

The Changing Architecture of Education

A4LE Association For Learning Environments
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Introductions



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Horry County Schools

Why is the Architecture of Educational Facilities Changing?



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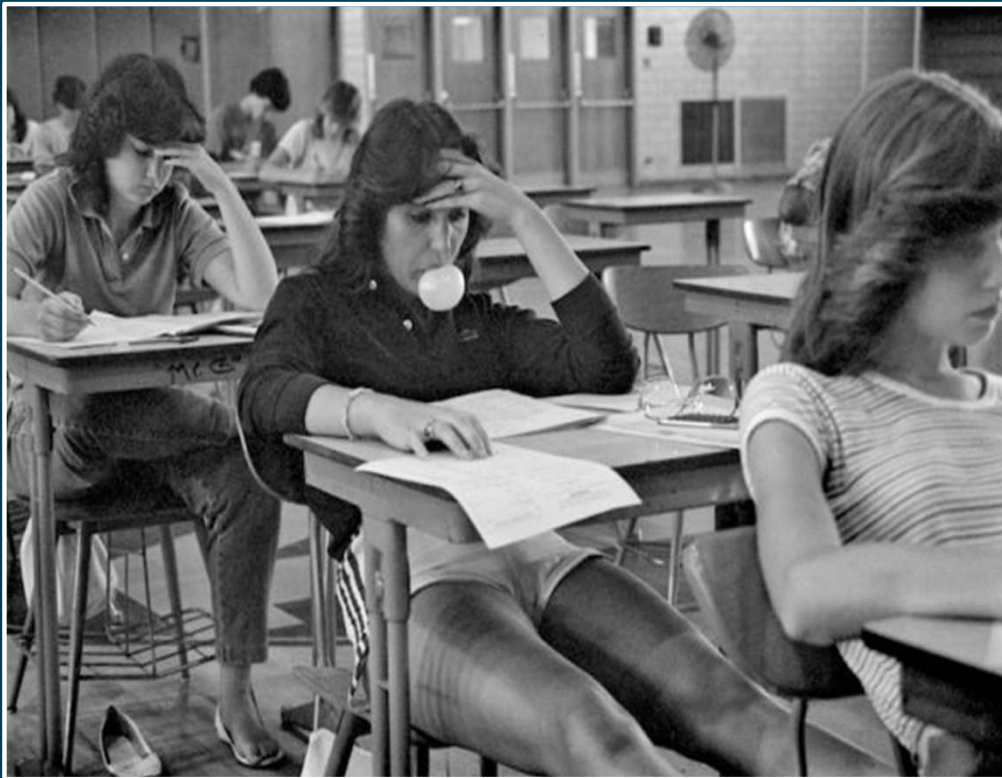
Because the needs of Today's Students have changed



Session Learning Objectives:

- Learn what the Knowledge, Skills, and Life and Career Characteristics of a 21st Century Graduate are.
- Learn how architectural design has evolved to support the student-centered learning environments of today.
- Learn about a variety of environmentally responsible design strategies and how they can be included in your next building project.
- Attendees will walk away with knowledge of how new teaching methodologies coupled with responsive architecture support the required goals of a SC 21st Century Graduate

Traditional Student Engagement



Curriculum Alignment and Traditional Classroom Layouts

“Teach the Test” vs. “Meet the needs of the Learner”

One size fits all approach - No child left behind, etc.

Very little engagement with or among students

Set Rows / compliance

Very little time for students to explore their curiosity, to be creative, imagine new ideas, and discover new approaches

Today's Students Defined

PROFILE OF THE South Carolina Graduate

WORLD-CLASS KNOWLEDGE

Rigorous standards in language arts
and math for career and college
readiness

Multiple languages, science, technology,
engineering, mathematics (STEM), arts and
social sciences



WORLD-CLASS SKILLS

Creativity and innovation

Critical thinking and
problem solving

Collaboration and teamwork

Communication, information,
media and technology

Knowing how to learn

LIFE AND CAREER CHARACTERISTICS

Integrity • Self-direction • Global perspective • Perseverance • Work ethic • Interpersonal skills

© SCASA Superintendents' Roundtable

Adopted by: SC Arts in Basic Curriculum Steering Committee, SCASCD, SC Chamber of Commerce, SC Council on Competitiveness, SC Education Oversight Committee, SC State Board of Education, SC State Department of Education, TransformSC Schools and Districts.

Today's Students are Tomorrow's Workforce

Rigorous Curriculum:

Math, ELA, SS, and
Science

World Class Skills:

i.e. collaboration, problem
solving, creativity,
innovation, media &
technology, knowing how
to learn

Life and Career

Characteristics:

Interpersonal skills, global
perspective,
perseverance, self-
direction



What is Teaching Pedagogy ? Art & Science

Teaching “Methodology”

Teaching “Technique”

Teaching “Philosophy”



Why is the shift in Teaching Pedagogy important ?



As Students change
Pedagogy must too

Shift from Teacher
focused Instruction
to Student Centered
Learning

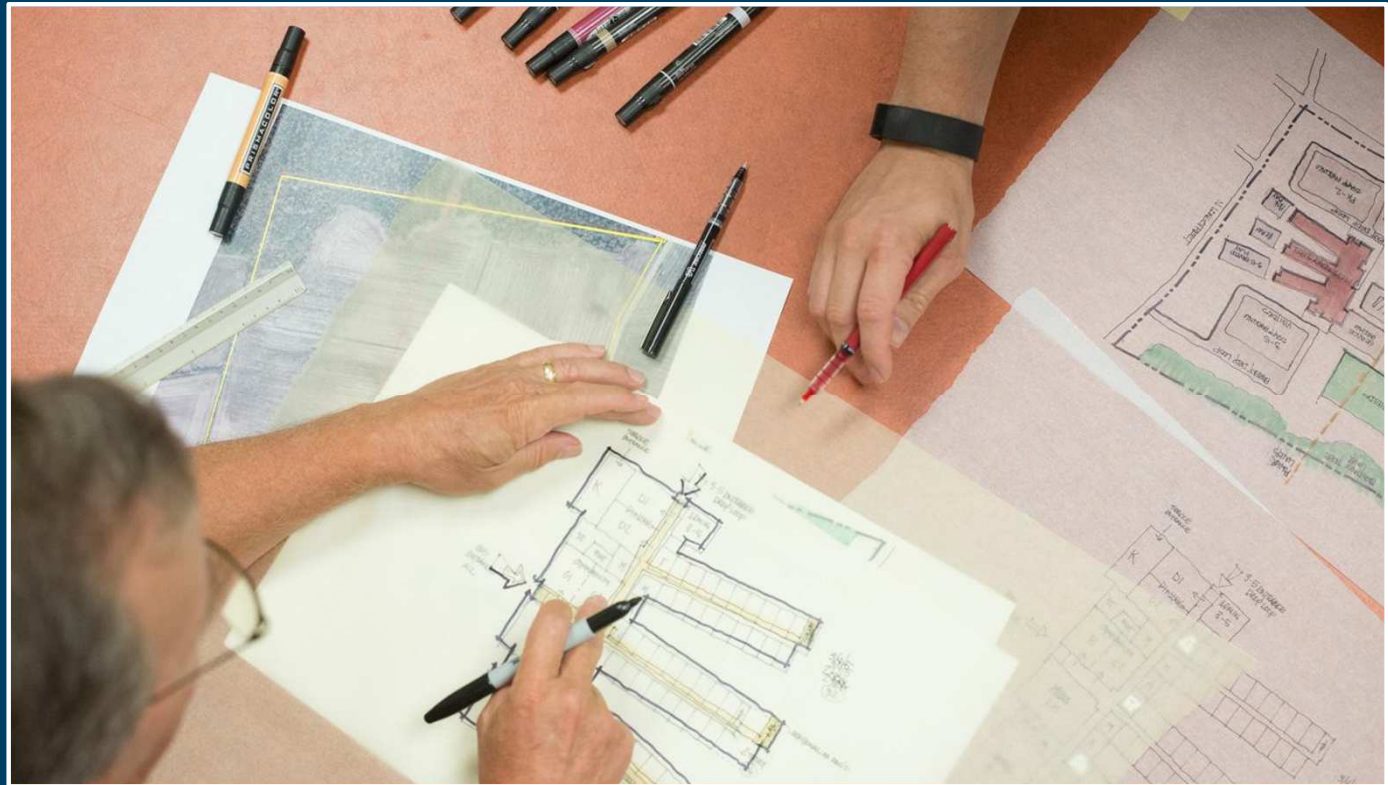
Changes to
Teaching Methods
coupled with older
Facilities not ideal

What is Design Pedagogy?

Your Process of designing something

“Design Process Methodology”

Our Case Study will include a “Design-Build-Optimize” Pedagogy



Why is Design Pedagogy Important?



As Students Change, Teaching Methods Change, and Facilities Requirements Change.

Just like Teachers need a process to keep up with Students, Designers need a process to fashion buildings to meet these Changes

Architects need a way to attain and retain information from the end users so they can fashion the buildings properly

Whether it is Teaching or Designing, some things along the way are the same...

Next, we are going to present the New Horry County Energy Positive Schools as a case study, and describe the journey in the context of a (4) step process.

The (4) step process includes:

1. Curiosity – What is it that you need to do and where will it take you today?
2. Imagination – How do you achieve these goals? Remember that the sky is the limit.
3. Creativity – How do you decide from all your options, the best solution(s) for your scenario?
4. Discovery – This is where you see the results of your efforts, anticipated and unanticipated.

Case Study:

Horry County Energy Positive Schools

Horry County, South Carolina - 2015 - 2020

Curiosity, Imagination, Creativity, Discovery



Changes to Educational Specifications have required Changes in School Design to support the new ways of learning



Design Requirements

“The mission of Horry County Schools, diverse communities united in their focus on learning, is to guarantee that all students are fully prepared, successful contributors in a rapidly changing global society through the aggressive pursuit of personalized, achievement-based, student-centered teaching and learning.”

Tailor the building to meet the requirements of a
21st Century Graduate

Horry County Schools

Educational Specifications:
A Guide to the Planning and Design of Educational Facilities

October 21, 2013



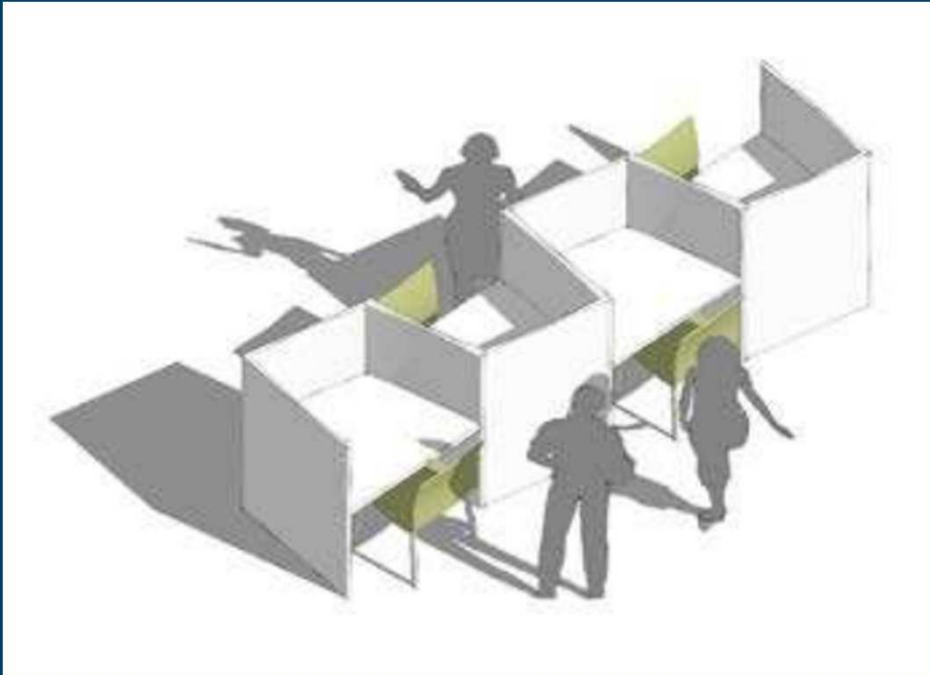
Ed Spec info

Included in the published Educational Specifications were several “educational space types vignettes”.

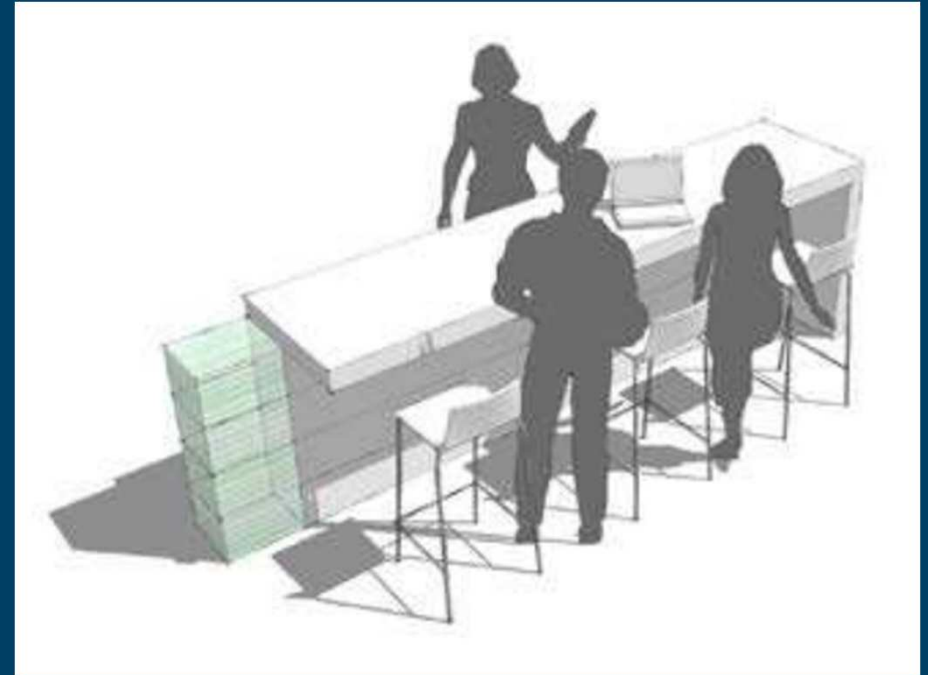
These were prepared to graphically convey the design intent of the new teaching methodologies to the various design teams working for the District.

The following space types are examples right from the Horry County Schools Educational Specifications.

Individual Study and Technology

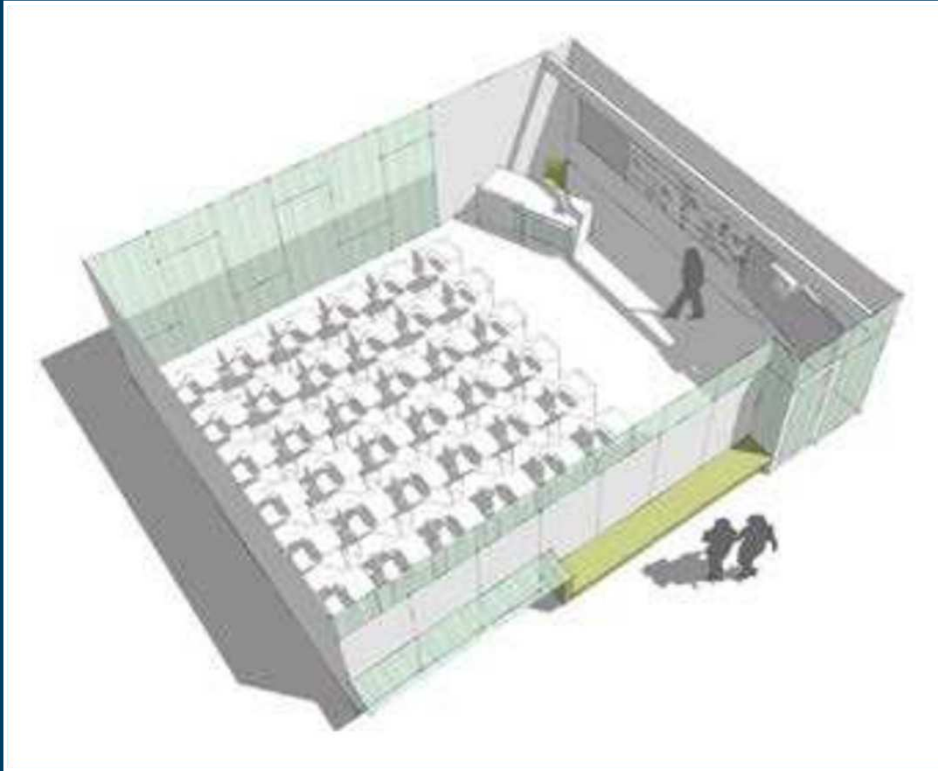


Typical Traditional Individual Study Carrels

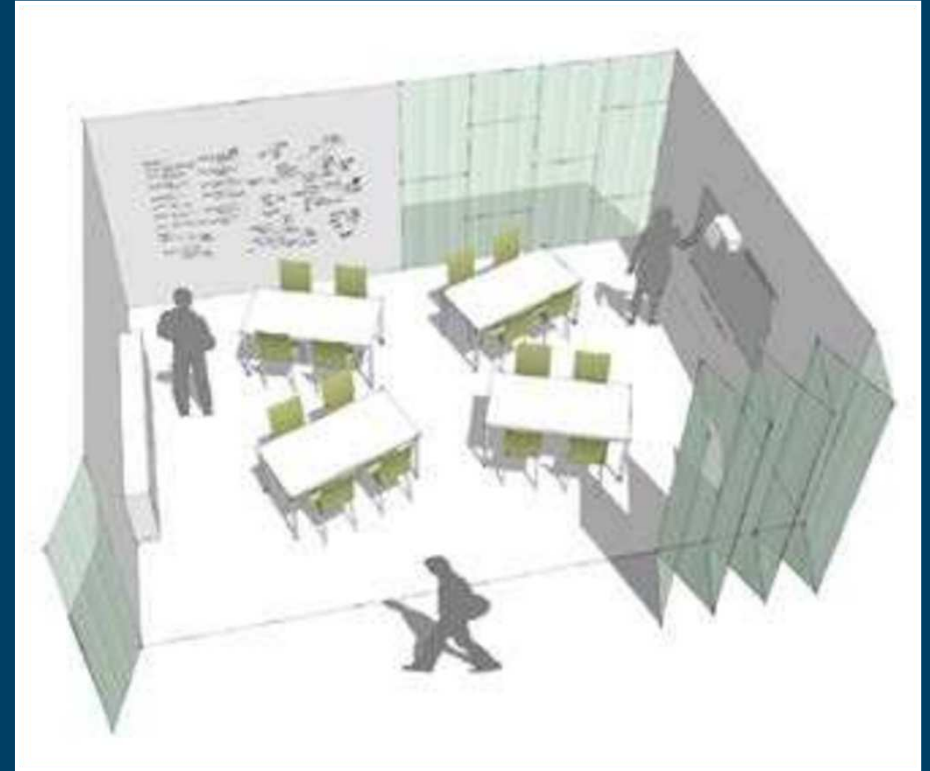


New "I-Bars" replace the standard study carrels and are rich with technology, and encourage collaboration

New Flexible Classrooms replace Traditional



Typical Traditional Classroom

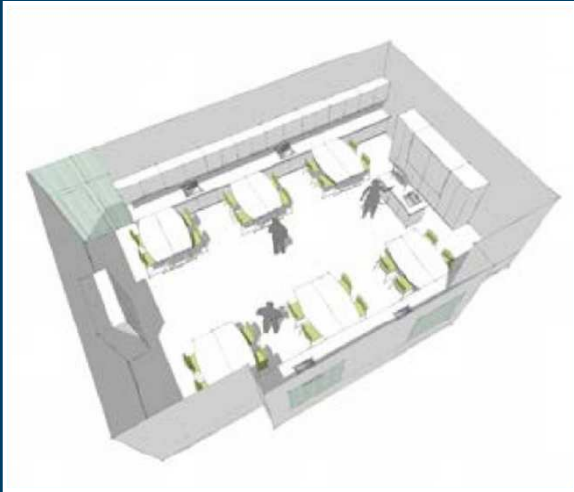


New Flexible Classrooms include Creative Furniture layouts and alternative wall conditions

Flexible Classroom



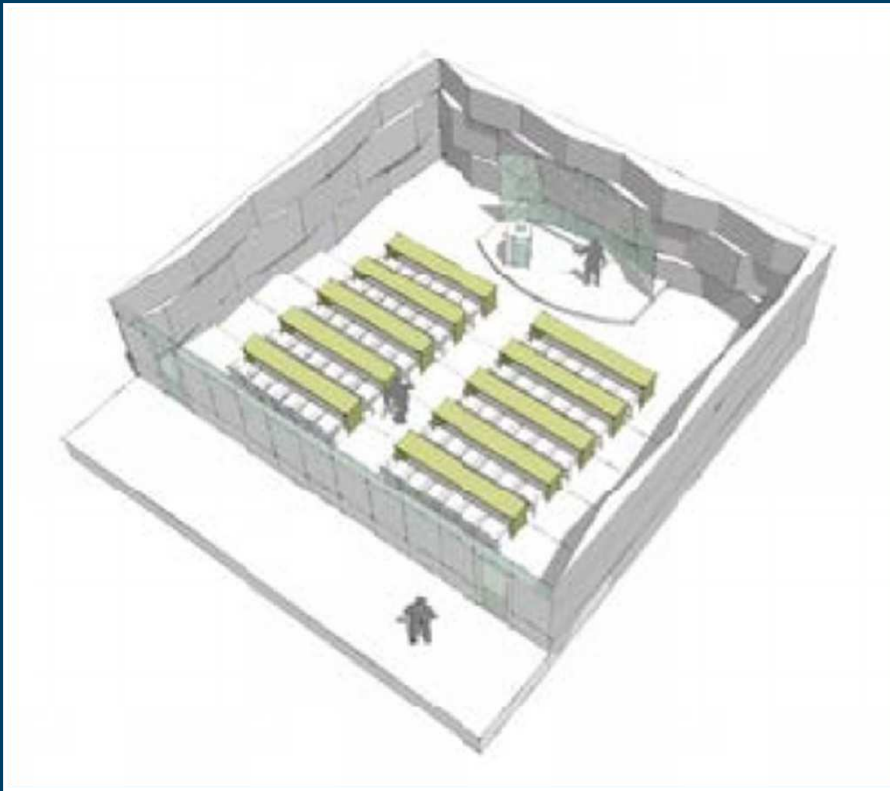
Traditional labs become more flexible



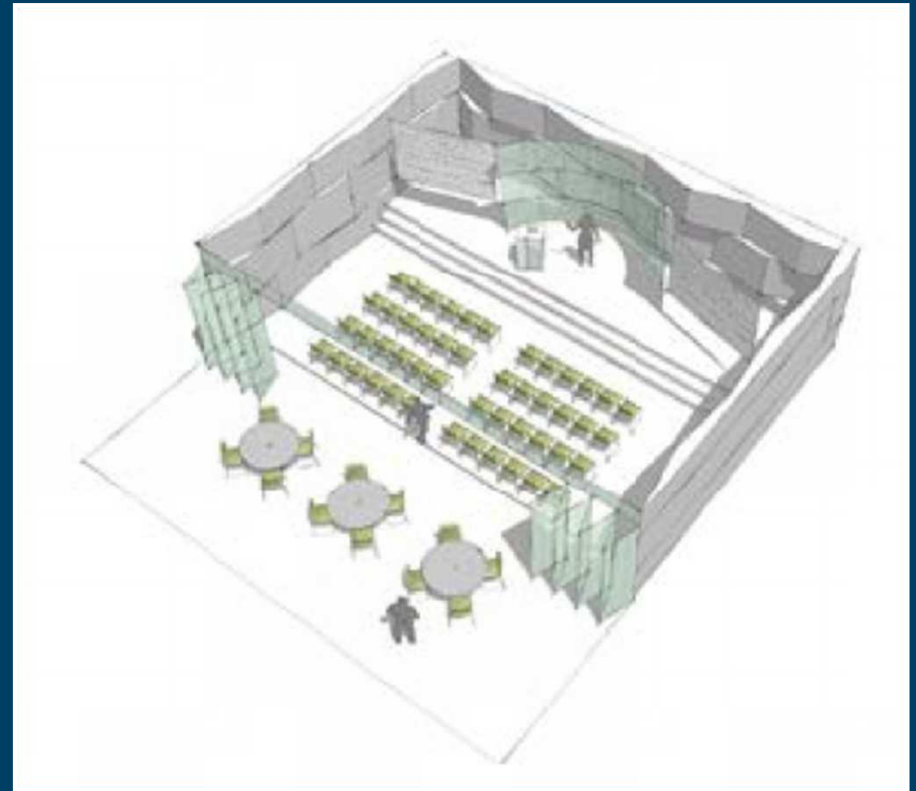
“Maker’s Spaces” added to the Program



Lecture Halls become Learning Theaters

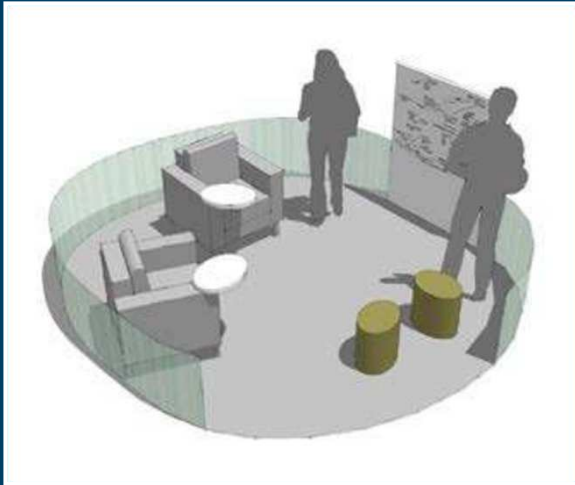


Traditional Lecture Hall



Lecture Hall transformed

Breakout and Collaboration – Smaller Scale



Breakout and Collaboration – Larger Scale



Outdoor spaces for teaching and study



Outdoor spaces for teaching and study



Traditional school plan layouts are typically Linear



Sandy Grove Middle School follows a traditional arrangement of spaces along a circulation path.



Typical double loaded corridor at Sandy Grove

Traditional school plan layouts are typically Linear



Special program spaces are treated pretty much the same as all the others arranged along the line.



Traditional linear arrangement was modified.



The floor plans for the **New Middle Schools** evolved into a “hybrid” scheme. Special program spaces were moved to the interior and the scheme became more Centralized. Giving the special spaces more prominence by making them central to the scheme “re-assigned” their priorities architecturally and was in keeping with the spirit of the new Guidelines.













Traditional linear arrangement was modified.



The floor plans for the **New Elementary School** also evolved into a “hybrid” scheme. Special program spaces were again moved to the interior and the scheme became more Centralized.







Sustainability and Renewable Energy



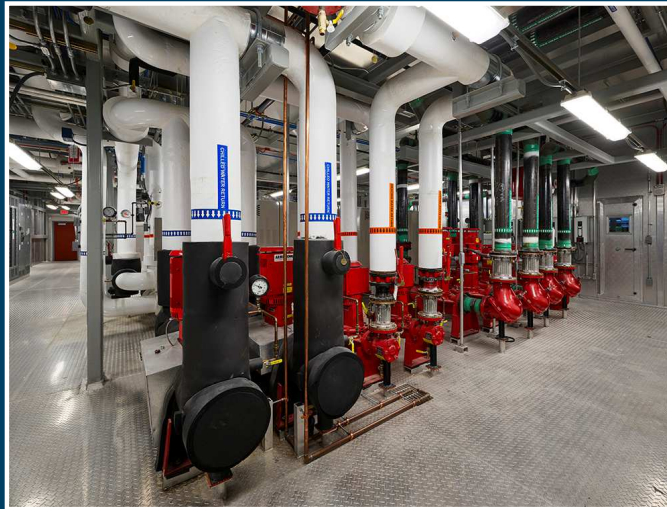
Pre-Manufactured Central Energy Plant



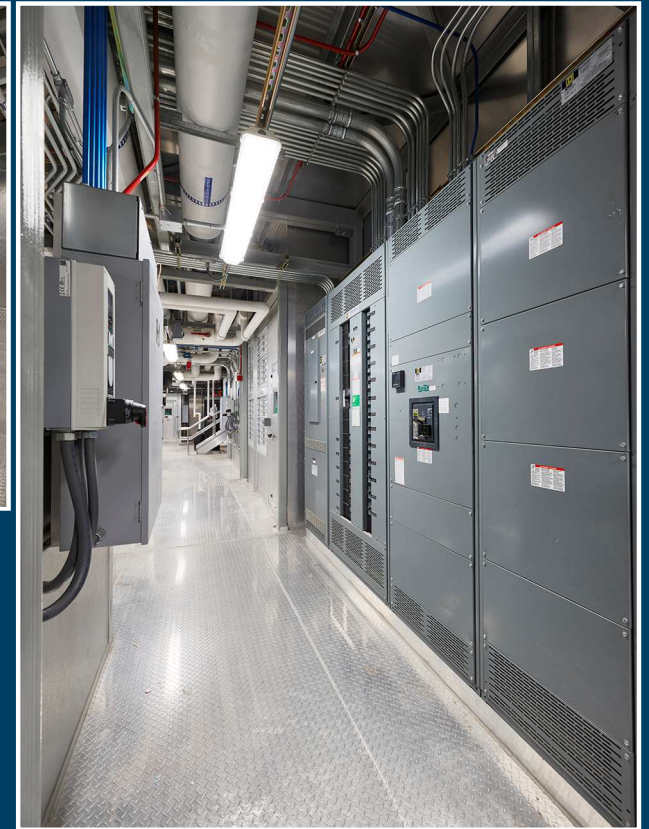
Pre-Manufactured Central Energy Plant



Air Handlers



Pumps



Electrical and Controls Panels

Energy Wise Clubs facilitate Engagement



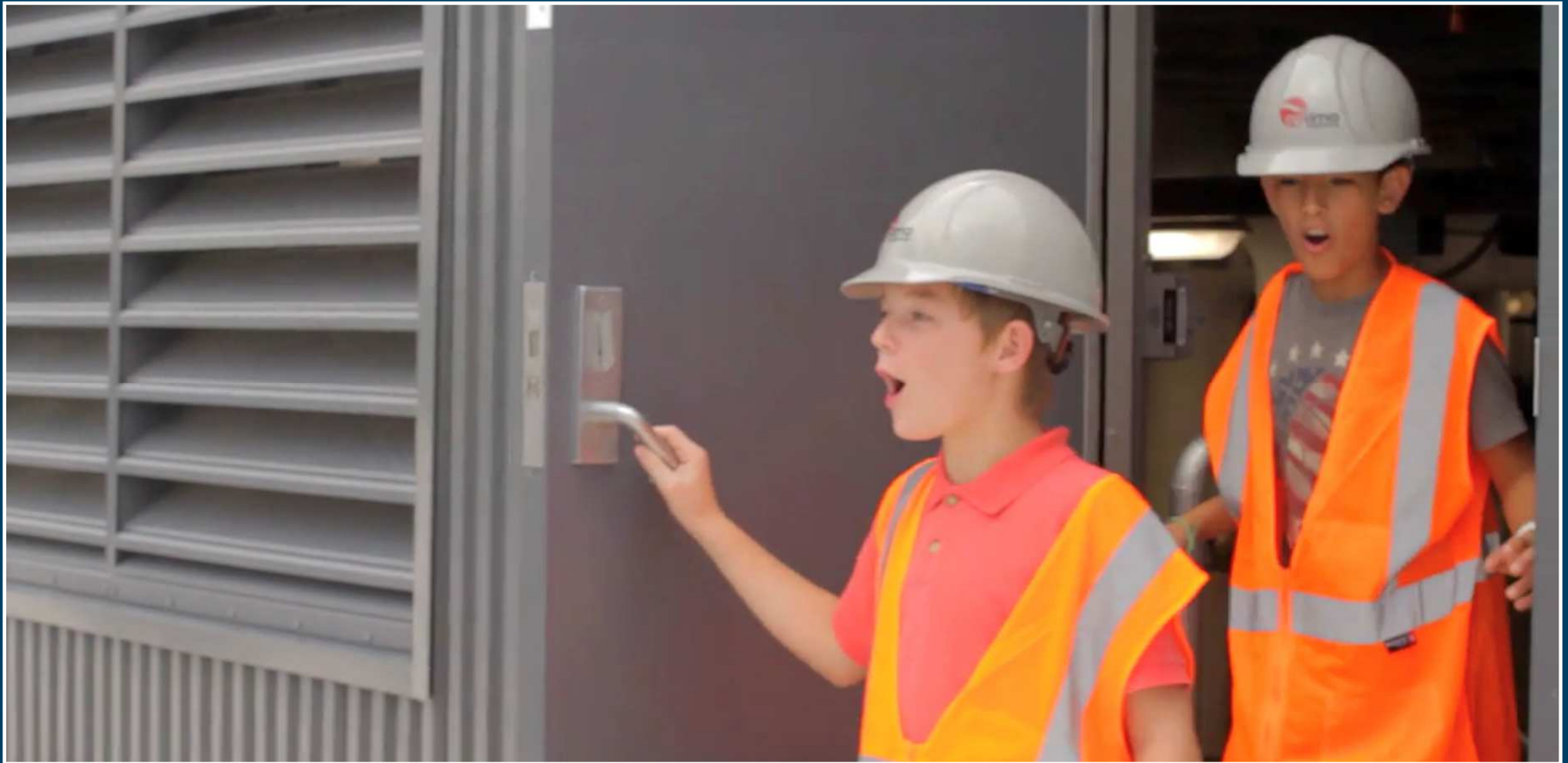
ENERGYWISE



Energy Wise Clubs facilitate Engagement



Energy Positive is Discovery



Solar Panels produce Renewable Energy



Solar Arrays at Saint James Intermediate



Solar Panel Installation



Green Power supports Community Engagement



Engagement leads to...

- Engaged students are 2.5 times more likely to say that they get excellent grades and do well in school, and they are 4.5 times more likely to be hopeful about the future than their actively disengaged peers.
- Employee engagement has been linked to a wide range of workplace outcomes. Specific to schools, teacher engagement has a strong relationship to both absenteeism and employee turnover, and is a key driver of student engagement.

Tim Johnson, Gallup Education.. <https://www.gallup.com/education/244022/school-engagement-talk.aspx>

Socastee Elementary School



Substantial Completion:
August 2017

Project Duration:
1 year, 8 Months

Building Area:
137,955 SF

Student Capacity:
916

Cost per SF:
\$286.00

Delivery Method:
Architect Led Design-Build

Saint James Intermediate School



Substantial Completion:
August 2017

Project Duration:
1 year, 8 Months

Building Area:
170,784 SF

Student Capacity:
1,200

Cost per SF:
\$260.00

Delivery Method:
Architect Led Design-Build

Ten Oaks Middle School



Substantial Completion:
August 2017

Project Duration:
1 year, 8 Months

Building Area:
170,784 SF

Student Capacity:
1,200

Cost per SF:
\$252.00

Delivery Method:
Architect Led Design-Build

Myrtle Beach Middle School



Substantial Completion:
December 2017

Project Duration:
1 year, 9 Months

Building Area:
170,784 SF

Student Capacity:
1,200

Cost per SF:
\$250.00

Delivery Method:
Architect Led Design-Build

Socastee Middle School



Substantial Completion:
April 2018

Project Duration:
1 year, 6 Months

Building Area:
150,606 SF

Student Capacity:
800

Cost per SF: *
\$269.00

Delivery Method:
Architect Led Design-Build

Sandy Grove Middle School





President John F. Kennedy was visiting NASA headquarters for the first time in 1961. While touring the facility, he introduced himself to a janitor who was mopping the floor and asked him what he did at NASA
"I'm helping to put a man on the moon!"

The janitor got it. He understood the vision, his part in it, and he had purpose.

Contact Information



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