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architecture
+
Greenville County Schools

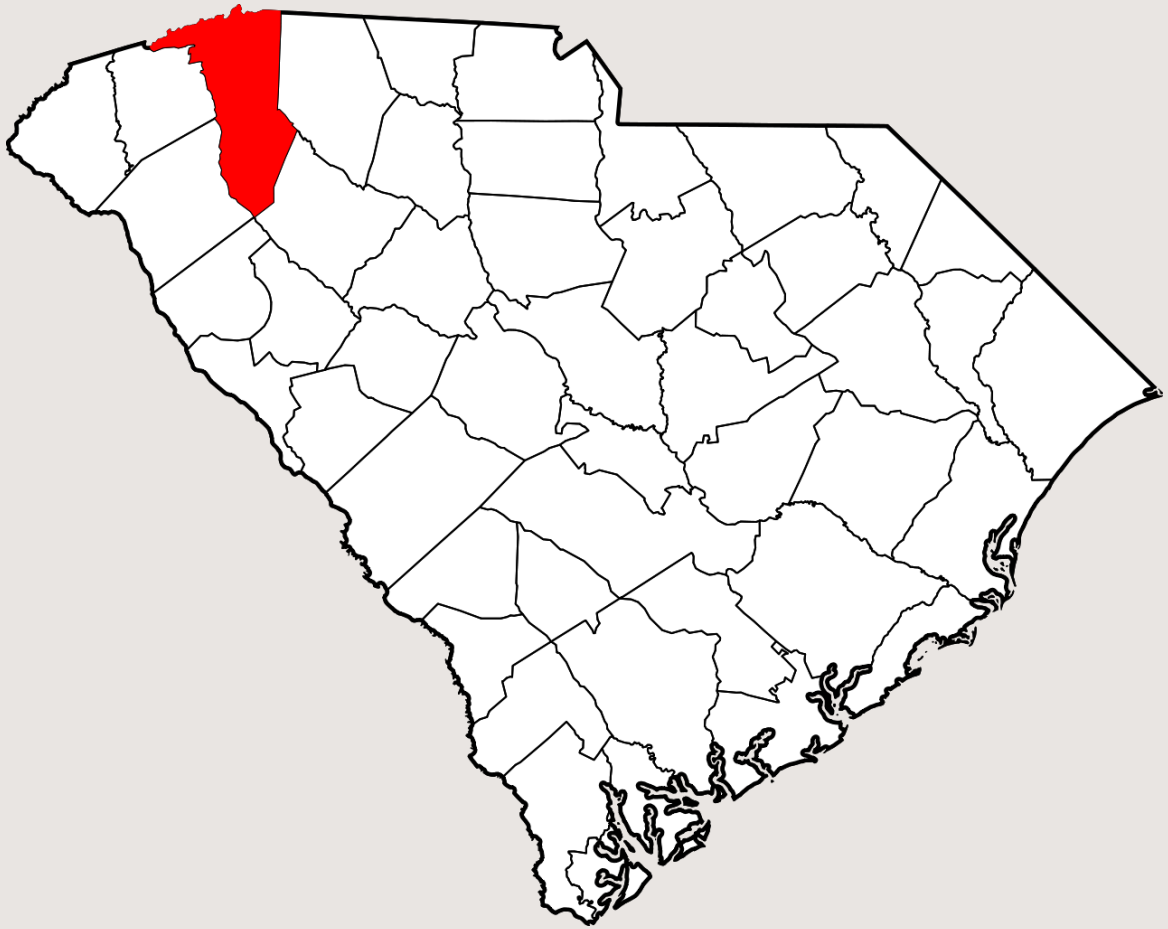
Transformation in the 21st Century

Evolving With the Times:

Planning and Design
in Support of Project Based Learning

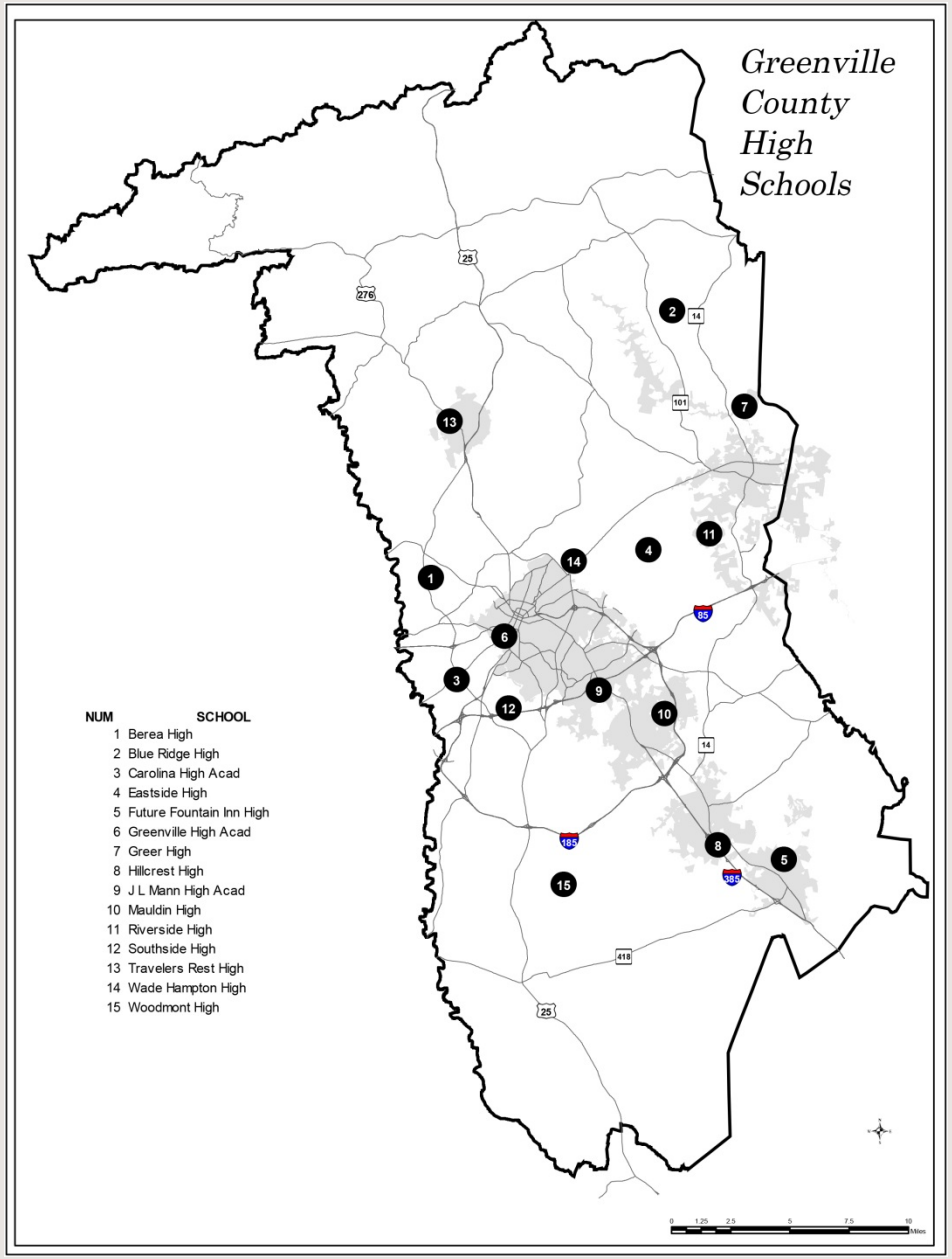
Greenville County Schools

- 46th Largest District in the US
- Student Enrollment of 72,712
- 49% Free and Reduced
- Transient Student Population



Planning for Growth

- 10 Year Growth:
  - +8,750 Students
  - +11,100 with GCS Charters
- GCS Charter Schools:
  - 6 schools with 2,898 enrolled
- School Choice = 15%
  - But, with Charters = 18%



Long Range Facilities Plan and Capital Improvement Program

- 70 Schools in 6 years = $1 Billion in Construction Cost
- Project #70: A.J. Whittenberg Elementary School of Engineering
  - Opened August 2010
  - Dedicated Project Based Learning Environment

Continued Additions / New Schools

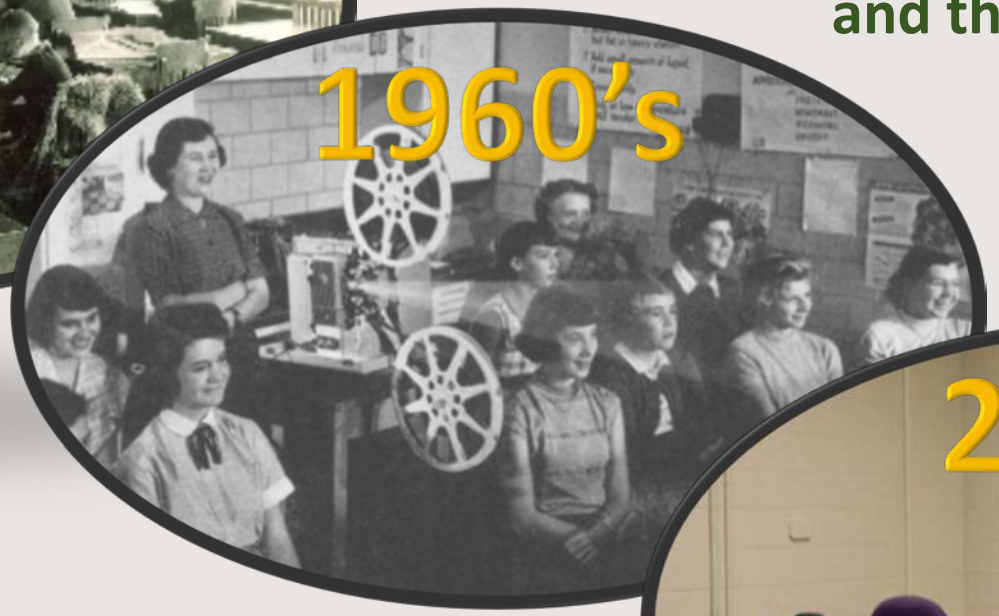
- August 2012 – Superintendent's Leadership Retreat
  - Cultivate and Identify – Standup and Speak
- Monarch Elementary
  - Relief School
  - Opened August 2012
  - Health Science Focus
- Dr. Phinnize J. Fisher Middle School
  - Relief School
  - Opened August 2014
  - Designed for STEAM Project Based Learning

Fisher Middle School Population Plan

- Small, Higher-poverty Attendance Area
- Students from 5 Largest Middle Schools get Priority Choice
- Other Projects:
  - Renovation/Addition for Two “New Tech” High Schools
  - New High School to Open August 2021

Essential Questions

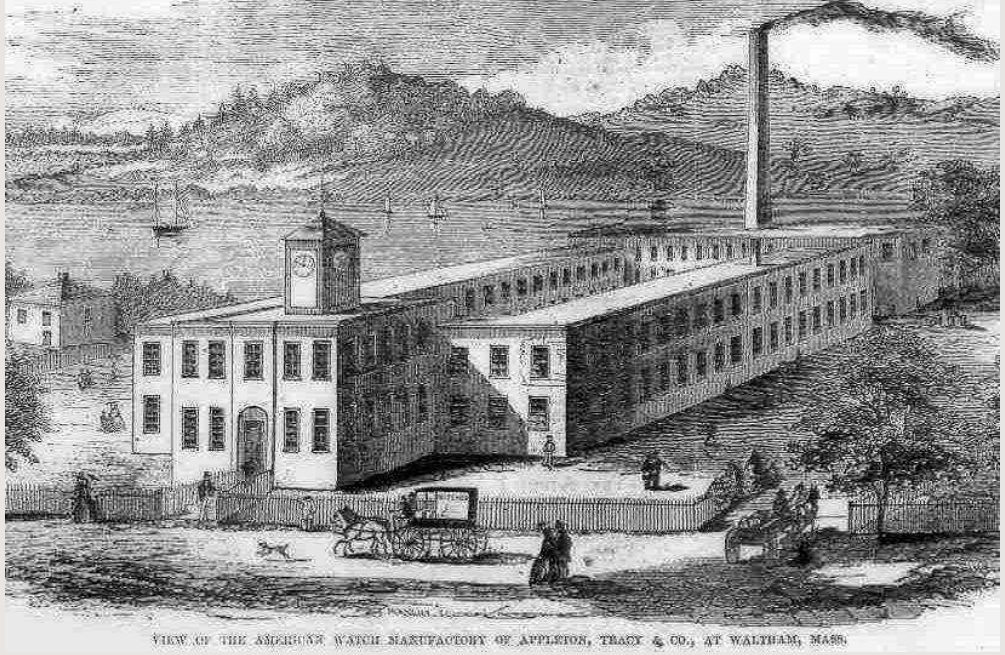
- What should school look like in the 21st Century?
- How do we maximize the physical building in order to support teaching and learning?
- How do effectively prepare students for a 21st Century workplace where soft skills are just as important as knowledge?



Teacher and Student roles have changed very little since the beginning of organized education

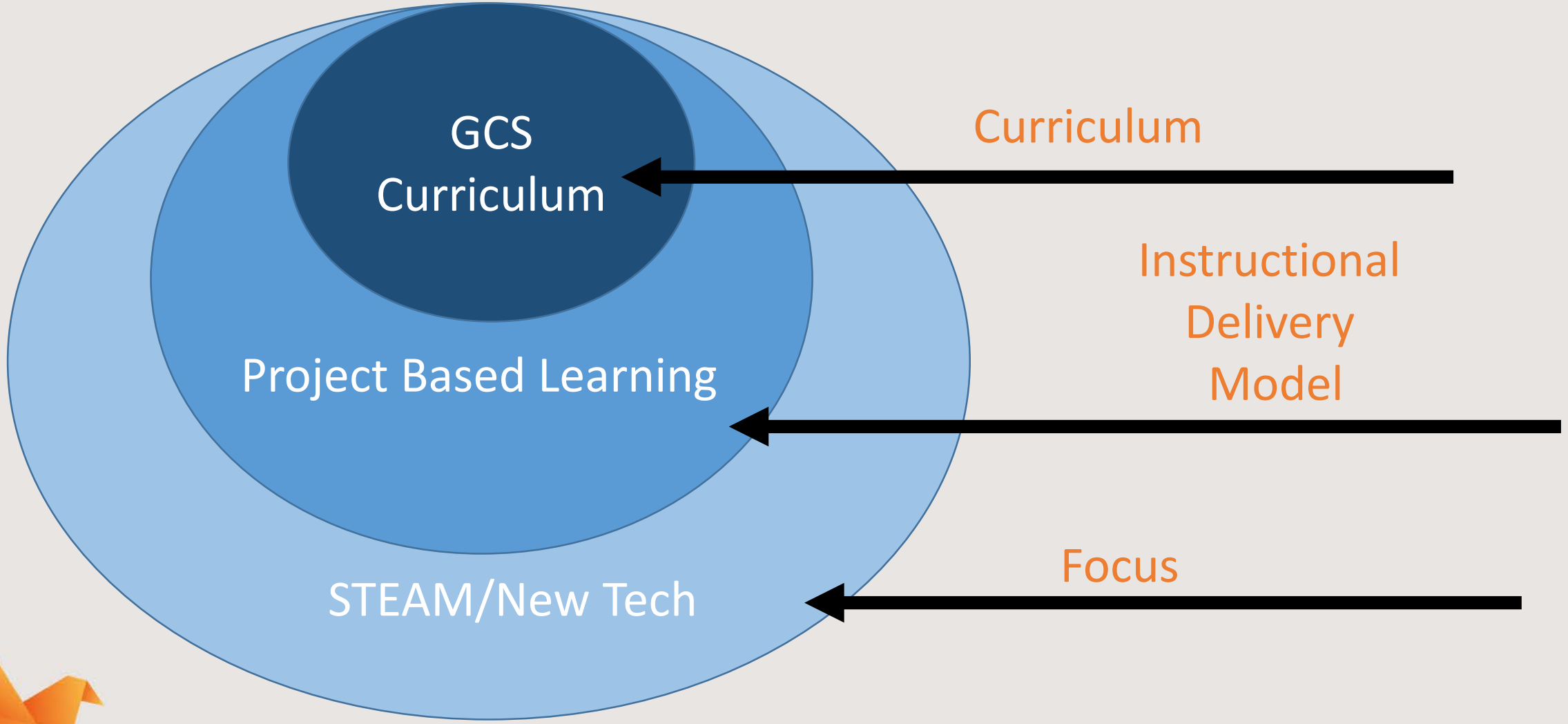
From the beginning, the teacher's role has been active and the student's role has been passive

Change Happens



VIEW OF THE AMERICAN WATCH MANUFACTORY OF APPLETON, TRACY & CO., AT WALTHAM, MASS.

The PBL/STEAM Framework



Project Based Learning Initiatives

Elementary

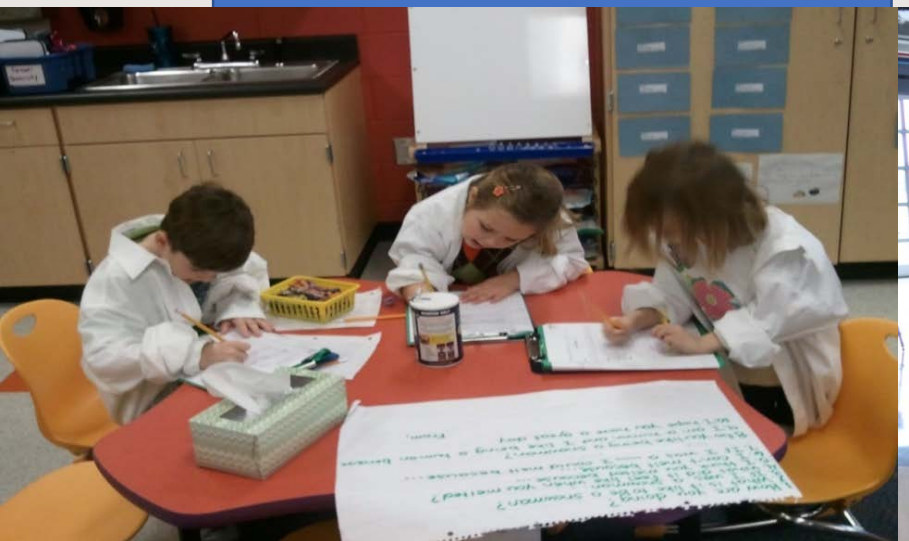
- AJ Whittenberg
- Monarch

Middle

- Sevier
- Hughes
- Sterling
- Fisher
- Early College

High

- Carolina
- JL Mann



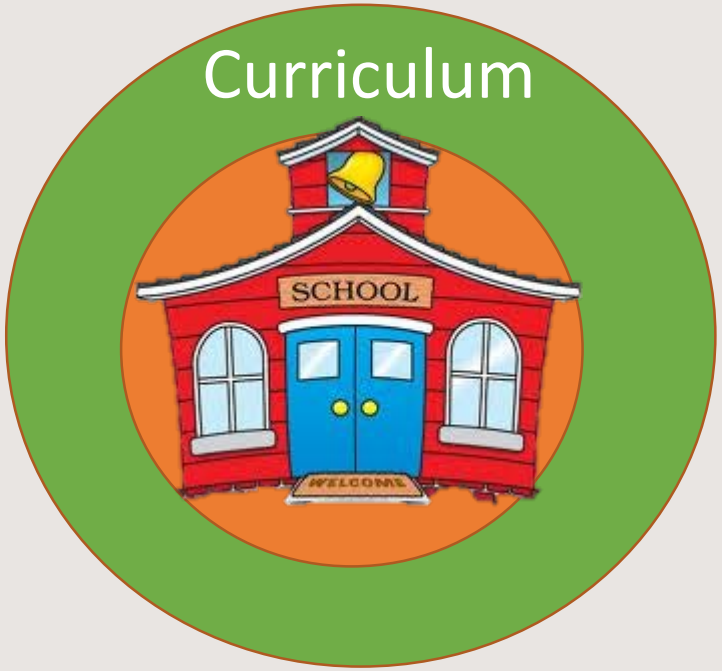
Project Based Learning Essentials

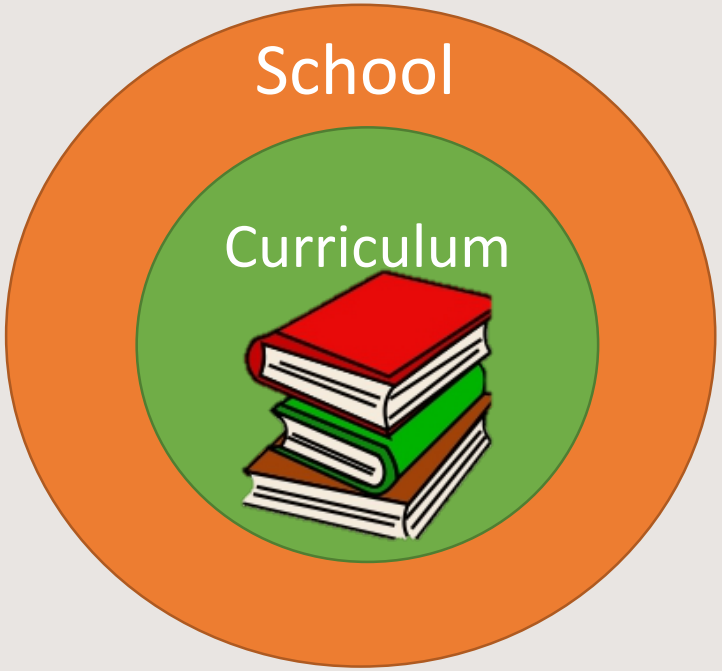
- Significant Content
- Critique and Revision
- A Need-to-Know
- Student Voice & Choice
- 21st Century Proficiencies
- Inquiry
- Driving Question(s)
- Public Audience

Disrupting the Status Quo

- Concept meetings with Clemson University in 2011 to discuss initial STEAM concept school
- Academics Division included on the planning team from the onset of the design process
- Planning team (facilities, academics & Fielding Nair) met with McMillan Pazdan Smith to design the school around the curriculum

Bringing Innovation to the Design Process





Traditional **vs.** **Innovative**

We must adapt…

Innovation

Creativity

Communication

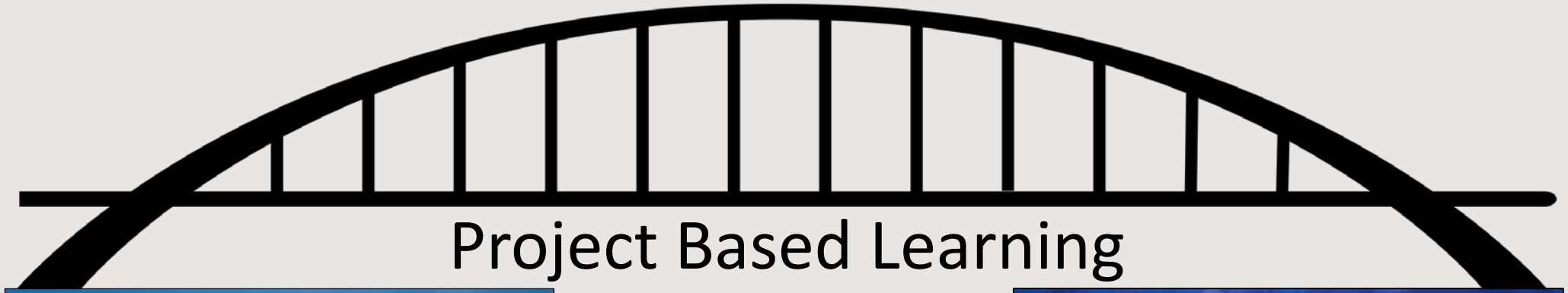
Collaboration

Critical Thinking

STEM + Arts = STEAM

Project Based Learning

Buildings that Support Learning



Fisher Middle

STEAM Focused

JL Mann Academy

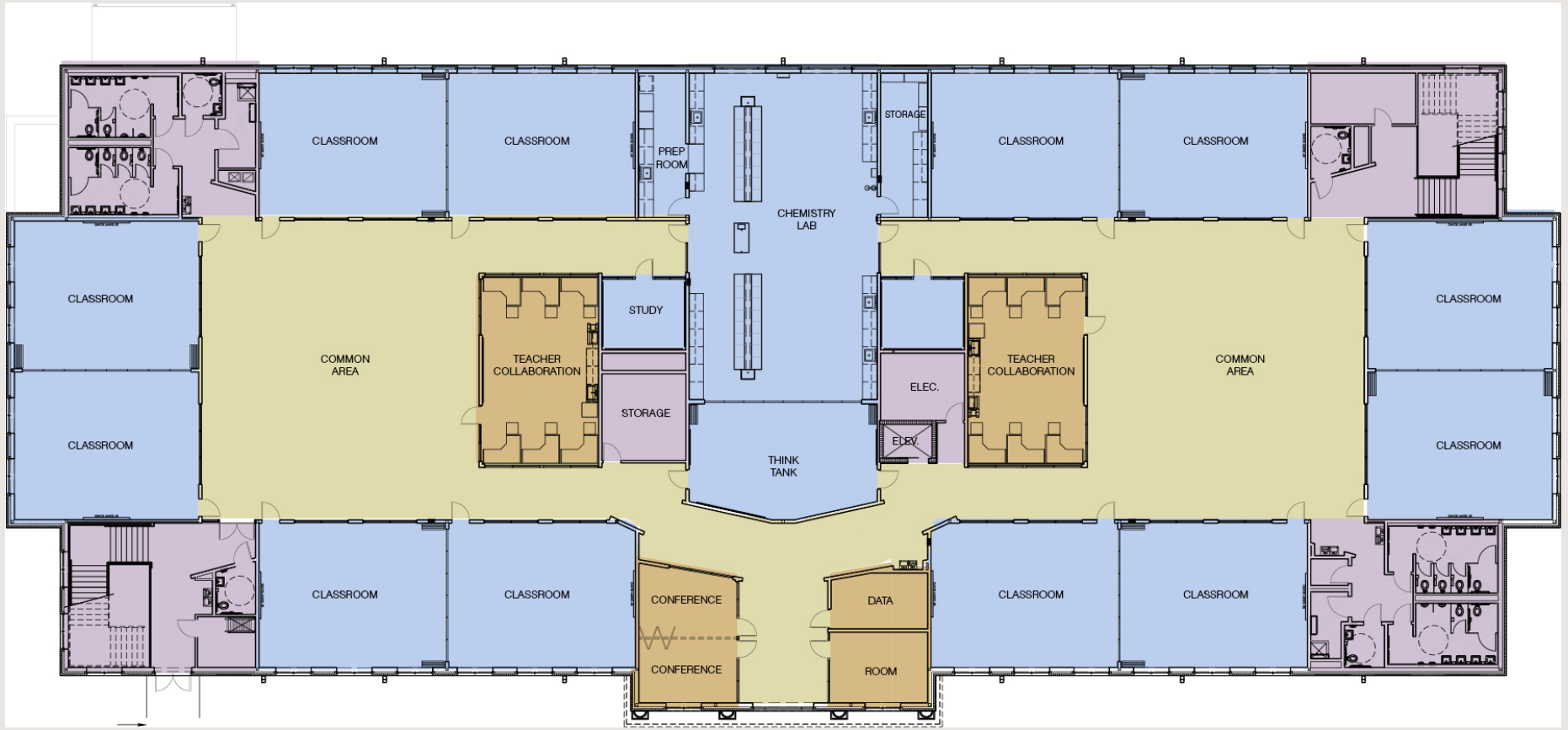
New Tech High School

New Tech Schools

- Greenville Early College
- JL Mann – school within a school
- Carolina – whole school implementation

New Tech Network

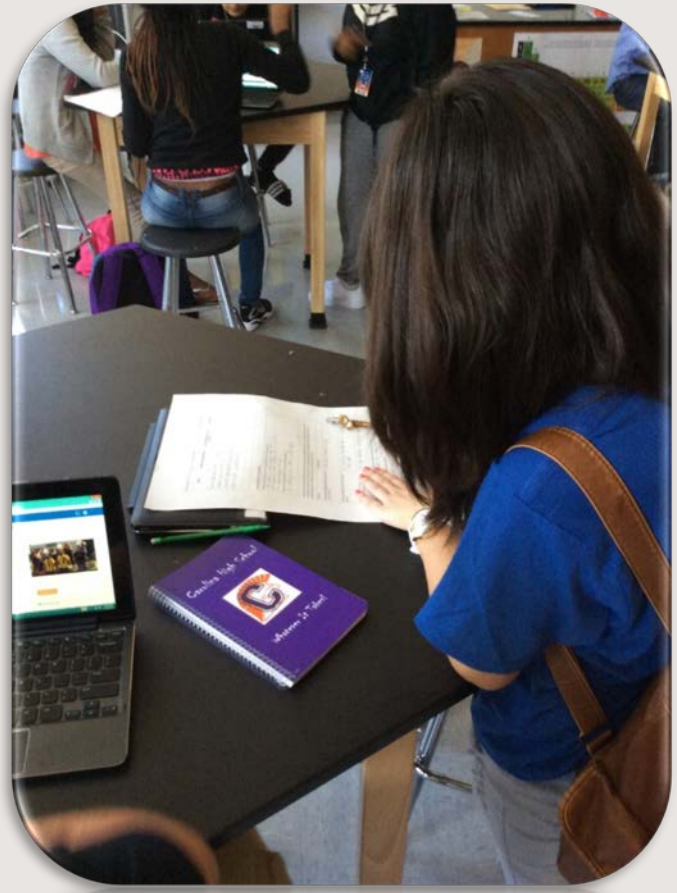
New Tech Schools – JL Mann



STORAGE
CLASSROOM
CLASSROOM
CHEMISTRY LAB
CLASSROOM
TEACHER COLLABORATION
COMMON AREA
ELEC.
ELEV.
THINK TANK
CLASSROOM
CLASSROOM
ERENCE
DATA
CLASSROOM
CLASSROOM
ERENCE
ROOM

Strong Focus on Course Connections

- Combined courses/classes to maximize real-world, problem-based learning opportunities
  - World Biology (World History and Biology)
  - Quantitative Thinking (Physical Science and Algebra 1)
  - Scientific Modeling (Algebra 2 and Chemistry)
  - Everyday Mechanics (Pre-Calculus and Physics)
  - Animania (English 4 and Foundations of Animation)
- Increased dual credit opportunities

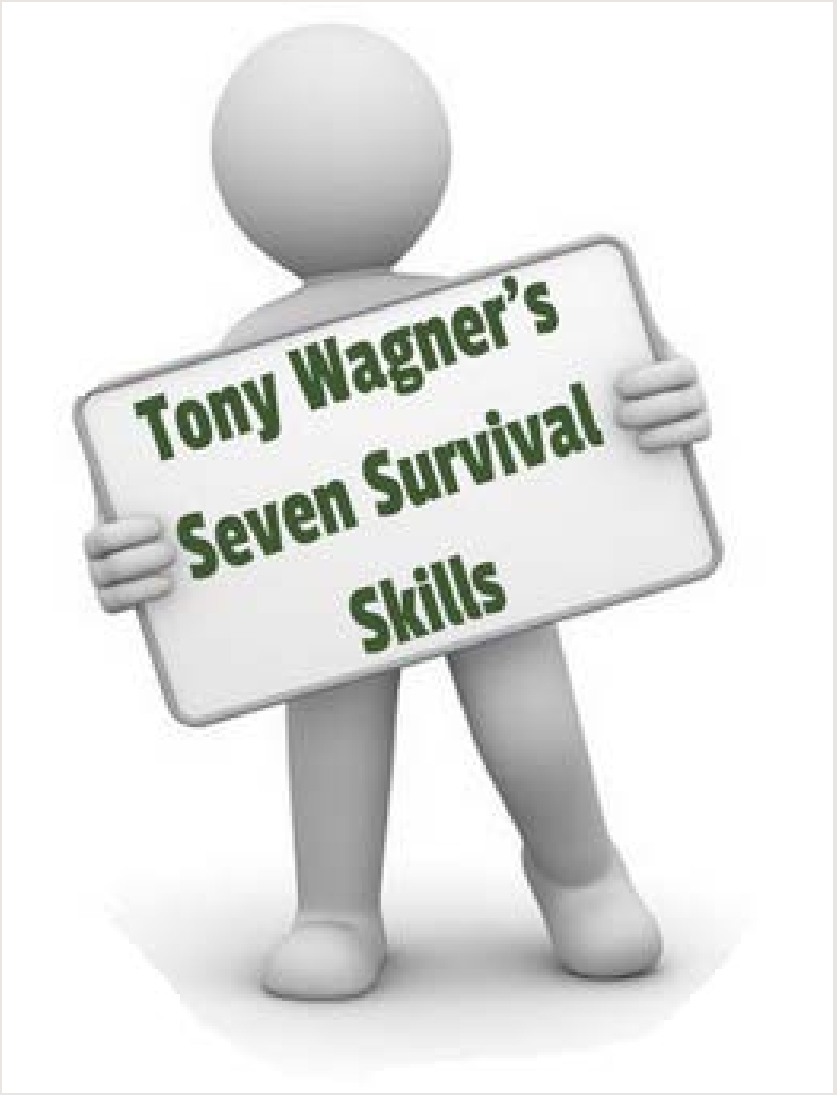


Why STEAM & Project Based Learning?

- Focused on integrating skills and concepts students will need for **21st Century Careers**
- Students participate in **high interest, real-world problems** tied to state standards
- Students take responsibility of their learning through various projects
- Students gain valuable experience in the **21st Century Skills**, critical for success in a technology-centered world
- Students interact with business professionals as they solve real world problems

Why STEAM & Project Based Learning?

- Students interact with businesses to solve real world problems



1. CRITICAL THINKING AND PROBLEM SOLVING
2. COLLABORATION ACROSS NETWORKS AND LEADING BY INFLUENCE
3. AGILITY AND ADAPTABILITY
4. INITIATIVE AND ENTREPRENEURSHIP
5. EFFECTIVE ORAL AND WRITTEN COMMUNICATION
6. ACCESSING AND ANALYZING INFORMATION
7. CURIOSITY AND IMAGINATION

COLLABORATION ACROSS NETWORKS AND LEADING BY INFLUENCE

"The biggest problem we have in the company as a whole is finding people capable of **exerting leadership** across the board…Our mantra is that you lead by influence, rather than authority."

— Mark Chandler, Senior Vice President and General Counsel at Cisco

AGILITY AND ADAPTABILITY

"I've been here four years, and we've done fundamental reorganization every year because of changes in the business…I can guarantee the job I hire someone to do will change or **may not exist in the future**, so this is why **adaptability** and **learning skills** are more important than **technical skills**."

—Clay Parker, President of Chemical Management Division of BOC Edwards

CURIOSITY AND IMAGINATION

"Our old idea is that work is defined by employers and that employees have to do whatever the employer wants…but actually, you would like him to come up with an interpretation that you like—he's adding something personal—a **creative element**."

—Michael Jung, Senior Consultant at McKinsey and Company

How do you Design a Building to Support…

Innovation

Collaboration

Creativity

Communication

Critical Thinking

Engagement

Key Design Elements to Support the Curriculum

- What makes Fisher unique?
  - How the learning takes place.
  - Where the learning takes place.

Key Design Elements to Support the Curriculum

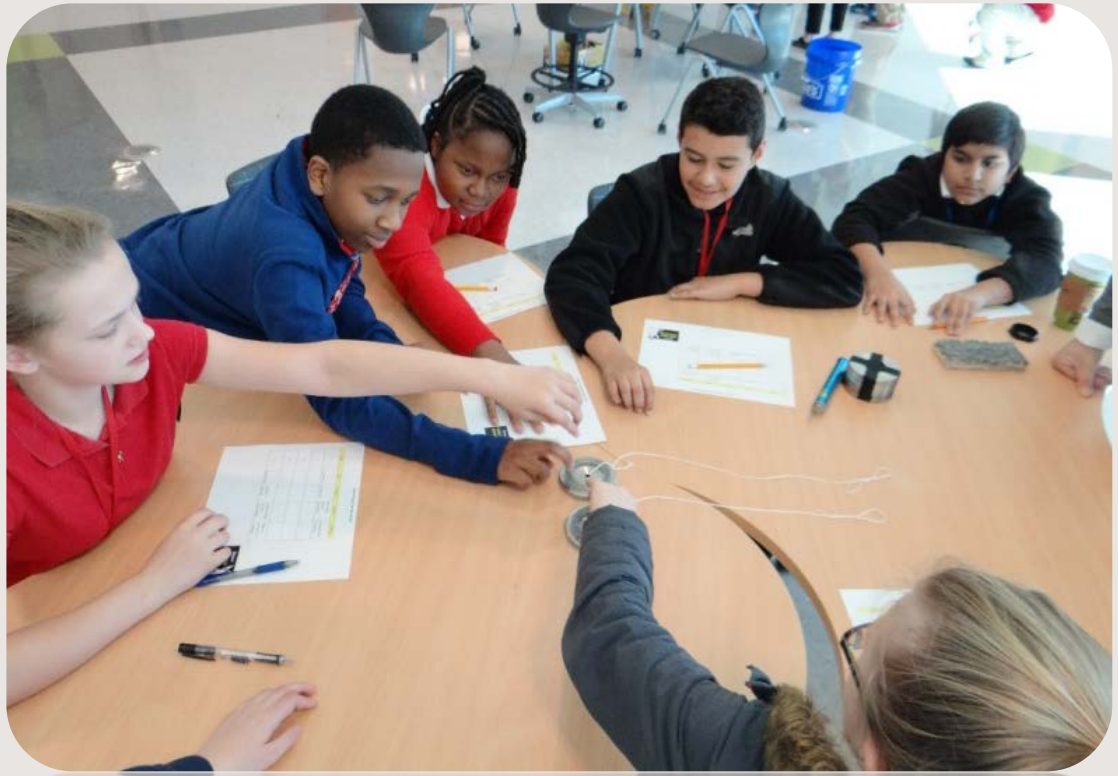
- Open spaces for maximum **collaboration,** including Collaboration Room for teachers
- Differentiated learning spaces to accommodate **Project-Based Learning & STEAM** focus
- Building designed as a **learning tool**
- Learning Spaces to **support 21st Century skills**
  - Digital Storytelling Lab
  - Piano Keyboarding/Composition Lab
  - Innovation Lab
  - Project/Prototype galleries

Key Design Elements to Support the Curriculum

- The building is divided into three learning communities per floor: Blue, Red, Green.

Key Design Elements to Support the Curriculum

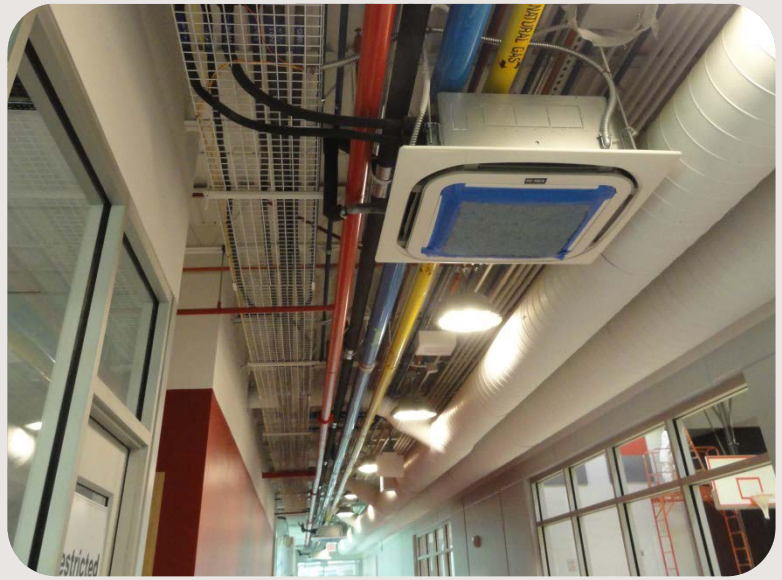
- Each student community has its own Math, English, Science, and Social Studies teachers.

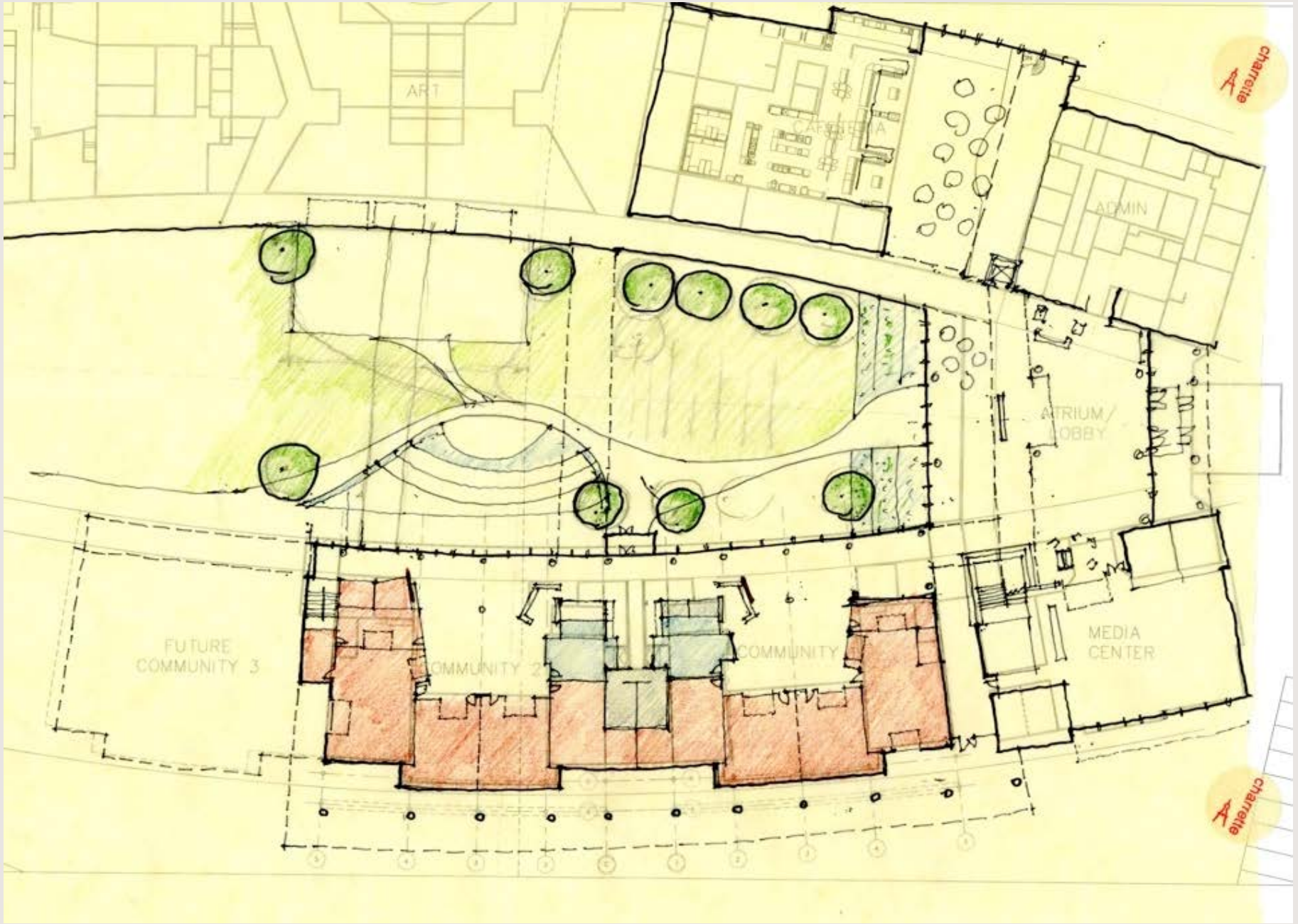


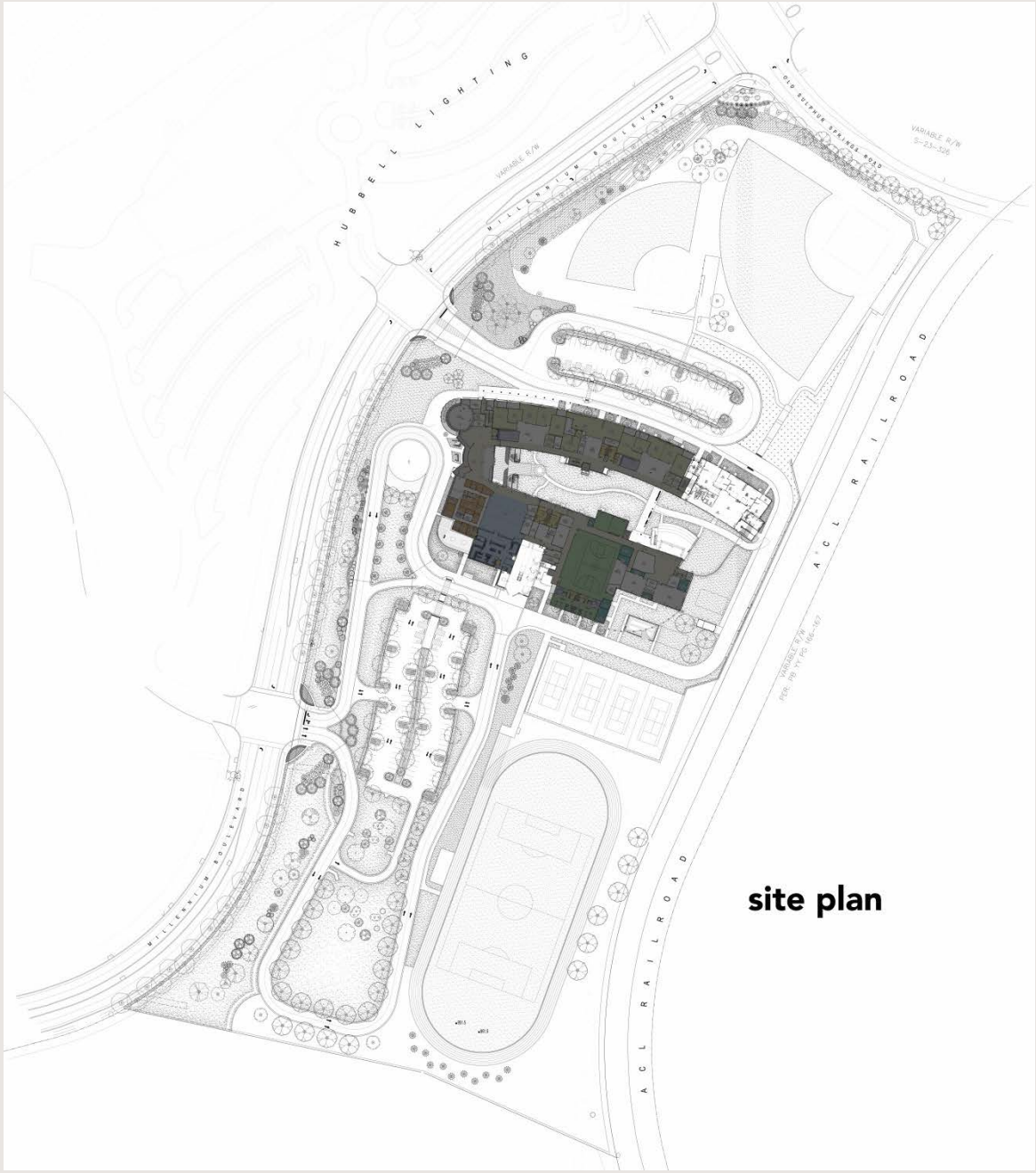
Key Design Elements to Support the Curriculum

- Each community includes:
  - Two learning studios
  - One STEAM studio
  - One seminar room
  - One common area
  - Two small group rooms
- Each floor contains a specialized learning lab and a prototype gallery for displaying student work.

Building as a Teaching Tool




ART
ADMIN
ATRIUM / LOBBY
FUTURE COMMUNITY 3
COMMUNITY
MEDIA CENTER
Charlotte
Charlotte


HUBBELL LIGHTING
MILLENNIUM BOULEVARD
OLD SULPHUR SPRINGS ROAD
ACL RAILROAD
ACL RAILROAD

site plan

overall first floor plan

Transformation in the 21st Century: McMillan Pazdan Smith + Greenville County Schools

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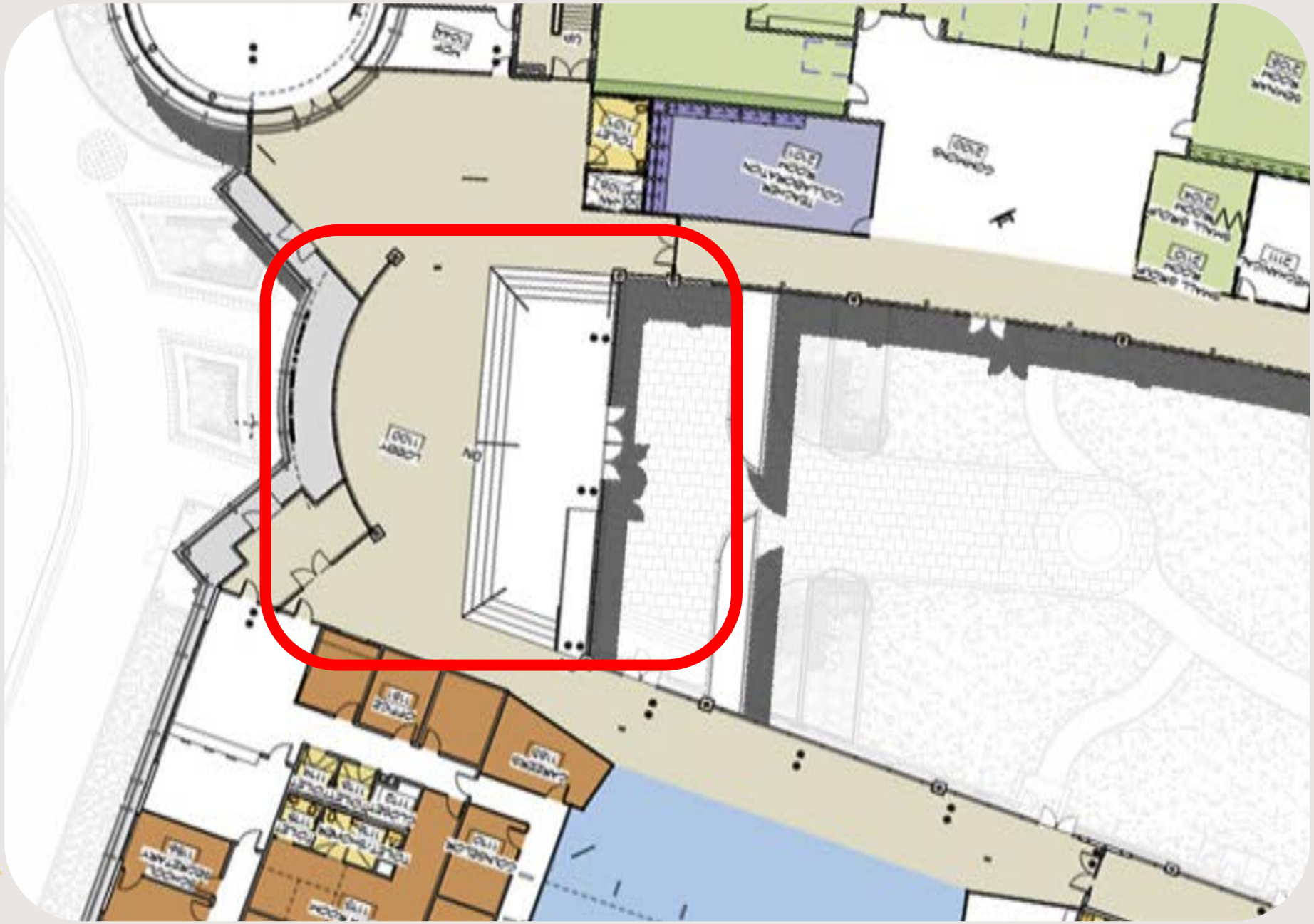
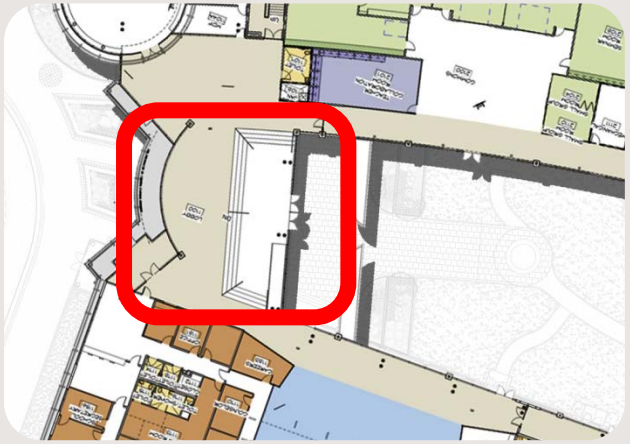
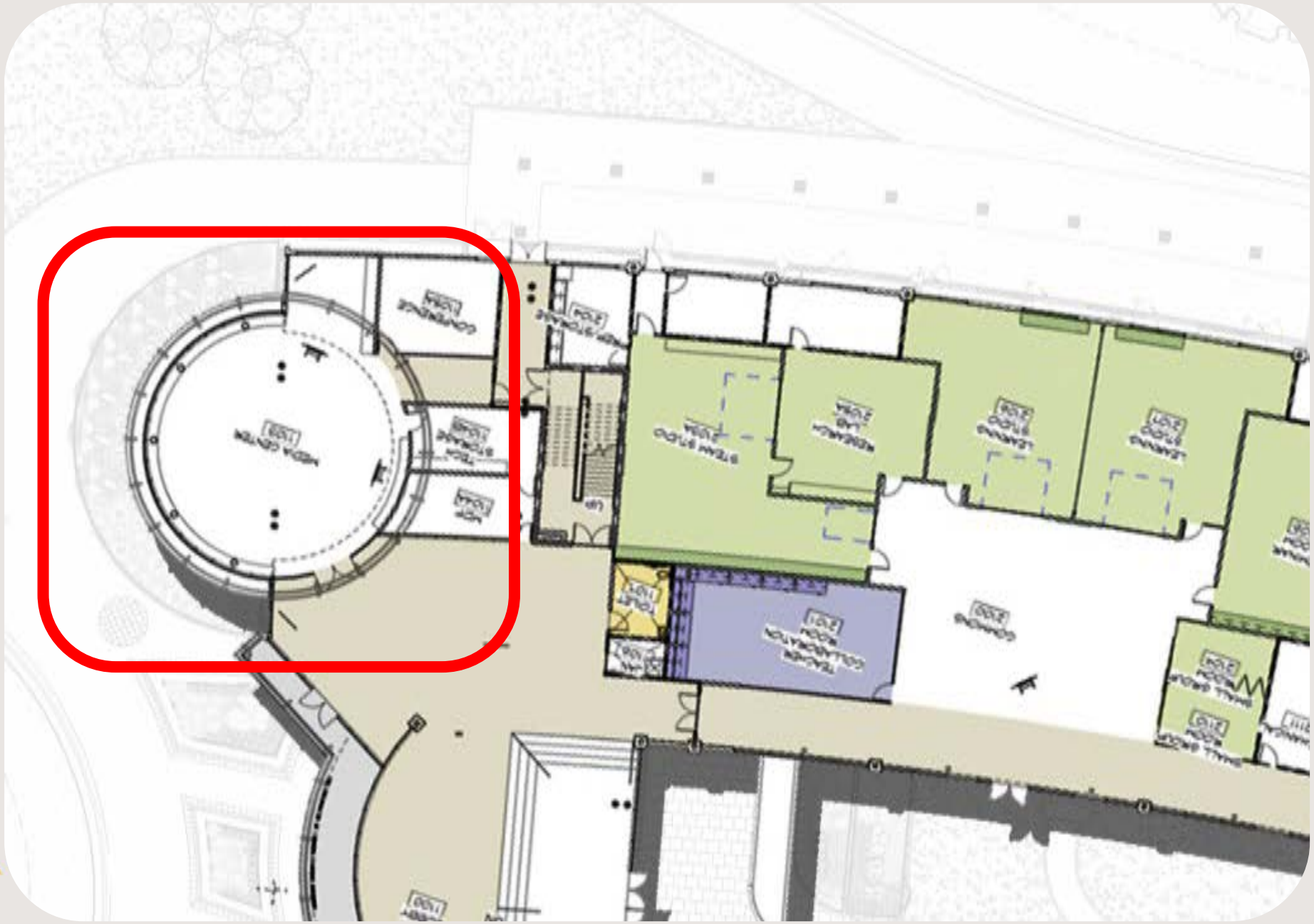
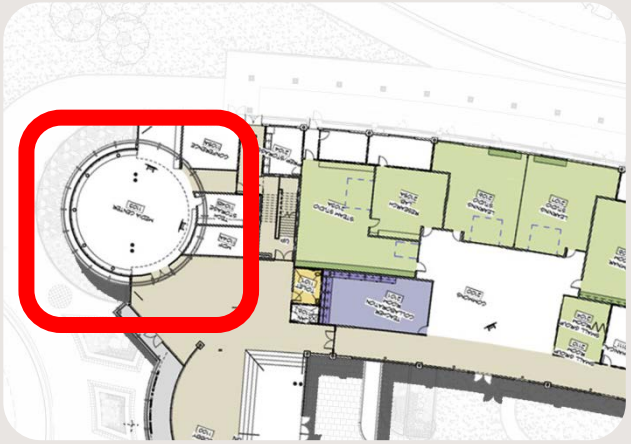
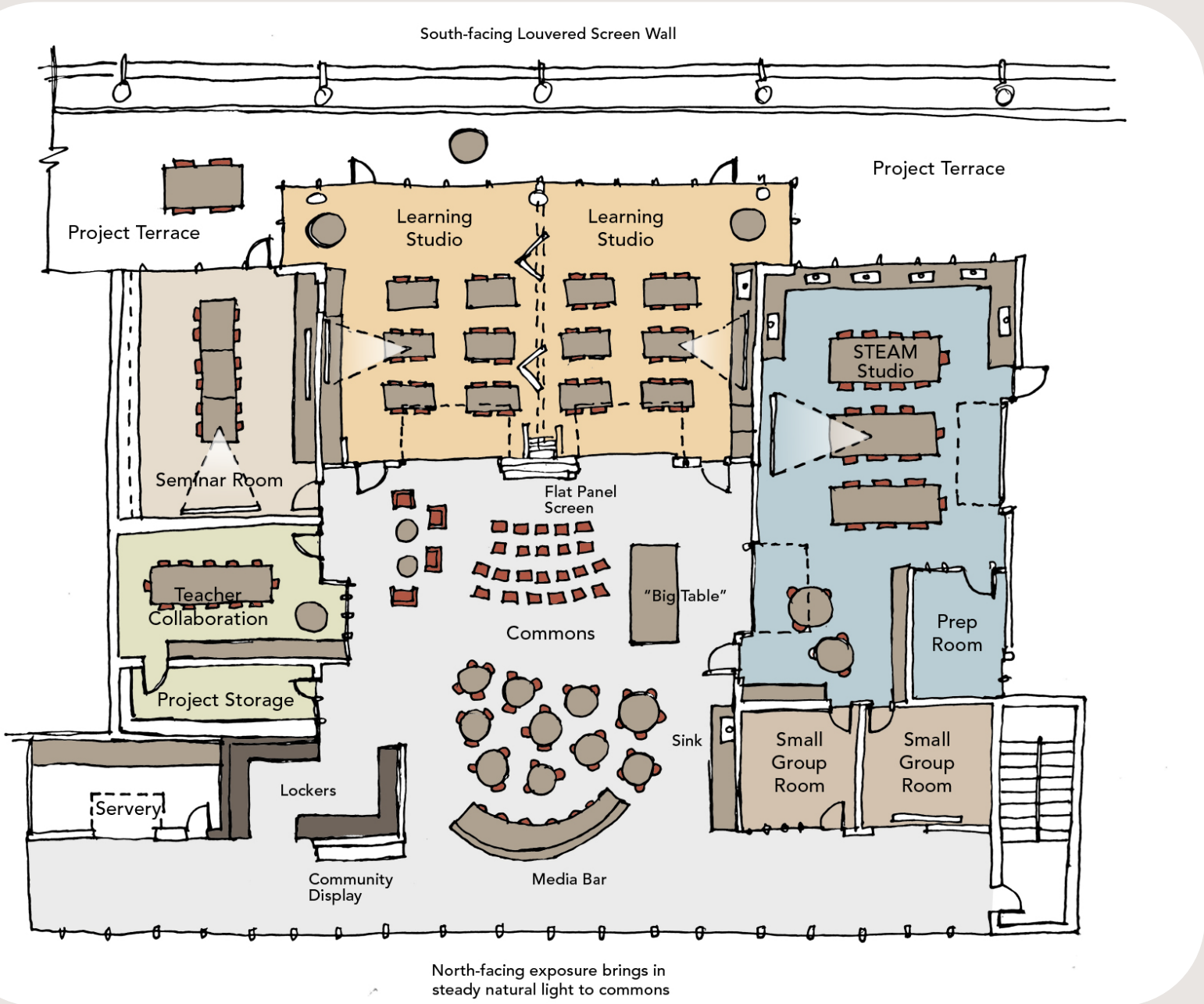
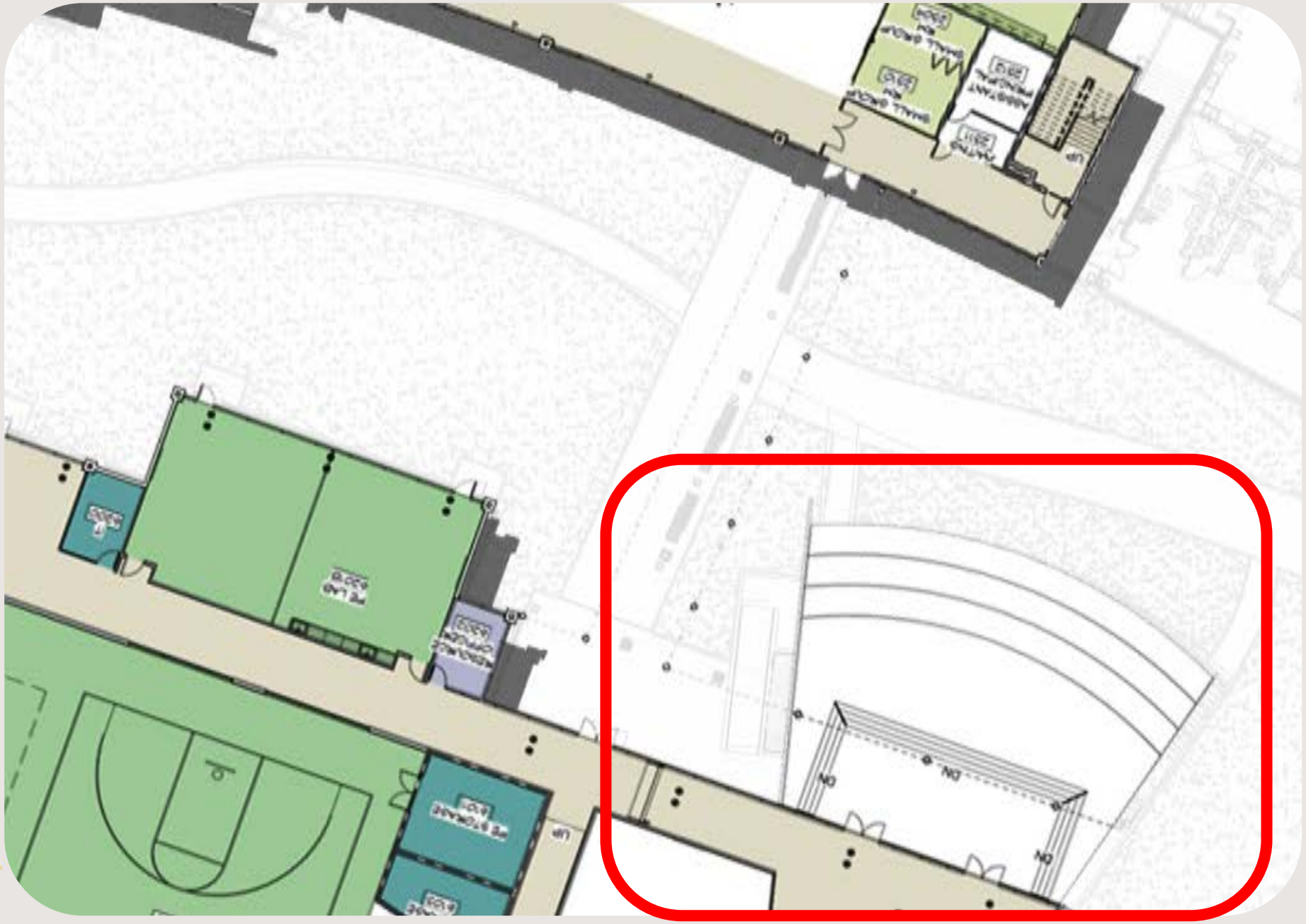


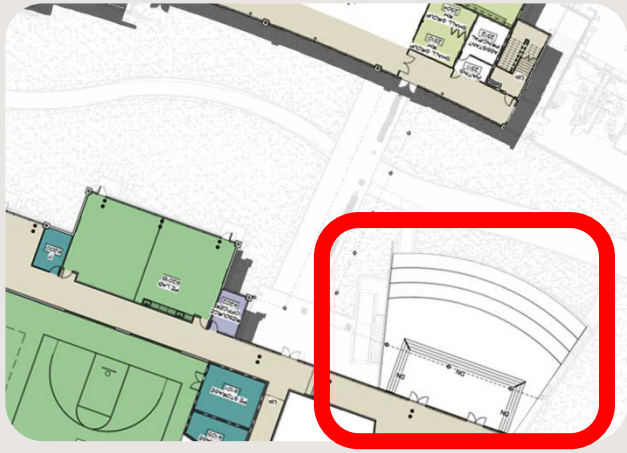







South-facing Louvered Screen Wall
Project Terrace
Project Terrace
Learning Studio
Learning Studio
STEAM Studio
Seminar Room
Flat Panel Screen
Teacher Collaboration
"Big Table"
Commons
Prep Room
Project Storage
Sink
Small Group Room
Small Group Room
Lockers
Servery
Community Display
Media Bar
North-facing exposure brings in steady natural light to commons





Fisher's goal is to involve each and every child in "hands on" learning every single day.

"Tell me and I forget, teach me and I remember, involve me and I learn.

- Benjamin Franklin

Full STEAM Ahead!

Transformation in the 21st Century: McMillan Pazdan Smith + Greenville County Schools

? Questions