Designing School Community: Changing Inner-City Middle School Culture Through Interiors

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DESIGNING SCHOOL COMMUNITY
Changing Inner-City Middle School Culture Through Interiors

Rachel Ramey
MFA with a Concentration in Interior Environments
May 2018
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A thesis submitted in partial fulfillment of the requirements for the Degree of Master of Fine Arts at Virginia Commonwealth University.

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B.F.A. - Communication Arts
Virginia Commonwealth University, 2012
M.F.A. - Interior Environments
Virginia Commonwealth University, 2018

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When I first decided to become an interior designer, it was because of my love for beautiful spaces. As I studied designers in the field, I realized that interior design has the power to change lives and the world we live in. I believe that design can create immense positive change in society. From designing plans to a piece of furniture, design enables people to address a problem and make a change for better or worse. I believe that design from the human mind has been the most influential tool to propel the evolution of human civilization and it is a designer’s responsibility to design with empathy for humanity and our planet as a whole.
Motivation

While the knowledge of disrepair in inner-city schools is fairly common, the impact that school facilities are having on students and faculty is not as widely known. More recently, the closing of inner-city schools has greatly increased across the United States; Reduction in public school enrollment from 2006-2013: Detroit -63%, Cleveland -32%, Indianapolis -27%, D.C. -23%, L.A. -23% etc. (Journey For Justice Alliance, 2014).

Due to budget cuts, threat of school closings from poor facility conditions, large class size, and pressure to raise test scores, inner-city schools struggle to keep teachers (Journey For Justice Alliance, 2014). Poor teacher retention along with a lack in care for educational facilities has created a toxic environment for inner-city students.

Method

In order to determine the most vital areas that need improvement, interviews with teachers, students and administration from inner-city middle schools will need to be conducted. Interviews with teachers will delve into their main day-to-day school challenges, what their ideal space would look like and what additional areas of the school they would like to utilize in the future.

Students will complete surveys rating their current school (classrooms, library, etc.), and administration will rate the current building, pros/cons from their current layout, and review their history at other schools to see if their other experiences can inform new designs.

Results

Although there are many reasons that inner-city schools suffer, negativity within school culture seems to be a common denominator within many of these problems. With larger population percentages of minority, economically disadvantaged and disabled students, difficulties arise in communicating student-to-student and teacher-to-student (Bellwether Education Partner, 2016). The question becomes, how does one design a space to provide comfort, safety and communication in order to foster healthy relationships?

Many reports on school design have found that classroom design can have one of the largest impacts on teachers and students alike. One study found that U.S. student performance could decrease 10-25% due to poor classroom design and facility maintenance (Smith, 2013). New layouts such as flexible classroom designs, have been found to positively impact students. This concept allows the teacher to change the front orientation of the classroom and allows for more student/teacher customization (Topcu, 2013). While traditional classrooms still exist, non-traditional classrooms were found to positively impact student performance in mathematics (Immso, Byers, 2017).

Another classroom design method that was found to be beneficial for the teacher is the open perimeter classroom. This leaves an open area between a line of classrooms allowing teachers to see one another in case of an emergency. In a U.S. study, they found that open perimeter classrooms had a greater correlation to teacher satisfaction than a closed perimeter classroom (Ahrentzen, Evan, 1984).

Conclusions

This research will inform the design of a middle school that focuses on community and communication. The goal will be to design a school where flexibility and team work is made easier through furniture and layout solutions in order to foster growth and respect for students and teachers.
Although dispersal in inner-city schools is fairly common knowledge, most do not know of the impact that school facilities have on students and children. In 2011, the U.S. ... threat of school closures from poor facility conditions, lead to a lack of resources and pressure to raise student performance grade. Some schools struggle to retain teachers (Lowery For Justice Alliance, 2014). A main cause of the frustration is obstacles including limited space and resources, which have created a toxic environment for inner-city students and faculty. In the study, “The walls speak: The interplay of quality facilities, educational facilities and resources, which have created a large class size, and pressure to raise test scores, inner city problems facing urban public schools, have resulted in a decline in public school climate, and student achievement,” researchers study, “The walls speak: The interplay of quality facilities, educational facilities and resources, which have created a toxic environment for inner-city students and faculty. In the school segregation was found to be unconstitutional in the case of Brown vs. Board of Education, the ... that school size, classroom technology integration, qualitative curriculum design, student learning, ... perceptions of $15,000, but also created an environment that made teachers devoted more one-on-one time to students. Their conclusion states, "teachers at both middle school facilities consistently felt that their new middle school teacher felt that these middle school classroom focuses promoted increased student receptivity to closed perimeter classrooms. Current classroom design and class size are two fundamental factors that could create a number of benefits for students and teachers. I decided to focus on classroom design after reading the article, "Designing and engineering effective student learning: Ergonomics in all but name," Smith conducted a study in Australian primary schools finding that students in the nontraditional classrooms not only reacted more positively to the classrooms, but also scored higher than those in traditional classrooms within the same achievement level. Tschannen-Moran, 2008)." The design methodology, gave them appropriate, flexible teaching style or needs of the students. His conclusion ... created on limited budgets using mobile furniture, rather than fixed tables and chairs. As current schools age and pedagogy continues to change with time and technology, the need for versatility grows. Flexible classroom design is called of duty when teaching in updated spaces. (Uline, 2018). The most important notion within this article is the idea of creating a positive learning environment for the teacher to perform their job. While I believe that the classroom environment has an even larger impact on students, teachers need to have a space that makes them feel comfortable and focused in order to thrive throughout their day. A major issue Richmond City Schools are dealing with is teacher retention (ADD SOURCE), so if a shift in classroom structure could aid in keeping teacher retention rates high, this could be a way of keeping veteran teachers in the system and maintaining a quality education. Through his research, he highlighted the fact that this wasn’t an inner-city school in the United States, this design would need to be tested before it was implemented in a Richmond City School.
A small school design for students with social/ emotional learning disabilities and/or language delays has been shown to provide better results for students at schools that have an academic on these individuals. By creating a design that allows high school students to gather information, the author found that students with more direct treatments and individual time with teachers and counselors were more successful. Fisher found that, "students demonstrated higher grade point averages, SAT scores and ACT scores. Emotionally, students had higher levels of resilience under pressure and decreased need for psychiatric hospitalization. Although Richmond City Schools was not involved in this study, an informal qualitative analysis found many students in the small school identified increased levels of friendships, decreased levels of bullying and increased satisfaction with their ability to interact with their peers.

Due to the large population of students with disabilities, this suggests that communication could positively benefit Richmond middle school students. School Climate is a phrase that is repeated throughout Richmond middle school students. Studies suggest that these casual work areas can improve science laboratories and integrate state of the art technology systems, we should also pay particular attention to the ways in which various learning spaces are conceived, the separate spaces of a school reinforce both personal and social spaces. In addition, they connected the aesthetic features of the school environment to learning and instruction” (Wolsey, Urban and Urban, 2008, pg.68). A big problem with Richmond City Schools is the disconnect between students, teachers and parents. If carefully designed, the separate spaces of a school reinforce one’s self esteem and identity are being discovered during the period of a child’s life.

In Kevin Fisher’s book “The Translation of Design in Education” he includes a research paper by Neda Abbasi of School: An Evidence-Based Approach to Aligning Pedagogy and Learning Environments. "A small highschool was converted into the current teacher’s lounge and is lined with lockers. Due to the large teacher population and the limited copies, all copies are made by the students with volunteers to help with the process. Due to the day they are needed. Overall, the staff at Elkhart mentioned that they can walk in and get what they need, they are provided, but the current facilties don’t meet the needs of teachers or students and the front of the classroom to build flexibility and promotes overall, the design of the space needs to one that facilitates flexibility in teaching style and promotes interpersonal relationships. According to the young people experiment with different cultures and also can give them the support system they need to sculpture their attitude on how they value education, but this culture could help make schools a place of refuge for these students. The change in the future and the general Richmond community.

In Richmond Public Schools has a multitude of problems that need to be fixed. I believe that more thoughtful design for classrooms and schools can create a shift in student and teacher mentalities. Overall, the design of the space needs to one that facilitates flexibility in teaching style and promotes interpersonal relationships. According to the student interaction and movement into group work. This has been greatly altered since the school was built in the 1960’s and focusing on activating more than one wall in independent learning, which could be extremely valuable for teaching lessons could present new teaching strategies that were project based or group oriented. Periods of adequate learning, which could be extremely valuable for teaching lessons could present new teaching strategies that were project based or group oriented. Periods of adequate learning, which could be extremely valuable for teaching lessons could present new teaching strategies that were project based or group oriented. Periods of adequate learning, which could be extremely valuable for
The South Harbor School is an elementary and middle school, which focuses its design on creating community inside and outside of the space. The building itself is woven into a city district and the interior uses a variety of casual spaces outside of the classroom to encourage group work and communication.

**Firm:** JJW Architects  
**Size:** 31,200 sq.ft.  
**Year Completed:** 2015  
**Location:** Copenhagen, Denmark

Applications of green are applied to sections of upholstery and flooring for active and loosely programmed spaces outside of the classroom, while blue is used in classrooms and areas of quiet and focus. Wood, metal, concrete and neutral paint tones are applied to walls and floors in areas of circulation and gathering areas such as the cafeteria. These visual signals promote gathering in the indicated spots and give an indication of the expected sound level in a given area.
Denoted by the color green, flex spaces often intersect with corridors, but classrooms are physically separated with use of glass walls. Visual connection is used to connect although every space, but flex and corridors use primarily color to separate the two.
This middle school is a great example of flexible classroom design. Through natural light, folding walls and moving desks, Perkins + Will created a sense of openness and flexibility that promotes work between multiple classrooms.

Scale is another element used to increase the amount of natural light, especially in hallways. Classrooms have lower ceilings with sections of skylights, while the hallways extend the ceiling to the top floor and use light colored wall panels to reflect light throughout the building.
The front of classrooms can also fold into the ceiling allowing connection between classroom and corridor adding more possibilities for lessons and group exercises between classes.

Through foldable walls between classrooms, teamwork and connection to other classes can be easily facilitated by teachers.
Richard J. Lee Elementary School

Firm: Stantec
Size: 96,000 sq.ft.
Year Completed: 2014
Location: Dallas, Texas

Using a vertical central core, Richard J. Lee creates connection to all other spaces. The central core is also the more area for large groups of students to gather and classrooms are placed on the outer edges of the building. This connection allows for students to still feel familiar and comfortable with the space even as they changes grades and learning environments.
The active learning area denoted in the plan is elevated to the second floor and centrally connects all surrounding areas physically and visually.
Through all three projects, connection and transitions from one space to another is the main focal point. By using central vertical connection, transparency, wall flexibility and color indicators, these schools strive to keep students connected with other spaces, and allow teachers to monitor the safety of students inside and outside of the classroom.

All of these concepts can be applied to 815 Porter Street, by the verticality of Richard J. Lee Elementary and South Harbor School directly relate to the architecture of the central atrium which lends itself to visual connection between.

Conclusions

Connection through centrality and verticality
Connection through wall flexibility
Connection through color and materiality

Independence/Flexibility

Control/Rigidity

Community/Teamwork

Types of Connections

Richard J. Lee Elementary
Pitt River Middle School
South Harbour School
815 Porter Street
Elevations

South Exterior Elevation

West Exterior Elevation

North Exterior Elevation

East Exterior Elevation
Existing Material Language

- **Material: Heavy Oak Timbers**
  - Use: Columns and beams
  - Finish: Stain

- **Material: Concrete**
  - Use: Floor on 1st floor
  - Finish: Polished

- **Material: Red Brick**
  - Use: Building facade

- **Material: Steel**
  - Use: Window frame
Originally, the building was constructed in 1895 as a bakery and was converted into a warehouse by Southern Distributors Inc in the 1940s. After being purchased in 2003, the space was adapted into its current use as lofts.

The overall structure consists of brick, heavy timber, and polished concrete flooring on the ground level. The most distinguishable elements of the building include the heavy timber columns/beams, exposed brick walls and the central atrium. The building has characteristics of the Chicago School period with its uniformity and ample natural light, but the heavy timber trusses add a handmade element that lends itself to the Arts and Crafts period.
Manchester

When was the district established?
- 1663 - William Stegge received a 5000-acre royal land grant on the south bank of the James River (including future Manchester)
- 1769 – Incorporated as a town
- 1874 – Declared an independent city

How has the district evolved?
- Originally a port city separate from Richmond
- Port for slave ships in 18th century
- Shipped tobacco and coal
- Absorbed by Richmond in 1910
- Industry and factories boomed in the area in the 20th century
- Manchester is now turning into an upcoming residential district in the city

What is the current state of the district?
- Many older factories are being adapted into apartments
- New apartment buildings are currently being built in multiple locations

What are some defining characteristics of the district?
- Brick façade buildings, factories, some Victorian town houses
- View of the city
- Near railroad tracks
- Industrial

What are the edges (boundaries) of the district?
- The James River (North and East)
- 301/Cowardin Ave (West)
- Goode Creek/Broad Rock Creek (South)

What are the paths into, through, and across the district? What is their significance?
- Bridges: 301, S. 9th Street, S. 14th Street, Richmond-Petersburg Turnpike (allows connection to the downtown area of the city)
- Roads from the Southwest: 60, 301 and 95 (connect to Chesterfield county)

What are the landmarks in this district? Why?
- Richmond Railroad Museum - This was a central transportation hub in the Richmond area
- Southern States Silo - This building towers over the rest of Manchester and is one of the most identifiable buildings from downtown Richmond
**Science Classrooms**

Purpose: teaching/learning

Description: classrooms for science, includes sink

Important Adjacencies: Science lab

FF&E: sinks, storage, desks, projector, smart board, dry erase board

Vacuum Privacy: semi private

Accessibility: accessible during class time for students, accessible during teacher hours for teachers

Occupancy Classification: E

Programmatic Adjacencies: N/A

# of Spaces: 3

Minimum Square Feet: 2,100 sq. ft.

---

**Science Lab**

Purpose: teaching/learning

Description: classrooms for science, includes sink

Important Adjacencies: Other Classrooms

FF&E: demonstration desk with acid resistant top, sink, and utility connections

Vacuum Privacy: semi private

Accessibility: very secure

Physical Security: very secure

Users of Space: teachers, students, janitors

# of Users at a time: 20-30 students, 1 teacher

Accessibility: accessible during class time for students, accessible during teacher hours for teachers

Occupancy Classification: E

Programmatic Adjacencies: Board room

# of Spaces: 1

Minimum Square Feet: 1,000 sq. ft.

---

**Choral Classroom**

Purpose: teaching/learning (choral)

Description: classroom for chorus/music

Important Adjacencies: Band room

FF&E: Riser, piano, chairs, teacher desk, storage

Vacuum Privacy: semi private

Accessibility: accessible during class time for students, accessible during teacher hours for teachers

Occupancy Classification: E

Programmatic Adjacencies: N/A

# of Spaces: 2

Minimum Square Feet: 1,400 sq. ft.

---

**Band Classroom**

Purpose: teaching/learning

Description: classrooms for Language Arts, History, Math

Important Adjacencies: Other Classrooms

FF&E: instrument storage, music stands, pianos, chairs

Vacuum Privacy: semi private

Accessibility: very secure

Physical Security: very secure

Users of Space: teachers, students, janitors

# of Users at a time: 20-30 students, 1 teacher

Accessibility: accessible during class time for students, accessible during teacher hours for teachers

Occupancy Classification: E

Programmatic Adjacencies: Choral

# of Spaces: 1

Minimum Square Feet: 1,400 sq. ft.

---

**Art Lab**

Purpose: teaching/learning

Description: classroom for all different types of art activities

Important Adjacencies: Band room

FF&E: storage, group tables, pin up space, sink, shelving, drying racks

Vacuum Privacy: semi private

Accessibility: semi private

Physical Security: very secure

Users of Space: teachers, students, janitors

# of Users at a time: 20-30 students, 1 teacher

Accessibility: accessible during class time for students, accessible during teacher hours for teachers

Occupancy Classification: E

Programmatic Adjacencies: N/A

# of Spaces: 2

Minimum Square Feet: 1,900 sq. ft., 45 square feet per student, not including storage. A secure storage space of 400 square feet.

---

**Special Education Classroom**

Purpose: teaching/learning

Description: classroom for special needs students

Important Adjacencies: private restroom

FF&E: ADA bathroom, special desks and chairs

Vacuum Privacy: private

Accessibility: very private

Users of Space: teachers, students, janitors

# of Users at a time: 2-3 people

Accessibility: accessible during class time for students, accessible during teacher hours for teachers

Occupancy Classification: E

Programmatic Adjacencies: N/A

# of Spaces: 2

Minimum Square Feet: 700 sq. ft.
**Guidance Office**

**Purpose:** administrative workspace

**Description:** room to counsel students and parents

<table>
<thead>
<tr>
<th>Important Adjacencies</th>
<th>guidance, nurse, waiting area</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF&amp;E:</td>
<td>desks, file cabinets</td>
</tr>
<tr>
<td>Visual Privacy:</td>
<td>very private</td>
</tr>
<tr>
<td>Acoustic Privacy:</td>
<td>max private</td>
</tr>
<tr>
<td>Physical Security:</td>
<td>very secure</td>
</tr>
<tr>
<td>Users of Space:</td>
<td>teachers, students, admin.</td>
</tr>
<tr>
<td># of Users at a time:</td>
<td>1-4 people</td>
</tr>
<tr>
<td>Accessibility:</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Occupancy Classification:** E

**Minimum Square Feet:** 600 sq. ft.

---

**Library**

**Purpose:** teaching/learning

**Description:** Classroom for Language Arts, History, Math

<table>
<thead>
<tr>
<th>Important Adjacencies</th>
<th>Other Classrooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF&amp;E:</td>
<td>shelving, computers, tables, chairs</td>
</tr>
<tr>
<td>Visual Privacy:</td>
<td>not private</td>
</tr>
<tr>
<td>Acoustic Privacy:</td>
<td>private</td>
</tr>
<tr>
<td>Physical Security:</td>
<td>very secure</td>
</tr>
</tbody>
</table>

**Users of Space:** teachers, students

<table>
<thead>
<tr>
<th># of Users at a time:</th>
<th>30 teachers, 2 teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility:</td>
<td>accessible during class time for students, accessible during teacher hours for teachers (after school activities)</td>
</tr>
</tbody>
</table>

**Occupancy Classification:** A-3

**Programmatic Adjacencies: N/A**

<table>
<thead>
<tr>
<th># of Spaces:</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Square Feet:</td>
<td>450 sq. ft.</td>
</tr>
</tbody>
</table>

---

**Waiting Area**

**Purpose:** seating area for parents/guests

**Description:** seating for students, parents and visitors

<table>
<thead>
<tr>
<th>Important Adjacencies</th>
<th>admin. office, nurses office guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF&amp;E:</td>
<td>supply storage, nurse/teacher</td>
</tr>
<tr>
<td>Visual Privacy:</td>
<td>private</td>
</tr>
<tr>
<td>Acoustic Privacy:</td>
<td>private</td>
</tr>
<tr>
<td>Physical Security:</td>
<td>not secure</td>
</tr>
<tr>
<td>Users of Space:</td>
<td>guests, parents</td>
</tr>
<tr>
<td># of Users at a time:</td>
<td>15</td>
</tr>
<tr>
<td>Accessibility:</td>
<td></td>
</tr>
</tbody>
</table>

**Occupancy Classification:** N/A

<table>
<thead>
<tr>
<th># of Spaces:</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Square Feet:</td>
<td>200 sq. ft.</td>
</tr>
</tbody>
</table>

---

**Teacher Workroom**

**Purpose:** place to prepare copies/lessons

**Description:** sharing of computer equipment

<table>
<thead>
<tr>
<th>Important Adjacencies</th>
<th>Other Classrooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF&amp;E:</td>
<td>copy, supply storage</td>
</tr>
<tr>
<td>Visual Privacy:</td>
<td>semi private</td>
</tr>
<tr>
<td>Acoustic Privacy:</td>
<td>private</td>
</tr>
<tr>
<td>Physical Security:</td>
<td>very secure</td>
</tr>
</tbody>
</table>

**Users of Space:** teachers, students, janitors

<table>
<thead>
<tr>
<th># of Users at a time:</th>
<th>15 teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility:</td>
<td>accessible to teachers and admin during school hours</td>
</tr>
</tbody>
</table>

**Occupancy Classification:** E

<table>
<thead>
<tr>
<th># of Spaces:</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Square Feet:</td>
<td>400 sq. ft.</td>
</tr>
</tbody>
</table>

---

**Teacher Lounge**

**Purpose:** place for teachers to relax/eat

**Description:** office for nurses to rest

<table>
<thead>
<tr>
<th>Important Adjacencies</th>
<th>admin. office</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF&amp;E:</td>
<td>supply storage, nurse/teacher</td>
</tr>
<tr>
<td>Visual Privacy:</td>
<td>private</td>
</tr>
<tr>
<td>Acoustic Privacy:</td>
<td>very private</td>
</tr>
<tr>
<td>Physical Security:</td>
<td>very secure</td>
</tr>
</tbody>
</table>

**Users of Space:** teachers, students, janitors

<table>
<thead>
<tr>
<th># of Users at a time:</th>
<th>1 nurse, 5 students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility:</td>
<td>accessible to nurses and students during school hours</td>
</tr>
</tbody>
</table>

**Occupancy Classification:** Programmatic Adjacencies: N/A

<table>
<thead>
<tr>
<th># of Spaces:</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Square Feet:</td>
<td>200 sq. ft.</td>
</tr>
</tbody>
</table>

---

**Cafeteria**

**Purpose:** eating

**Description:** place for breakfast and lunch

<table>
<thead>
<tr>
<th>Important Adjacencies</th>
<th>Other Classrooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF&amp;E:</td>
<td>tables connected to chairs, table storage</td>
</tr>
<tr>
<td>Visual Privacy:</td>
<td>no privacy</td>
</tr>
<tr>
<td>Acoustic Privacy:</td>
<td>no privacy</td>
</tr>
<tr>
<td>Physical Security:</td>
<td>somewhat secure</td>
</tr>
</tbody>
</table>

**Users of Space:** teachers, students, janitors, admin.

<table>
<thead>
<tr>
<th># of Users at a time:</th>
<th>100 students, 5 teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility:</td>
<td>accessible during class time for students, accessible during teacher hours for teachers</td>
</tr>
</tbody>
</table>

**Occupancy Classification:** A-2

<table>
<thead>
<tr>
<th># of Spaces:</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Square Feet:</td>
<td>0.000 sq. ft.</td>
</tr>
</tbody>
</table>

---

**Auditorium**

**Purpose:** assemblies

**Description:** place for in school assemblies and extra curricular performances

<table>
<thead>
<tr>
<th>Important Adjacencies</th>
<th>music classrooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF&amp;E:</td>
<td>built-in seating, stage, curtains, stage lighting</td>
</tr>
<tr>
<td>Visual Privacy:</td>
<td>very private</td>
</tr>
<tr>
<td>Acoustic Privacy:</td>
<td>no privacy</td>
</tr>
<tr>
<td>Physical Security:</td>
<td>very secure</td>
</tr>
</tbody>
</table>

**Users of Space:** teachers, students, janitors, guests

<table>
<thead>
<tr>
<th># of Users at a time:</th>
<th>200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility:</td>
<td>accessible to all during assemblies</td>
</tr>
</tbody>
</table>

**Occupancy Classification:** A-3

<table>
<thead>
<tr>
<th># of Spaces:</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Square Feet:</td>
<td>0.000 sq. ft.</td>
</tr>
</tbody>
</table>

---

**Gym**

**Purpose:** teaching/learning athletics

**Description:** multi-use athletic activities

<table>
<thead>
<tr>
<th>Important Adjacencies</th>
<th>locker room, gym storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF&amp;E:</td>
<td>teams, basketball hoops</td>
</tr>
<tr>
<td>Visual Privacy:</td>
<td>no privacy</td>
</tr>
<tr>
<td>Acoustic Privacy:</td>
<td>no privacy</td>
</tr>
<tr>
<td>Physical Security:</td>
<td>no privacy</td>
</tr>
</tbody>
</table>

**Users of Space:** teachers, students, janitors

<table>
<thead>
<tr>
<th># of Users at a time:</th>
<th>20 students, 2 teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility:</td>
<td>accessible during class time for students, accessible during teacher hours for teachers</td>
</tr>
</tbody>
</table>

**Occupancy Classification:** A-3

<table>
<thead>
<tr>
<th># of Spaces:</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Square Feet:</td>
<td>2,000 sq. ft.</td>
</tr>
</tbody>
</table>

---

**Locker Room**

**Purpose:** changing and showering for gym

**Description:** Important Adjacencies up before and after gym

<table>
<thead>
<tr>
<th>Important Adjacencies</th>
<th>gym</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF&amp;E:</td>
<td>lockers, showers</td>
</tr>
<tr>
<td>Visual Privacy:</td>
<td>max private</td>
</tr>
<tr>
<td>Acoustic Privacy:</td>
<td>max private</td>
</tr>
<tr>
<td>Physical Security:</td>
<td>very secure</td>
</tr>
</tbody>
</table>

**Users of Space:** teachers, students, janitors

<table>
<thead>
<tr>
<th># of Users at a time:</th>
<th>20 students, 1 teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility:</td>
<td>accessible during class time for students, accessible during teacher hours for teachers</td>
</tr>
</tbody>
</table>

**Occupancy Classification:** E

<table>
<thead>
<tr>
<th># of Spaces:</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Square Feet:</td>
<td>2,000 sq. ft.</td>
</tr>
</tbody>
</table>
Janitorial Closets
Purpose: Janitor storage
Description: for cleaning supplies and equipment prep
Important Adjacencies: N/A
FF&E: sink, clean, shelving
Visual Privacy: private
Acoustic Privacy: private
Physical Security: very secure
Users of Space: janitors
# of Users at a time: 1
Accessibility: only to janitors
Occupancy Classification: E
# of Spaces: 8
Minimum Square Feet: 25 sq. ft. per closet - 200 sq. ft.

Teacher Bathrooms
Purpose: restrooms
Description: for educators
Important Adjacencies: Classrooms
FF&E: stalls, sinks
Visual Privacy: max private
Acoustic Privacy: max private
Physical Security: very secure
Users of Space: teachers, janitors
# of Users at a time: 1
Accessibility: accessible during work hours
Occupancy Classification: E
# of Spaces: 4
Minimum Square Feet: 50 sq. ft.

Student Bathrooms
Purpose: restrooms
Description: for student restrooms
Important Adjacencies: Classrooms
FF&E: stalls, sinks
Visual Privacy: max private
Acoustic Privacy: max private
Physical Security: very secure
Users of Space: students
# of Users at a time: 6 students
Accessibility: accessible during class time for students
Occupancy Classification: E
# of Spaces: 4 girls, 4 boys
Minimum Square Feet: 3,200 sq. ft.

Gym Storage
Purpose: Teaching/learning
Description: Classrooms for Language Arts, History, Math
Important Adjacencies: gym
FF&E: shelving
Visual Privacy: private
Acoustic Privacy: private
Physical Security: secure
Users of Space: teachers, students
# of Users at a time: 1 teacher
Accessibility: accessible only to teacher
Occupancy Classification: E
# of Spaces: 1
Minimum Square Feet: 400 sq. ft.

Soft Learning Spaces
Purpose: Independent learning space outside of the classroom
Description: N/A
Important Adjacencies: Corridors
FF&E: group work tables and seating
Visual Privacy: none
Acoustic Privacy: none
Physical Security: in the open
Users of Space: students
# of Users at a time: varies
Accessibility: accessible during school hours
Occupancy Classification: E
# of Spaces: TBD
Minimum Square Feet: TBD

Corridors
Purpose: Teaching/learning
Description: Classrooms for Language Arts, History, Math
Important Adjacencies: Corridors
FF&E: N/A
Visual Privacy: max privacy
Acoustic Privacy: max privacy
Physical Security: semi secure
Users of Space: everyone
# of Users at a time: 1
Accessibility: Occupancy Classification: E
# of Spaces: N/A
Minimum Square Feet: Min of 10’ wide, hallways with lockers measure from locker door swing, admin hallways need to be min. of 5’ wide

Teacher Bathrooms
Purpose: teaching/learning
Description: Classrooms for Language Arts, History, Math
Important Adjacencies: Classrooms
FF&E: stalls, sinks
Visual Privacy: max private
Acoustic Privacy: max private
Physical Security: very secure
Users of Space: teachers, janitors
# of Users at a time: 1
Accessibility: accessible during work hours
Occupancy Classification: E
# of Spaces: 4
Minimum Square Feet: 50 sq. ft.

Soft Learning Spaces
Purpose: Independent learning space outside of the classroom
Description: N/A
Important Adjacencies: Corridors
FF&E: group work tables and seating
Visual Privacy: none
Acoustic Privacy: none
Physical Security: in the open
Users of Space: students
# of Users at a time: varies
Accessibility: accessible during school hours
Occupancy Classification: E
# of Spaces: TBD
Minimum Square Feet: TBD
### Occupancy Classification
- Building Type: Group E
- Building Type: Type 4 - Heavy Timber
- Type of Construction: Janitor storage
- Total Gross Area: 100,000 sq. ft.
- Gross Area for each floor: 25,000 sq. ft.
- Efficiency Ratio: Net = Gross x .60
- Total Net Area: 60,000 sq. ft.
- Net Area per floor: 15,000 sq. ft.
- Max Occupancy: 2,000
- Max Occupants per floor: 500
- Number of Egress Stairs: 4

### Gross Square Footage
- 100,000 sq. ft.

### Net Square Footage
- 70,000 sq. ft.

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**Classrooms**

- Science Classroom
- Chorus Classroom
- Band Classroom
- Art Lab
- Computer Lab
- Special Education Classroom
- Resource Classroom
- Admin. Offices
- Guidance Offices
- Waiting Area
- Library
- Nurse’s Office
- Teacher Workroom
- Teacher’s Lounge/Assistance
- Cafeteria
- Auditorium
- Gym
- Locker Room

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**Graphic Program**

- Auditorium: 10,000 sq. ft.
- Gym: 6,000 sq. ft.
- Library: 4,950 sq. ft.
- Cafeteria: 10,000 sq. ft.
- General Ed. Classrooms: 4,950 sq. ft.
- Art Lab: 1,200 sq. ft.
- Chorus/Band Classroom: 1,000 sq. ft.
- Guidance Offices: 300 sq. ft. each 600 total
- Admin. Offices: 200 sq. ft. each 600 total
- Teacher’s Lounge: 1,000 sq. ft.
- Waiting Area: 200 sq. ft.
- Teacher Workroom: 500 sq. ft.
- Locker Rooms: 6,000 sq. ft. total
- Computer Lab, Special Ed. (3), Resource Classroom: 3,500 sq. ft. each

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**Adjacency Matrix & Code Summary**

- Classrooms
- Science Classroom
- Science Lab
- Chorus Classroom
- Band Classroom
- Art Lab
- Computer Lab
- Special Education Classroom
- Resource Classroom
- Admin. Offices
- Guidance Offices
- Waiting Area
- Library
- Nurse’s Office
- Teacher Workroom
- Teacher’s Lounge/Assistance
- Cafeteria
- Auditorium
- Gym
- Locker Room

- Adjacent
- Nearby
- Private
- Semi-Private
Concept & Process

Through the power of gathering, schools have the opportunity to create a point of connection that can facilitate empathy and respect between students and teachers. With this in mind, the concept became an exploration of connection points that allow the user to shape elements of their environment. Through the dichotomy of flexibility and control, I explored light, sight-lines and systems that would allow visual and physical points of connections.
Using dowel rods and a foam-core base, I created a system for which square panels of different textures, opacity, colors and sizes could be manipulated. This exploration was inspired by the column grid of the building and was meant to delve into systematic flexibility of student spaces to encourage independence.
This model explored transitions on vertical surfaces and perceptions based on vantage points. From above, you only see the white layering of paper, but when tilted to the side, the green layer underneath becomes apparent and starts to bounce color into the central channels.
Light is an extremely important aspect of any school design, so using acetate, I created a diagrammatic model to show the sunnier areas of the South and East interlocking with the darker sides of the building on the North and West. I also analyzed the grid system of the windows to find additional points of reference for space planning.
Through color blocking sketches, I examined the relationships of spaces through volume and acoustics. Most blocking plans focus classrooms on the Southeast side of the building to capture the morning sun, while larger and louder spaces such as the cafeteria, gym and auditorium are placed on the Northwest side.
Option 2 places the library on the ground floor in the atrium. The gym/cafeteria and auditorium are aligned on the Northwest side of the building taking all 4 floors.
Schematic Design - Option 3

This layout focuses on the auditorium being an open space within the atrium, which can also be used as additional flex space, lecture space or a staircase.
Option 4 takes option 3 and extends the central stair/auditorium to the 3rd floor. This layout uses the view from the lobby to sculpt the shape of the stair and to create visual connection through the entire building.
These studies were analyzing where flex space could be situated in each plan, while still corresponding to the central staircase.

This color study based on the window grid became a main graphic used on the fourth mural wall on the 4th floor. Pieces of this also became the graphics on the built-in glass boards found in the flex spaces.

These diagrams analyze the different ways that flexible seating could be arranged in each classroom.
I then focused on the shelving wall system in the classrooms and how the shelving would be arranged on each unit.
Sections

Transverse Section

Longitudinal Section
Exploded Axon
The grand staircase is not only the core of the school, but the core of the concept of gathering. The angle of the stairs was determined by the sight-line from the lobby to the northeast corner of the building. Instead of creating a separate auditorium space, this staircase hosts bleacher seating with cushion inserts which can be utilized for performance seating or flex space that can be used by teachers and students between classes. This space can also be used as an alternative to classroom lecture.

FF&E

- Studio Set LiT
  - Color: A00702 Pewter
  - Manufacturer: Interface
  - Application: Flooring

- Delaine
  - Color: Sea
  - Manufacturer: Designtex
  - Application: Bleacher Cushion

- Delaine
  - Color: Pear
  - Manufacturer: Designtex
  - Application: Bleacher Cushion

- Delaine
  - Color: Grass
  - Manufacturer: Designtex
  - Application: Bleacher Cushion

- Delaine
  - Color: Nasturium
  - Manufacturer: Designtex
  - Application: Bleacher Cushion

- Delaine
  - Color: Nasturium
  - Manufacturer: Designtex
  - Application: Bleacher Cushion

- Pine Plywood
  - Application: Bleacher Shell

- Casper Box
  - Dimension: 44” x 44” x 1’
  - Manufacturer: LightArt
  - Application: Clearstory lighting
The glassboard flex space is highly visible, which allows teachers to have group work activities outside of the classroom. The mobile and built-in seating help students control some elements of their own environment and the mobile stool storage creates a perimeter that separates circulation from the flex area.
The northeast corner of each floor has a smaller bleacher seating area, which can be used by teachers and students. The plywood structure is visible from the front of the school and the blue wall is felt paneling to dampen acoustics in the space.
FF&E

Pine Plywood
Application: Glassboard Base

Blazer
Color: Newport
Manufacturer: Camira
Application: Booth seats

Adler
Color: Cerulean
Manufacturer: Designtex
Application: Stools

Railway Carriage
Manufacturer: Spacestor
Application: Corridor Flex

Synergy
Color: Congregate
Manufacturer: Camira
Application: Booth Seating

Delaine
Color: Pear
Manufacturer: Designtex
Application: Booth Seating

AE317, AE315 - Aerial Collection
Color: Aquamarine
Manufacturer: Interface
Application: Flex 3 & Library

Folded Lines
Color: Yellow & Taupe
Manufacturer: HBF
Application: Stools

Folded Lines
Color: Melon & Blue
Manufacturer: HBF
Application: Stools

Happy Bar Stool
Manufacturer: Hightower
Application: Corridor Flex

Along each corridor, the central alley creates opportunity for smaller groups to work together. Carpeted pathways identify these alleys, while still having ample circulation space on either side. Each booth has seating for 4 students and the exterior can be used by an additional pair on both sides. This seating still provides important sight-lines and creates a consistent system of flex space on each floor.
Each floor has a series of 4 classrooms along the southeast wall of the building, which are separated into two pairs. Each pair is divided by two storage walls that slide along a series of tracks, allowing these classrooms to be connected for group-work activities or separated for individual class time.

The node chair is used for student desks and allows for teachers to easily facilitate different types of group work without worrying about the amount of time taken to rearrange seats. Built-in shelving on the perimeter frees up most of the floor space for student activity and the teacher’s desk includes a small side table allowing for meetings with individual or pairs of students.
The storage wall includes a CeramicSteel projection surface which doubles as a dry-erase board and a series of moving panels to conceal storage and provide more dry-erase surfaces. When classes are to be divided, there is a glass panel within the shelf that extends to the front wall of the classroom and allows for teachers to have visibility into adjacent rooms in case of an emergency. The bottom four feet of the panel is frosted to prevent distraction from other classrooms.
Final Boards
Reflection

As I look back on my thesis defense, I can truly say that I spoke from the heart and concentrated on areas of my project that would make the most impact on the existing middle school pedagogy structure. After my 15 minute presentation, the department professors brought up many valid points on areas of my project that could be changed or developed more thoroughly. The critique that affected me the most was about the location of the administration area. Since my concept is about creating community through gathering and transparency, several professors felt that keeping administration offices, guidance counselor offices, and the teachers lounge in a separate area didn’t match the rest of the building. I also felt that certain flex areas needed to be developed more thoroughly, but I came away from this project extremely proud of the work I did and feeling equipped for life after grad school.

Overall, the past two years have felt like the longest and shortest years of my life. The first year gave me so many necessary skills for this career, but the summer internship is what gave me the confidence in my own ability as a designer. I still worried that I wouldn’t have the chance to help those in need if I worked for a commercial architecture firm, but through the work I have done on my thesis, I have realized that designers can make positive changes to society by just challenging the norm of current design standards.

I’m so thankful that I had the opportunity to participate in this program with this faculty and all the members of my cohort. I truly felt like I was a part of a team and that I was supported when I needed help. I’m going to miss my time at VCU, but I’m excited to start my career as an interior designer.

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Mark Freeman
Tom Stiles
Works Cited


