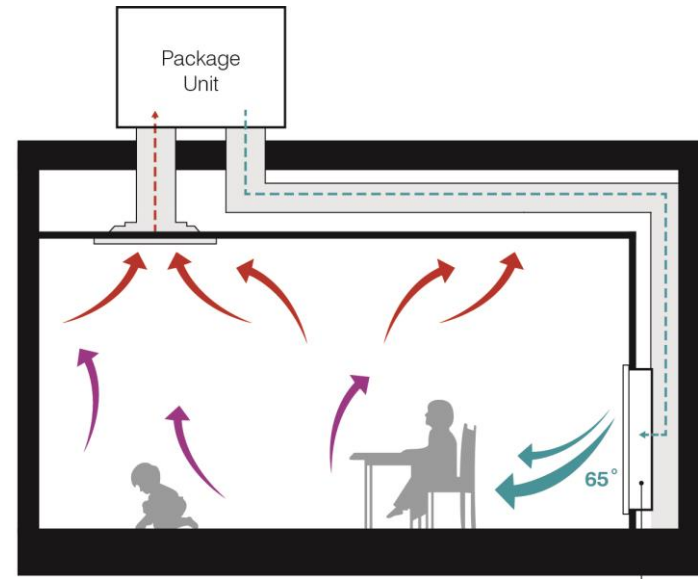
davis magnet school



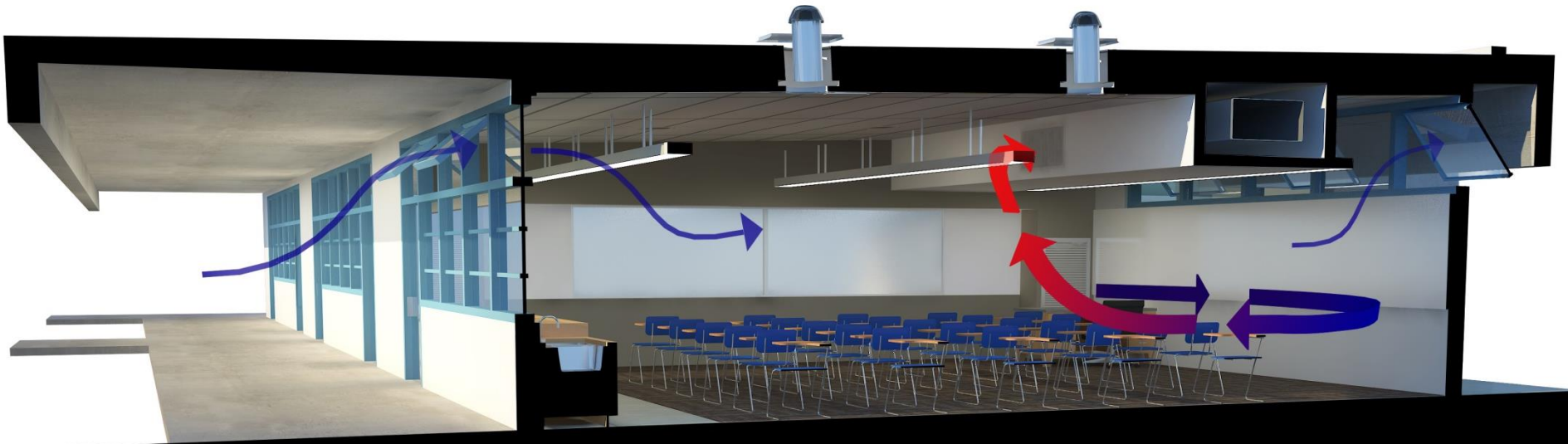
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Mixing (Dilution) Ventilation - Typical



Displacement Ventilation



thermal displacement ventilation concepts





thermal displacement ventilation systems





before



LPA



after



LPA



before



LPA



after

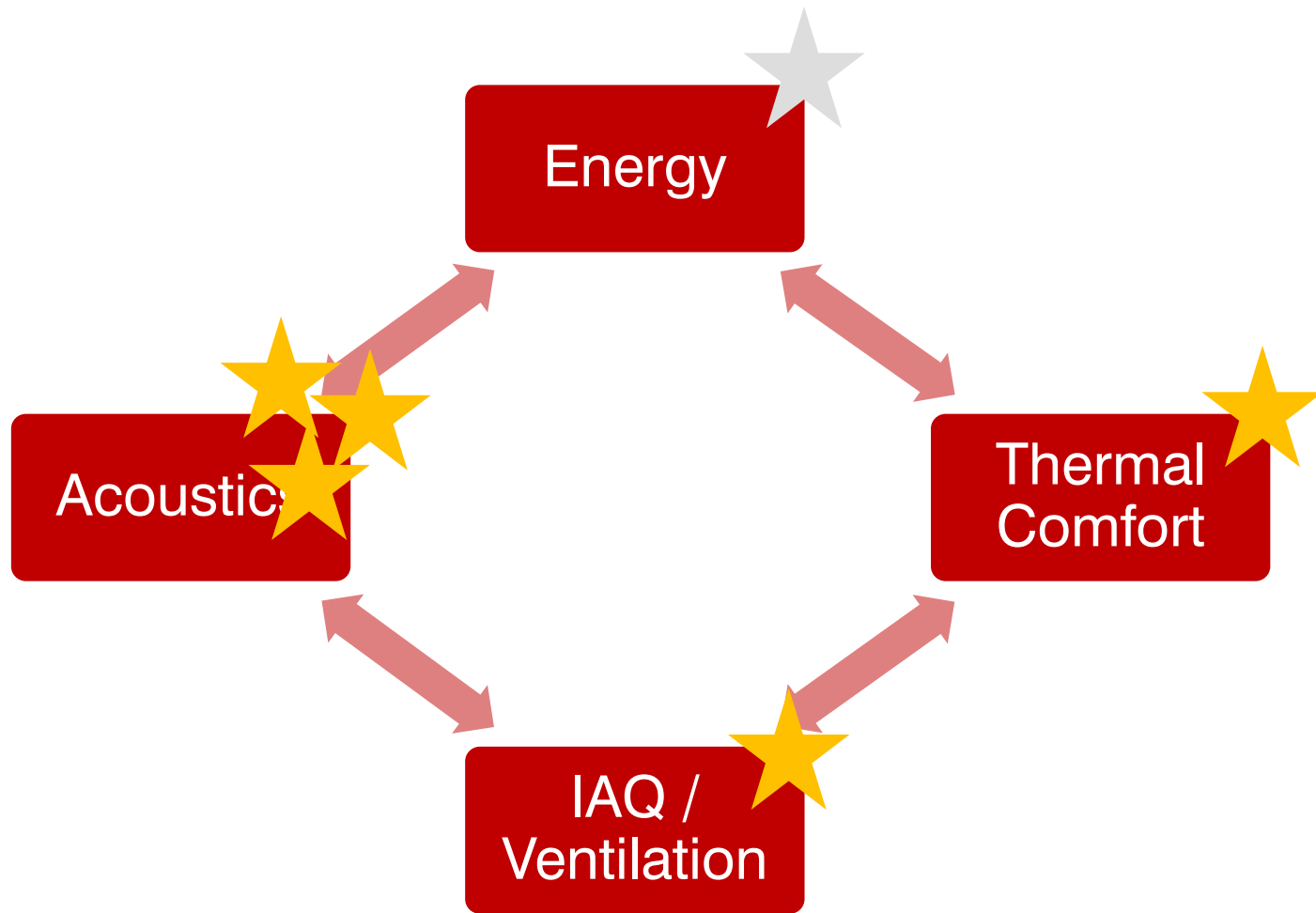


LPA



first day





how are we doing (so far)?



montgomery middle school

San Diego, CA
Sweetwater Unified School District

40,000 sf Addition

18 Classrooms, Library,
Counseling, Food Service

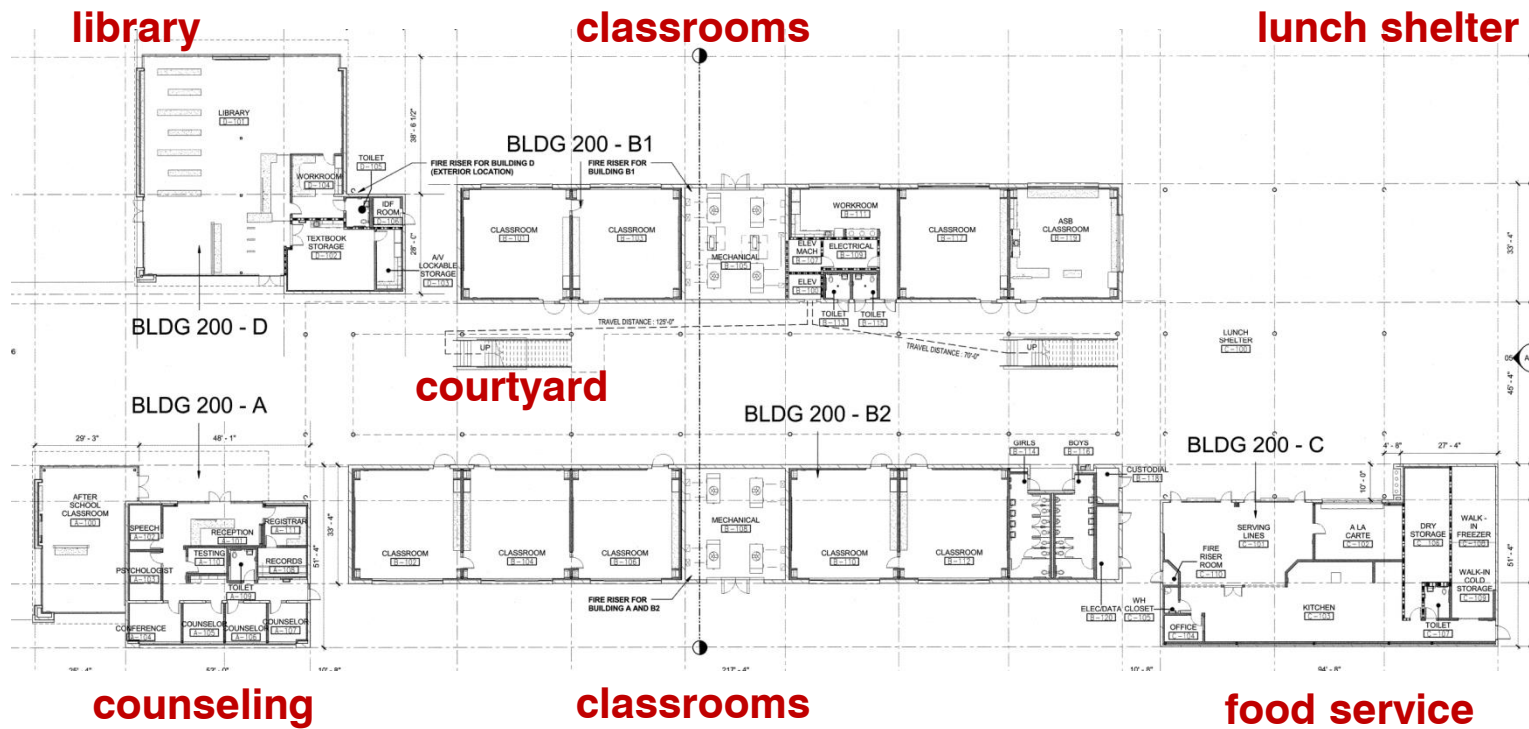
\$18M, Occupied in July 2013

- operable windows
- thermal displacement ventilation
- single-zone VAV rooftop DX units



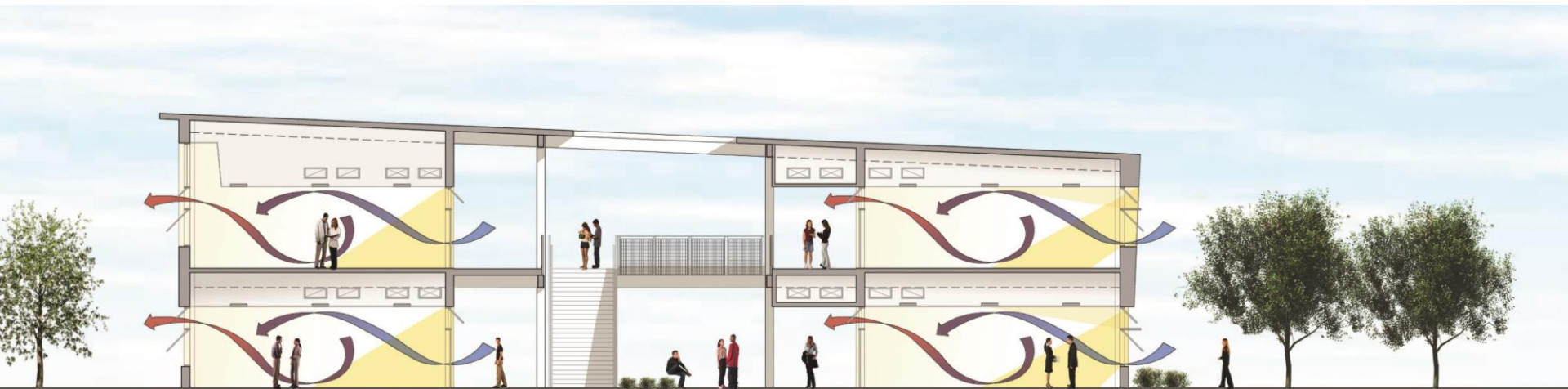
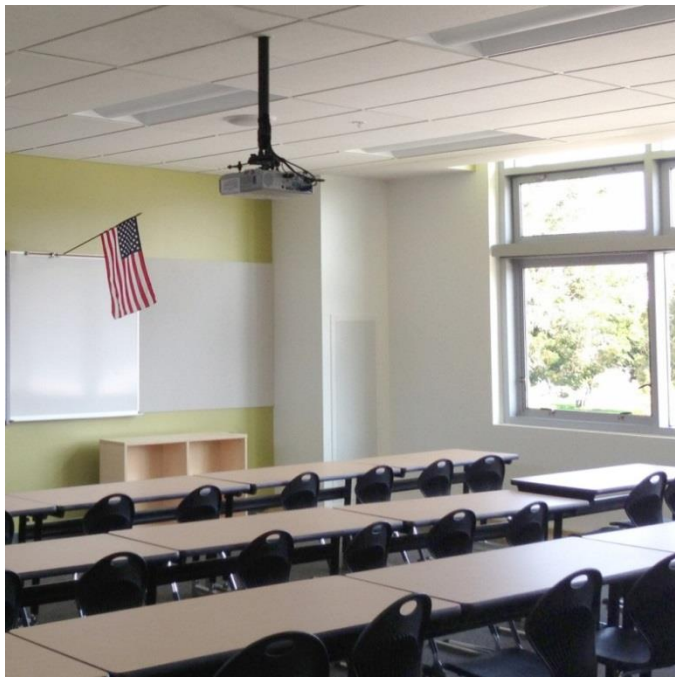
montgomery middle school





floor plan





mixed mode hvac system





classroom





hvac units





airflow & co2 monitoring



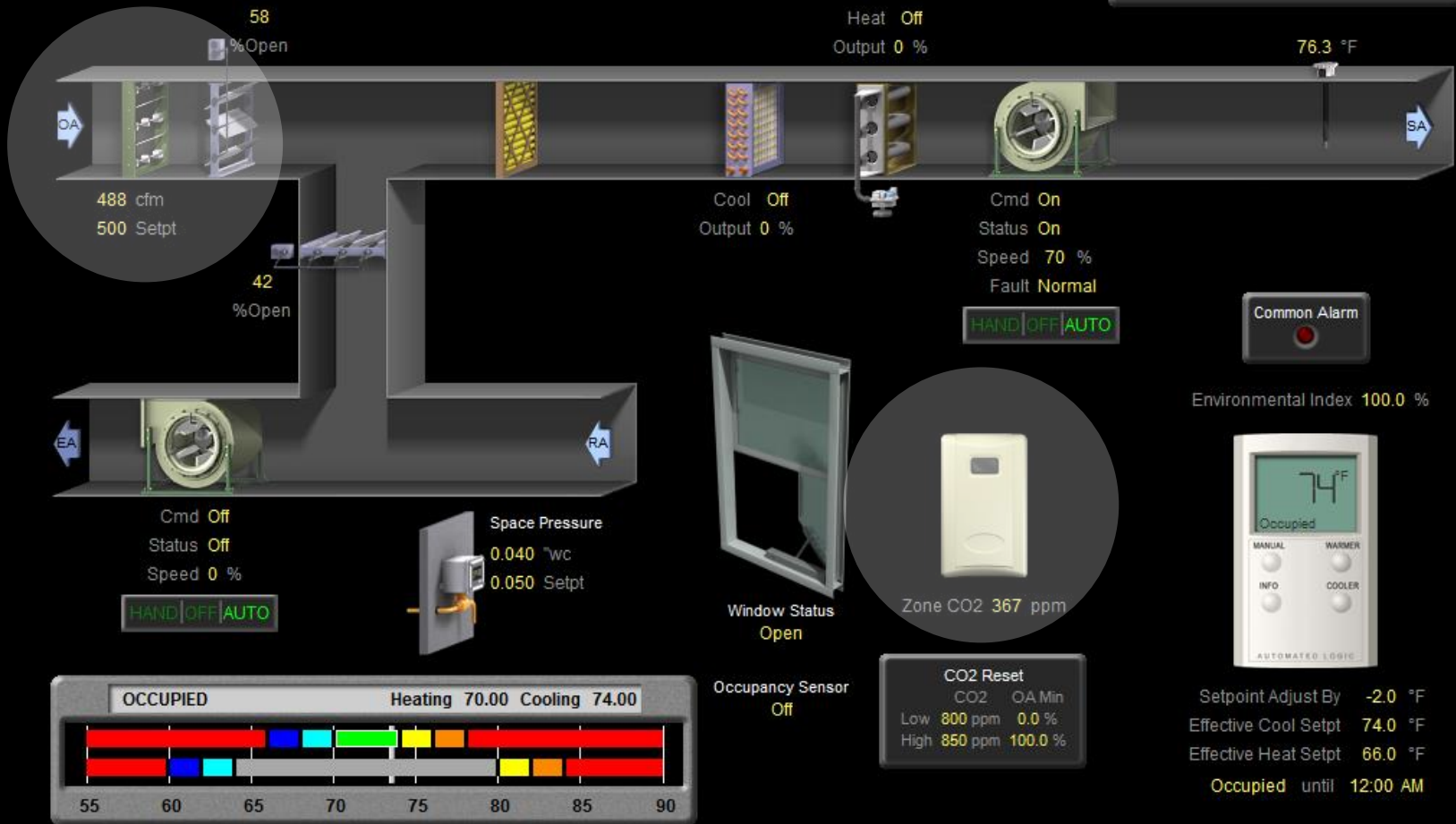
72.4 °F
44.3 %rh

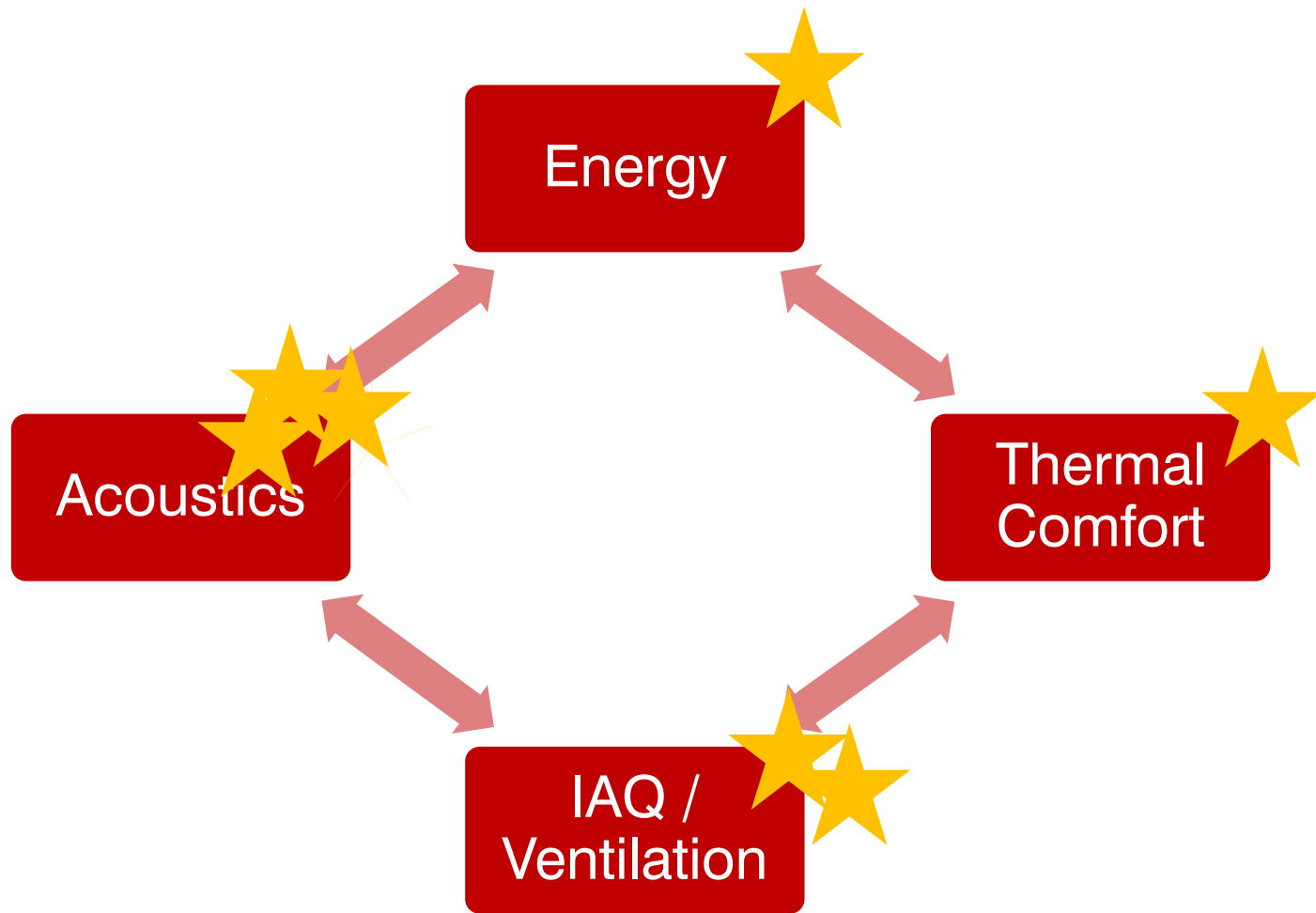
Montgomery Floorplan

AC 321

Notes:

MIN OA DAMPER POS 51%





how are we doing (so far)?





questions?

