Arlington Independent School District

C.B. Berry Elementary School

The design team faced the challenge of creating a new 105,000-square-foot elementary school in the Arlington Entertainment District that would be a forward-thinking, transitional learning environment that combines two current schools into one. C.B. Berry accommodates and supports the innovative identity of a new school and aligns with the strategy of Arlington Independent School District to provide quality curriculum. The result of these design efforts culminates in a school that promotes student wellness, supports staff by integrating innovative educational spaces, and activates the entire site by providing outdoor learning and community spaces.

Project Details

Grades Served
Pre-K - 6th

Student Capacity
1,000

Building Area
105,000 SF

Site Area
13.2 acres

Construction Cost
$29.1 Million

Completion Date
July 2023

Executive Summary

This project explores the innovative merger of two neighborhood schools situated in the area of the Arlington Entertainment District. Historically supported by local industries such as the General Motors plant, these schools have long served working-class families. However, with the emergence of a **new identity** within the district, a transformative community merger is underway. The merger is not merely a logistical consolidation but a comprehensive re-imagining of education. Guided by "4 Buckets," **Community, Resilience, Wellness, and Future**, the merger seeks to integrate the old school identities into a cohesive educational institution reflective of the evolving community landscape. The main concept of the school's design is centered around the **learning journey.** Inspired by the notion that education is a continuous process of growth and discovery, the design of the school is structured to emulate a journey. The metaphor extends beyond mere physical spaces; it encompasses the educational experiences and milestones that students encounter as they progress through each grade level, with pods being symbolic destinations within this journey. Just as travelers, students advance through grade levels, each offering unique opportunities for growth and learning.

Scope of Work

- Increase student capacity and allow for Berry and Roark Elementary schools to be combined.

- Reorganize the campus towards paired grade learning layout.

- Active pod spaces with central learning model.

- A new learning convergence with library and a maker space.

- Associated landscaping to engage with community.

- New and reconfigured staff spaces.

- Optimized queuing and flow through site analysis.

School and Community Research and Engagement

Site Assets
The City of **Arlington's Entertainment District** has seen billions of dollars in investment in the past few years with more on the way.

The recent renovation of New York Avenue has transformed it into a **pedestrian-friendly** community within the neighborhood.

There were **significant trees** on the site that were protected during construction and became a key concept driver for the entrance to the school.

Project Opportunities
Developing a campus that **invites the community to engage with the site** and breaks down the physical separation of the school from the pedestrian level.

Take a step back, look at all users and understand how the new facility will enhance the **day-to-day wellness**.

The large open space on the North side of the site creates opportunities for engaging with the exsisting communities by creating **public landscaping**.

School & Community Engagement
Berry Elementary School and Roark Elementary School were combined, **merging the two student bodies and cultures**. This initiative modernized the district's schools and rejuvenated their surrounding neighborhoods. The focus was on furnishing future generations of students with the necessary opportunities to thrive in the 21st century.

Arlington Independent School District
The existing Berry Elementary School structure was replaced as part of Arlington ISD's 2019 Bond Program. The original school, built in the 1960s, required **significant renovations** to align with modern standards for education environments. After careful consideration, it was determined that replacing the school entirely was a more economically viable solution.

School and Community Research

Design Charrettes
The project navigated unprecedented challenges posed by the COVID-19 pandemic. This was the first Pandemic ZOOM Schematic Design Charrette that Arlington ISD had experienced. Adaptive measures were implemented by the project team to **foster resilience amidst uncertainty** and to inspire educators, architects, and community leaders to embrace innovative approaches in addressing challenges, ultimately fostering more inclusive educational environments. The ZOOM views on this page reflect the comments that were heard during those meetings and that encompass the many conversations between students, teachers and parents to develop the project. Overall, the power of collaboration and community engagement not only helped in overcoming immediate challenges but also in laying the groundwork for a more resilient future.

Blending of Two Cultures
The project needed to create a new Elementary school culture that blends the two existing schools of Berry Elementary and Roark Elementary. This required active listening and goal setting as a collective to ensure the new facility would be a reflection of the school's future identity.
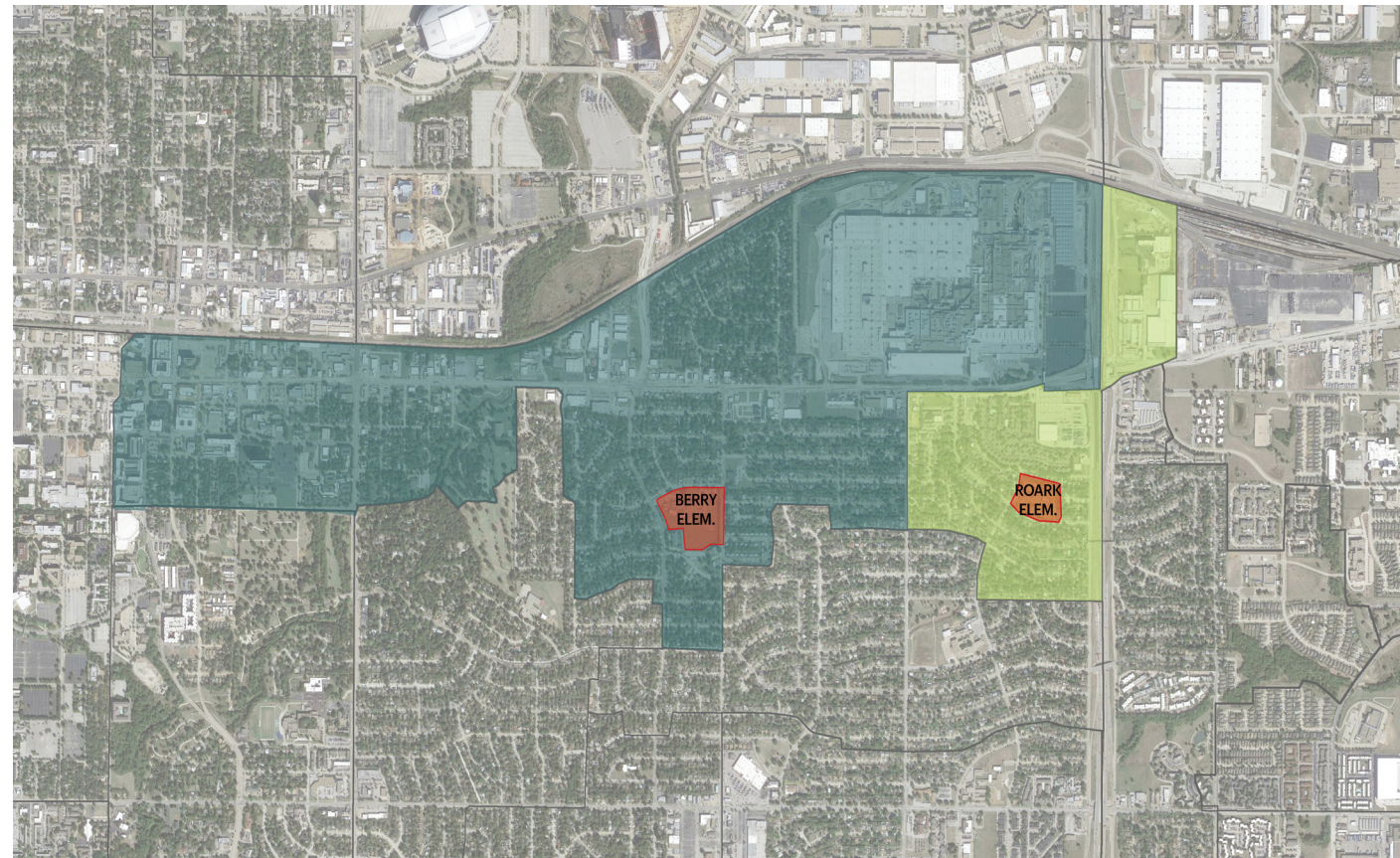
■ Berry Attendance Zone　■ Roark Attendance Zone　■ School Sites　— Combined Attendance Zone

"Spaces designated so students can advance as they go to Junior and High School"

Amy Kay
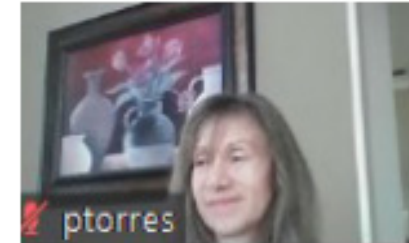
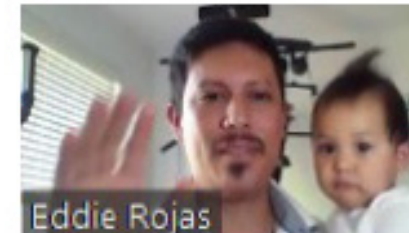"You are now going to be a part of our school family"

ptorres

"Lots of spaces for books"

Adriana Rodri...

"My dream school would have lots of windows"

AISD236224

"I like learning new things about nature"

Eduardo

"Beautiful murals and art are cool and very calming"

Jennifer Neher

"A shaded outdoor classroom"

Eddie Rojas

Community Engagement
## Elevating Stakeholder Voices

Shared Experiences
In the realm of education, the shift towards personalized learning models has brought a reevaluation of school designs. Berry Elementary School exemplifies this shift through its consideration of multiple factors, spanning spatial layout, technology integration, and the overall learning atmosphere. Prioritizing the unique needs of each student, the school also recognized the crucial significance of fostering shared experiences within the community. Integrating personalized learning into building design requires a holistic approach that balances individualized instruction with shared experiences. By striking this balance, Berry Elementary School can create environments that cater to diverse learning needs while nurturing a strong sense of community, opportunities for collaboration and social interaction.
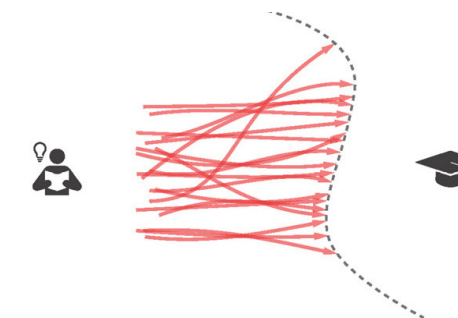
Community Charrettes
The overall goal for the project was to foster a sense of community at all scales, encouraging students to find the path that works best for them. The design approach sought to create both a formal and interstitial space where students and teachers can facilitate learning.
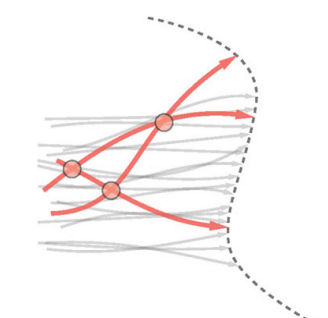
Design Outcomes
Based on conversations in the community charrettes with Arlington ISD administrators, teachers and parents that met with the project team, the result was drawn from shared experiences and adapt the traditional model to inform the ideas for the project.
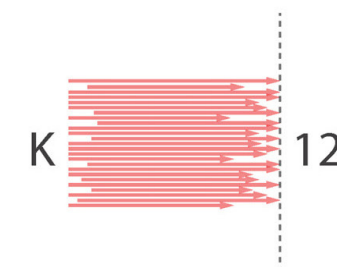
Traditional Model   **Personalized Learning**   **Shared Experiences**
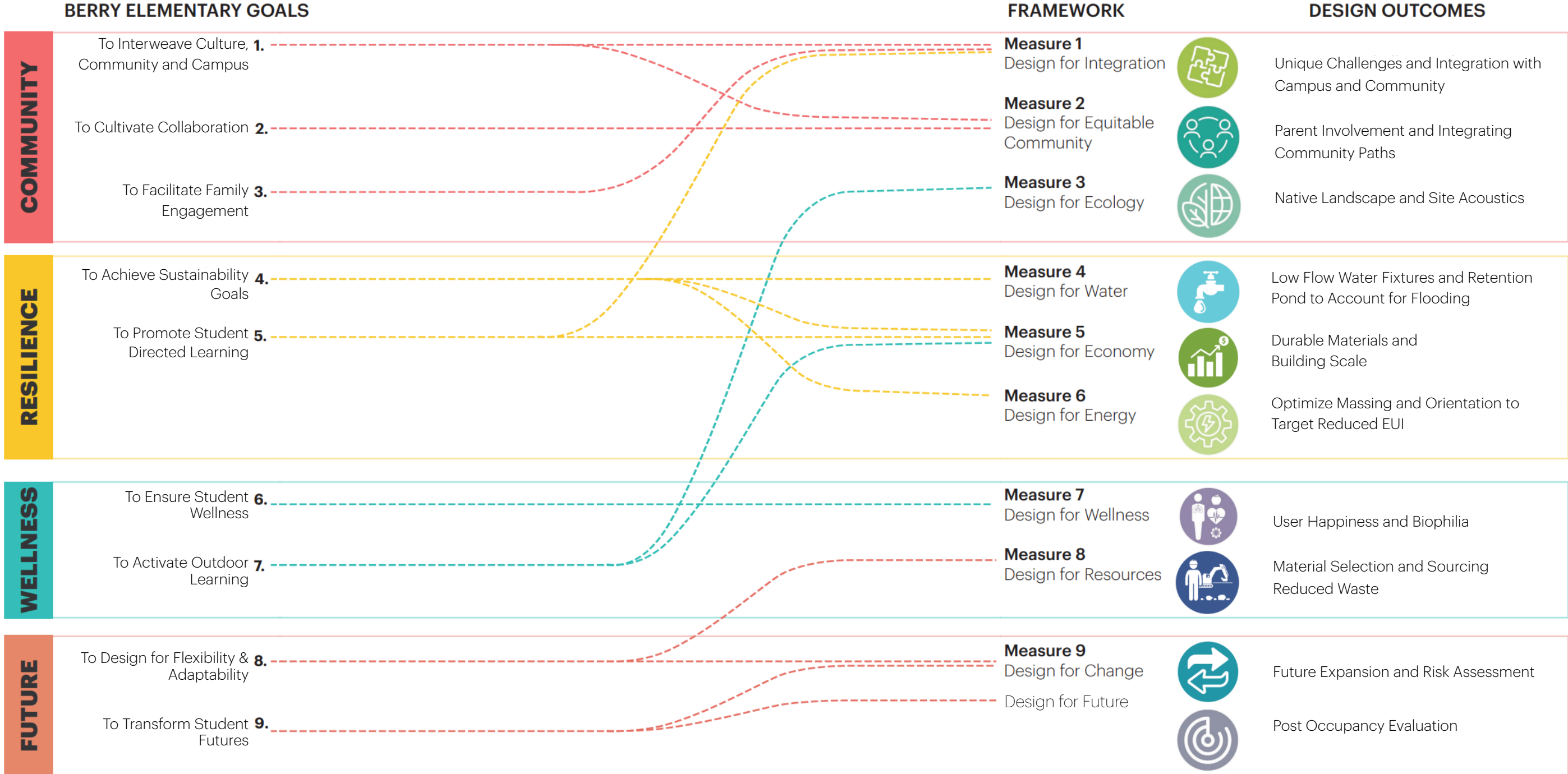
Goals and Outcomes

District and Educational Goals
The new Berry Elementary School combines two existing schools into a state-of-the-art facility design based on four guiding principles: **community, resilience,** **wellness and student futures;** all tied to district goals and leading to measurable outcomes for success. Conceptually, the school represents a learning journey, connecting the students to the idea that everyone begins with the same foundation but will embark on their own journeys. The project fosters a sense of community at all scales and encourages students to find the path that works best for them. The design approach resulted in both a formal and interstitial space where students and teachers can facilitate driven education.

| BERRY ELEMENTARY GOALS	FRAMEWORK	DESIGN OUTCOMES
COMMUNITY		
1. To Interweave Culture, Community and Campus	**Measure 1** Design for Integration	Unique Challenges and Integration with Campus and Community
2. To Cultivate Collaboration	**Measure 2** Design for Equitable Community	Parent Involvement and Integrating Community Paths
3. To Facilitate Family Engagement	**Measure 3** Design for Ecology	Native Landscape and Site Acoustics
RESILIENCE		
4. To Achieve Sustainability Goals	**Measure 4** Design for Water	Low Flow Water Fixtures and Retention Pond to Account for Flooding
5. To Promote Student Directed Learning	**Measure 5** Design for Economy	Durable Materials and Building Scale
	Measure 6 Design for Energy	Optimize Massing and Orientation to Target Reduced EUI
WELLNESS		
6. To Ensure Student Wellness	**Measure 7** Design for Wellness	User Happiness and Biophilia
7. To Activate Outdoor Learning	**Measure 8** Design for Resources	Material Selection and Sourcing Reduced Waste
FUTURE		
8. To Design for Flexibility & Adaptability	**Measure 9** Design for Change	Future Expansion and Risk Assessment
9. To Transform Student Futures	Design for Future	Post Occupancy Evaluation

Surrounding Environment
## Solar and Wind Application

Community Engagement
Through active engagement with the surrounding community, the project gained a deeper understanding of the site context, leading to more informed decisions. One key example is the large park that serves the residential area adjacent to the school and maximizes green space. This attribute also fosters sustainability and wellness of the surrounding community and students. The intentional placement of the learning pods showcases the importance of education and demonstrates the values of the school.

Sustainability and Wellness
By working to implement the analysis of solar and wind studies, the project is able to be more effectively optimized. Analyzing the solar implications of the site and considering the times the school is being utilized helped to **drive conscious solar decisions** around site orientation. Using passive solar gain and heat re-caption, the glazing is oriented on the North side of the building to provide daylight to the pod spaces. Unlike East, West, and South facing windows, North-facing windows receive less direct sunlight. This can enhance the visual comfort of the occupants by reducing glare and shadows. During the winter months, the sun is at a lower angle, placing windows on the North side helps to capture the natural sunlight. This **reduces the need for artificial heating and cooling systems**. The prevailing winds on the south side are used to cool the open spaces. Both of these natural elements help to inform the design project orientation and can promote energy efficiency, occupancy comfort, and sustainability by harnessing the benefits of passive heating and cooling techniques.
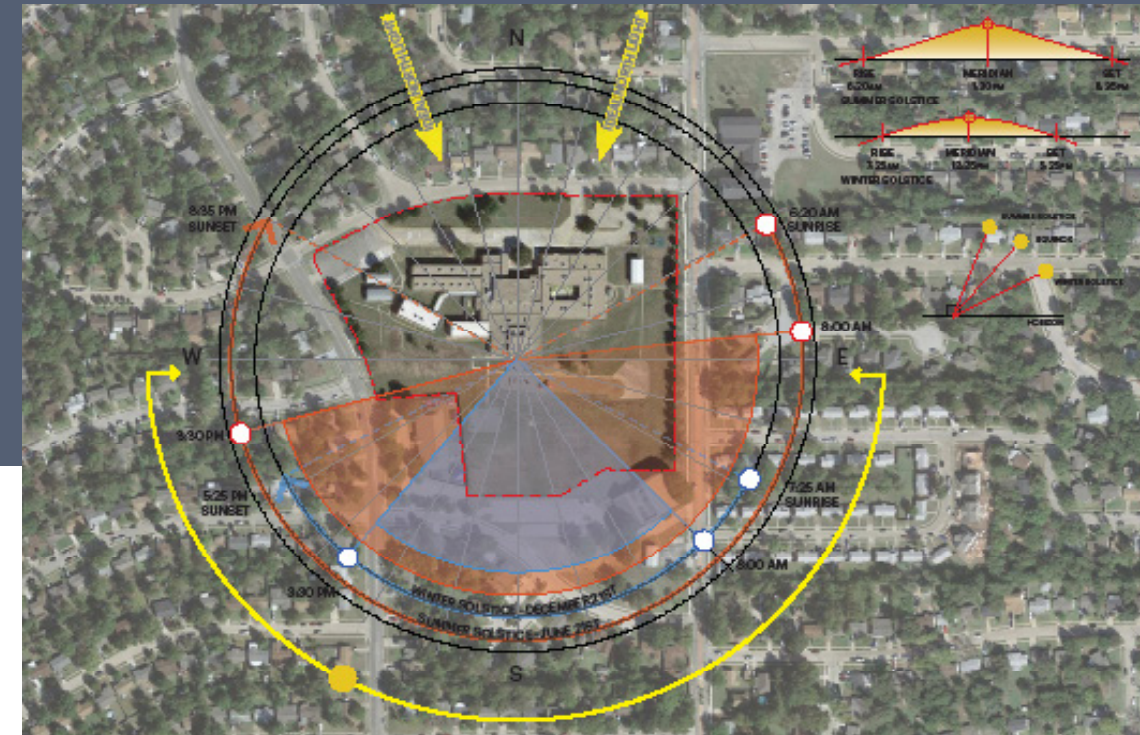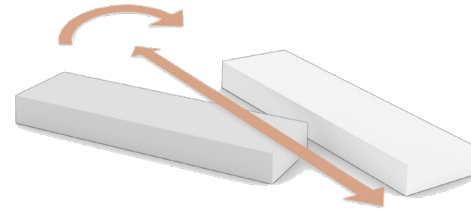

Solar Diagram
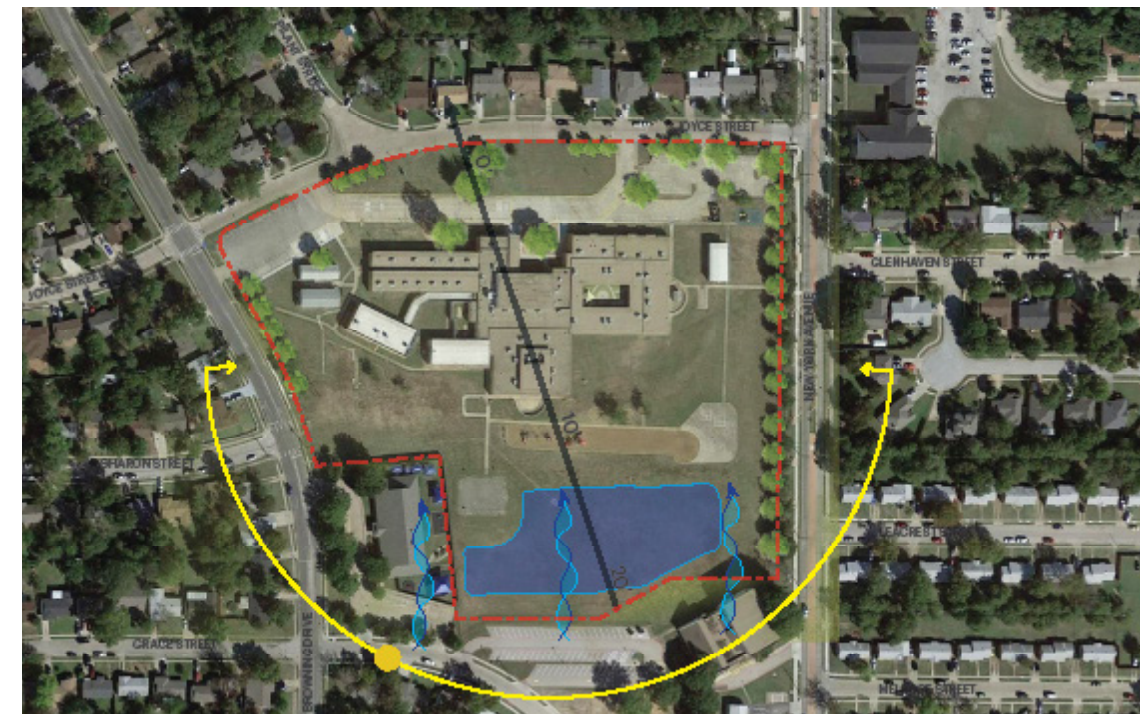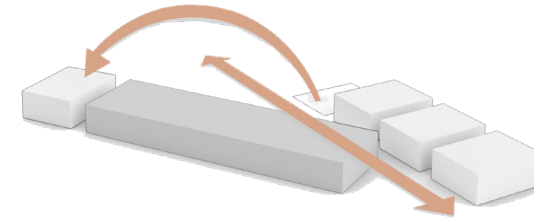

Site Diagram

Project Program
Programming masses that demonstrate the square footage needed for the project.


Learning Pathways
The program is segmented into learning pathways, establishing a connection to growth and nature, which is referred to as the Learning Journey experience.

Public and Private
The separation between the classroom pods symbolizes the journey for younger students, commencing in one section of the building and advancing to the learning pods as they progress in their education.
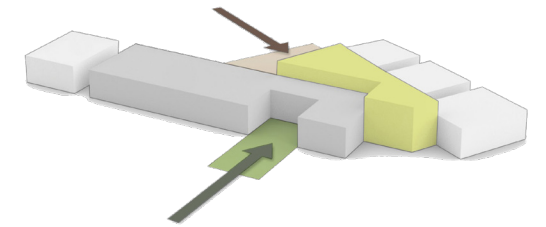

Learning Convergence
At the heart of the school lies a rich array of various resources such as science classrooms, the library, cafeteria, and maker space, strategically positioned to cultivate innovation.

Project Concepts

The school's layout revolves around a central zone, anchored by the library volume, with shared programs grouped around it. At its core, the project aims to foster a strong sense of community across all facets and to equip students with the autonomy to discern the path that resonates most with them.
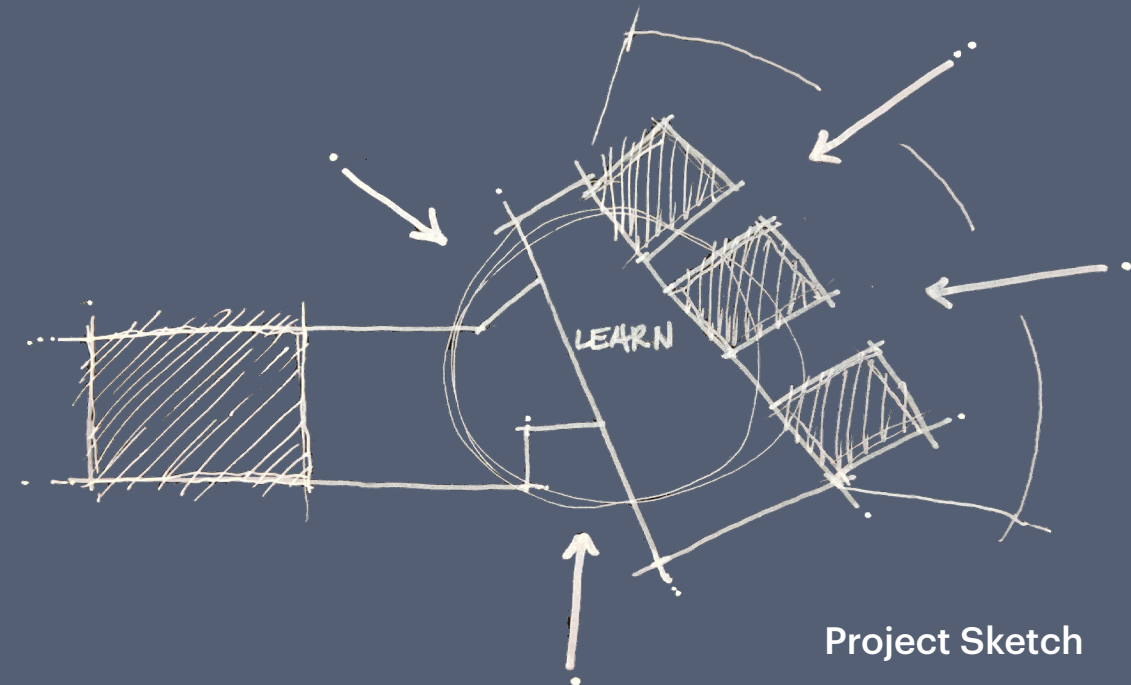

Project Sketch

Site Context

The Challenge
The site provided a series of opportunities and challenges that were faced with critical design analysis and thoughtful design practices to harness the possibilities of the project.

Community Context
By creating site boundaries that blur the pedestrian and vehicular spaces, the project is able to invite the community to engage with the landscape through community pathways. These pathways provide ample room for student and public to interact with the built project and inspire a more active lifestyle for our future generations.
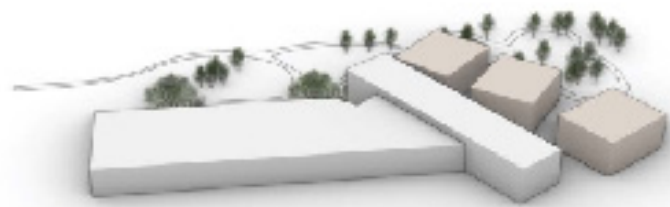
Community Pathways

Outdoor Open Space

Site Diagram

Preserving the Landscape

Existing Trees

The site features several historic trees that could visually symbolize the story of Berry Elementary School. The entrance to the building was oriented toward the large existing tree in the center of the courtyard. The building's program called for the school to serve as a threshold for new beginnings. The protection of these trees became a key design element in the project team's initial decision to preserve a centuries-old tree. It was evident from the outset that this decision would serve as a tribute to Berry's past and a **symbol of its future trajectory.** The building's primary entrance is thoughtfully aligned with this majestic tree, enhancing its beauty and significance.

Resource Integration

Upon entering the school, the first programmatic features encountered are the administration area on one side and the community gathering room on the other. Progressing along the learning pathway, one is enveloped by an array of facilities, including the Maker Space, the Commons Space, the Gym, the Art rooms, and an Outdoor Learning Courtyard that leads to the cafeteria.

Physical Environment

Structured Progression
Beyond the entrance, the programming is separated into public resources and private classrooms. These public spaces create a central hub surrounding the school to support the growth and development of students.

Personalization
Pre-kindergarten and SPED are designated as separate areas situated in a different wing of the building. Given that this structure consists of only one story, it is practical to allocate space for preschoolers here to have a more child-like scale. On the other side are the pods, representing a source of pride for the new school. The physical separation is helpful for age differences between older middle school students from the pre-kindergarten and kindergarten age. The team organized each grade into collaborative spaces within classrooms, each distinguished by a unique color, offering 1st graders a place to anticipate as they progress. One day, they will have the opportunity to belong to the 6th grade pod. By incorporating elements of personalization, the pathway becomes more responsive to the unique needs of each learner. These pods are prominently visible from the community outdoor plaza, welcoming the neighborhood.
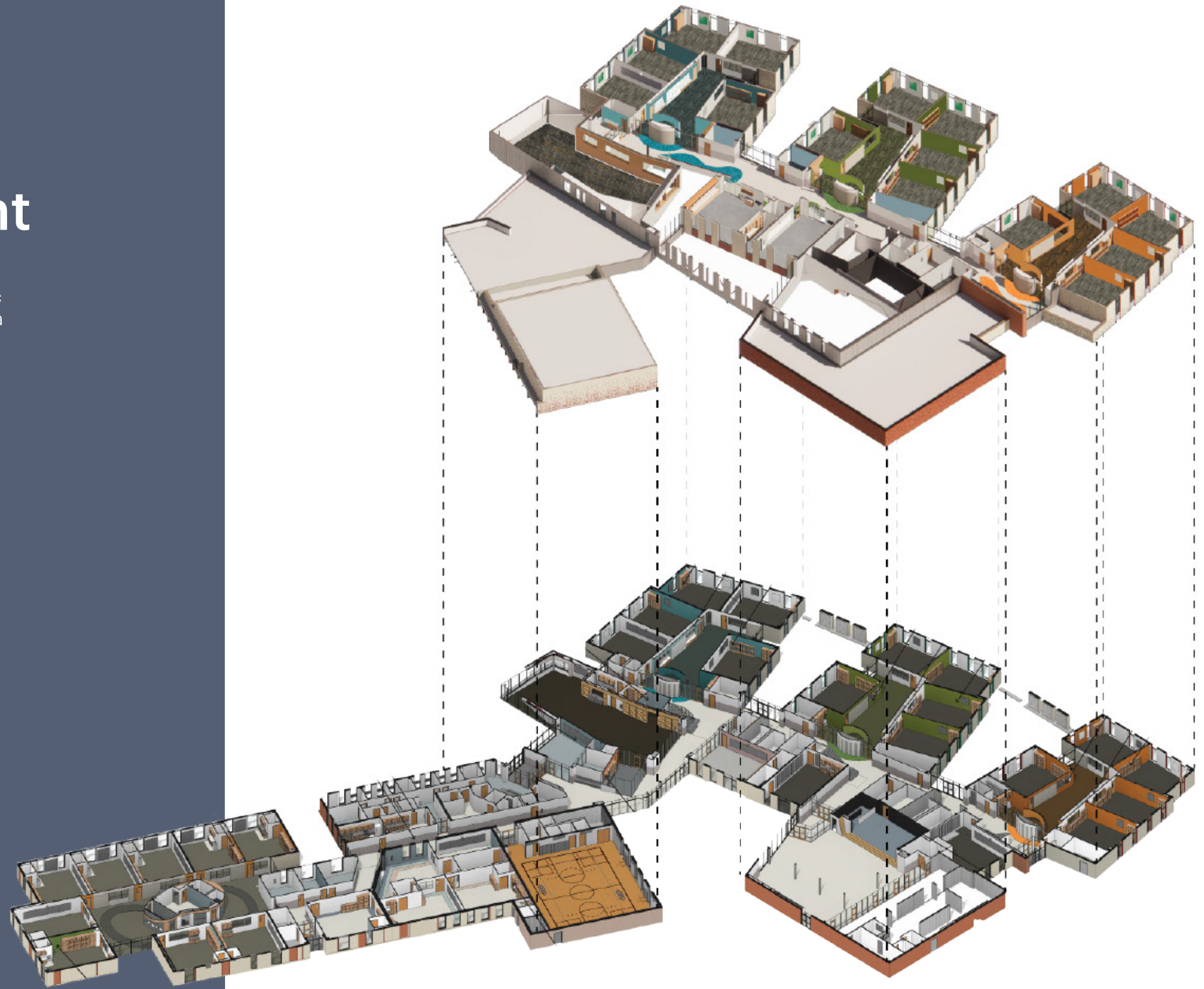
Project Axon

Student Success

Supportive Educational Areas

Supportive spaces in school such as libraries, special education classrooms, and exterior environments, play crucial roles in fostering holistic development, inclusion, and well-being among students. The learning convergence, in the **heart of the school**, offers a series of important programming that is vital to student success. They serve as **dynamic learning hubs** and community spaces for within schools that can provide access to diverse resources. The library offers opportunities for collaboration, research, independent study, discovery, and can deepen students' understanding of subjects beyond the classroom curriculum. Special education and **sensory environments** are designed to support students with diverse learning needs and abilities. These spaces are tailored to provide individualized instruction, interventions, and inclusive areas that are responsive to their unique needs. Special education classrooms can foster a sense of belonging and acceptance, promoting social and emotional development.

1 Multi-purpose Community Room
This room is located at the entrance of the building to foster engagement with the surrounding community and promote the voices of school partners.

2 Maker Space
In response to the school being STEM oriented, the design team prioritized having allotted space for exposure to digital and media arts.

3 Collaborative Space
The group areas in the center of each classroom pod provide a variety of learning options to facilitate different style and student choice.

4 Exterior Learning
Allows for learning activities to flow between indoor and outdoor spaces. The arrows demonstate this flow between spaces.

5 Gymnasium
The gymnasium encourages students to be active and live a healthy lifestyle. These ideas can promote wellness and positive impact on the mental health of students.

6 Special Education Sensory
These environments are dedicated spaces designed to support students with diverse learning needs and abilities.

7 Art Room
Creates a place were students can create and explore their talents and develop artistic abilities.

8 Teacher Work
Collaborative area for staff support at a convenient proximity to student classrooms.

Level 1 - *Plan*

First Grade Pod
Second Grade Pod
Third Grade Pod
Pre-K/Kindergarten

Supporting the Curriculum

Collaborative Educational Areas

Another supportive space is the exterior environment of C.B. Berry that encompasses outdoor spaces such as playgrounds, sports fields, and outdoor classrooms. This program offers valuable opportunities for physical activity, exploration and connection to nature. **Outdoor play can promote emotional wellbeing,** reducing stress and anxiety among students. By investing in these spaces, schools can create environments that empower students to thrive academically, equipping them to succeed in school and beyond. These exterior spaces help to provide lighting and dynamic natural views to each classroom pod. The exterior learning environments and spaces give direct access to the natural landscape for all classrooms on the lower level.

1 Classroom
Pod style classrooms promote a sense of place and cross collaboration within the grade.

2 Collaboration Space
Central Collaborative spaces were strategically placed in the center of each pod to encourage a variety of learning styles.

3 Learning Commons
This centralized space serves as a learning hub for the school. Providing parent and community meeting rooms, a library, and flexible learning spaces.

4 STEM Learning
In response to the school being STEM oriented, the design team prioritized having allotted space for investigation and additional resources to support STEM learning.

5 Seed Spaces
These small nook spaces allow for quiet reflection and personal learning. The design for these spaces is based on naturalistic elements of a seed, this call to nature relates to a student's growth journey and promotes wellness with biophilic elements.

6 Cafeteria & Auditorium
Cafeterias provide a designed space for students to gather. This promotes areas to build relationships with peers and they play a crucial role in ensuring students have access to nutritious meals. This design particularly includes a stage space that serves as a platform for students to express themselves through various art forms including music, drama and dance.

Level 2 - Plan

Fourth Grade Pod
Fifth Grade Pod
Sixth Grade Pod

The Classroom

Collaboration Organization

As labeled, the implementation of the pod method is organized by grade. This system of programming allows for a sense of personalization and collaboration. Within each grade, a clear distinction indicates movement from one to another by color and physical grouping. This marks a sense of accomplishment and progression through the school, which symbolizes the movement a student has through the learning journey. Within each of the pod systems is a collaborative space that provides students with choice to flow between environments to better suit their needs.

Level 1 - Plan

Neighborhood Classrooms
These classrooms are tucked into a pod section and allow a sense or community and opportunities for cross collaboration.

Collaborative Educational Areas
These supportive learning environments provide area in between the neighborhood of classrooms for each grade.

Collaborative "Seed" Space
The "Seed" space shows areas inspired by nature that promotes natural elements into the built environment.

Learning Convergence

Central Learning Model

In this diagram, the central learning convergence is highlighted to help provide supportive programming to students. The library gives opportunities for investigation, studying materials beyond the classroom, and play. The interior elements help to promote these types of actions. With considered elements like flexible furniture and meeting rooms. Students can find contemplative spaces or be able to gather in large groups to organize ideas. The introduction of natural lighting elements serve the central double-height space as well as the classrooms that benefit from the additional lighting passing through the higher level windows. The maker space provides additional supportive spaces for introduction to STEM ideas into the core curriculum. Exposure to these concepts early on in a student's academic career can have positive impacts on their likelihood to pursue a career in the field. These kinds of thoughtful conversations help to address parent and staff ideas critical to supporting community efforts.

By working to develop these supporting and developing spaces, the students can extend learning beyond the classroom.

Level 1 - *Plan*

Flexible Learning
Flexible furniture gives choice to students to take charge of their learning experiences in the library.

Spaces to Gather
Areas for students to gather as collectives and share ideas from peer to peer.

Maker Space
Another supportive space is the exterior environment of C.B. Berry that encompasses areas for exposure to STEM curriculum.
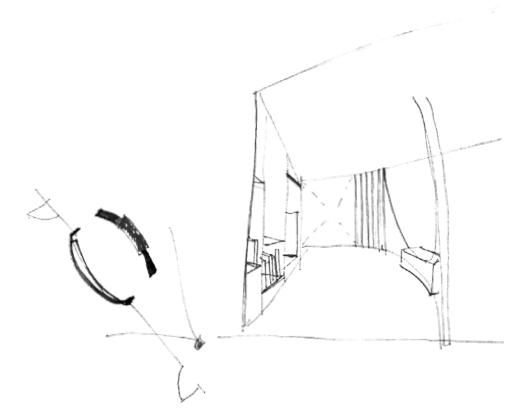
Educational Environments

Dynamic Learning Spaces
By working to develop the supporting learning environments, the school can invest in better serving the student population. Each of these spaces is an extension of the classroom experience and develops the student beyond the course curriculum.

Learning Pathway Diagram

Pod Sketches

Learning Convergence
At the heart of the school lies a rich array of various resources such as science classrooms, the library, cafeteria, and maker space, strategically positioned to cultivate innovation and **cultivated learning experiences.** With all students considered, there are spaces for many and all to collaborate and explore. This area also features a parent room for community engagement in the school.

Collaboration Spaces
PreK-Kindergarten classrooms provide this age group with sensory environments that can help to meet **unique student needs**. They offer specialized resources and sensory friendly accommodations to create optimal learning experiences for young students. These classrooms give a protected experience away from the public side of the building, bringing the scale down to one story to better suit young students.

Learning Pathway
While a corridor merely serves as a passageway from one point to another, a **learning pathway** symbolizes a deliberate and structured progression towards enlightenment, proficiency, and self-discovery. A learning pathway transcends the physical confines of a corridor, embodying a multifaceted journey of knowledge and learning.

"Seed" Spaces
The Collaboration Spaces provide students visual connection to nature; improving mental engagement, attentiveness, and reducing stress. These spaces were set up to allow for multiple scales of group interaction. As the Collaboration Spaces evolved, the concept of a metaphorical **"seed"** developed that would provide students an area for respite, small group interaction, study and exploration.

Indoor and Outdoor Learning

Exterior Learning
The outdoor plazas welcome the neighborhoods into the community exterior spaces. A large plot of walkable land on the Northeast side of the site is dedicated to providing space for walkable paths to promote active lifestyles and exposure to the community. A major driving concept for this project was the connection to the exterior and the spaces that are **activated in between the learning pods**. These in between spaces provide easy access to natural elements and daylighting in the classrooms. Although this is a schematic render, it demonstrates the design intentions of the project.

1 Classroom Access to Outdoors
By providing access between natural environments and the classrooms, the students are able to integrate real examples of earth and science into their curriculum.

2 Direct Access to Light & Air
By providing natural daylight to the classrooms, the students are able to have better health and wellness during their time at school.

3 Exterior Seating
The seating partitions create spaces to pause and slow down in the exterior environment.

4 Native Trees & Vegetation
The implementation of native species helps to promote the already flourishing surrounding landscape and encourage growth of existing trees.

5 Maximizing Permeable Surfaces
By maximizing water permeable surface we can reduce water run off and slowly reintroduce water into the soil to promote growth of natural elements.

6 Security for Exterior Environments
The guarding partitions that enclose the courtyard space help to reduce the risk and increase student safety.

Energy Model Analysis

COLLABORATION
SPACE
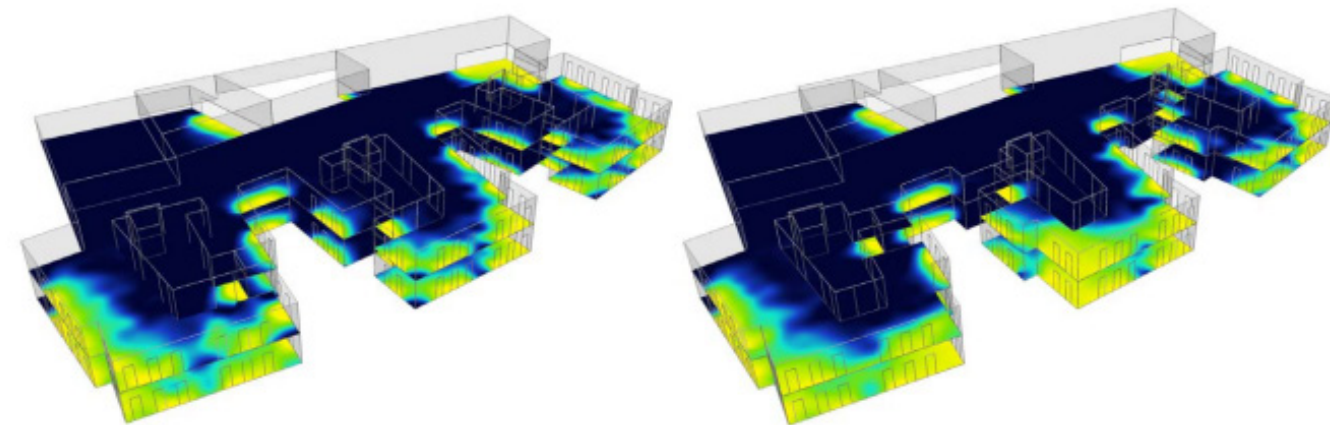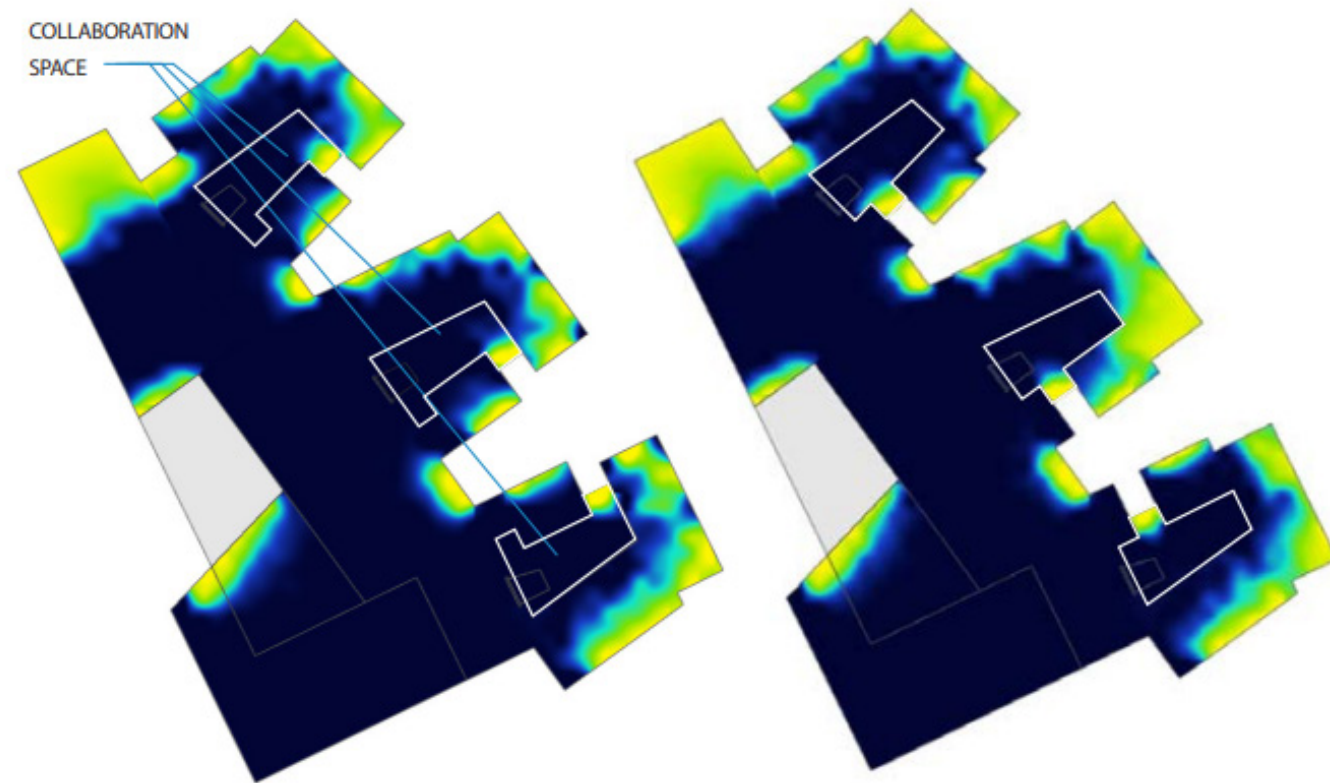
Pod Configuration 1   **Pod Configuration 2**

Energy Optimizing

Energy Efficiency
The Design Team recognized the need to analyze spatial and programmatic adjacencies to maximize natural light into the student spaces that would benefit from this light and views, while minimizing heat gain to programmatic areas that did not need windows and could be used as buffers to other spaces with high occupancies.

While analyzing the layout of the Shared Collaboration spaces at each grade pod, light studies were performed to determine the more ideal location for visual connection to the exterior that would bring natural light into these spaces. Configuration 1 has the exterior connection set at the far end of the Collaboration Spaces, while Configuration 2 has the connection set closer to the pod entry.

Through lighting analysis, the team was able to determine that Configuration 1 **provided more natural lighting in the Collaboration Spaces** where it was more ideal. Providing natural light at the end of the Collaboration Spaces creates a more fluid connection through the space and to the exterior. Through similar analysis, the design team strategically located the kitchen space at the southern most side of the building, minimizing southern solar heat gain. The kitchen provides a buffer zone for the Cafeteria, which has its views and daylighting strategically oriented to the North. These vertical windows transfer light deeper into the classrooms, providing light to the collaborative spaces in the center.

Human Scale

Exterior Patterning

In order to make students feel more comfortable in their learning journey, the design team considered the human scale when developing the exterior. The gradation of the brick lowers the double height scale to be experienced as a **blending into the sky**. This approach lowers the walls of the school to a smaller scale, allowing for a more comfortable experience in the exterior environments. The durability of the brick is a long term design approach that can withstand the test of time. The accented exterior mullions tie into the interior pod colors that help to **visually connect the exterior to the interior**. This further elevates ideas of personalization and ownership over the pod spaces. The exterior helps to drive this design idea.

Results and Impact
Responding to Guiding Principles

The classroom integration of STEM Rooms, Science, Technology, Engineering, and Mathematics, creates an increased presence on campus. This encourages students to consider these fields through early exposure to these topics. By encouraging learners to be involved in a variety of topics, they can be better equipped with advanced learning. Architecturally, the design team updated these rooms with increased visibility that aids student and community engagement. The visual connection to STEM promotes a stronger culture and presence in a school, helping to engage student interest.

The double use of the Cafeteria and Stage spaces helps to optimize their limited uses, increasing the amount of time these spaces are utilized and creating more versatile spaces. The updated colors and access to natural lighting helps to engage these programs into the natural landscape. The introduction of playful shapes and colors helps to increase student curiosity and stimulate creativity. These places provide critical areas for gathering.

① Updated Lighting & Sound System

② Playful Stage Elements

③ Access to Daylight

New Cafeteria

Original Cafeteria

After ← **Before**

New Maker Room

Original STEM Room

① Open Storage

② Improved Audio & Visual Technology

③ Improved Natural Lighting

1 Direct Access Outside
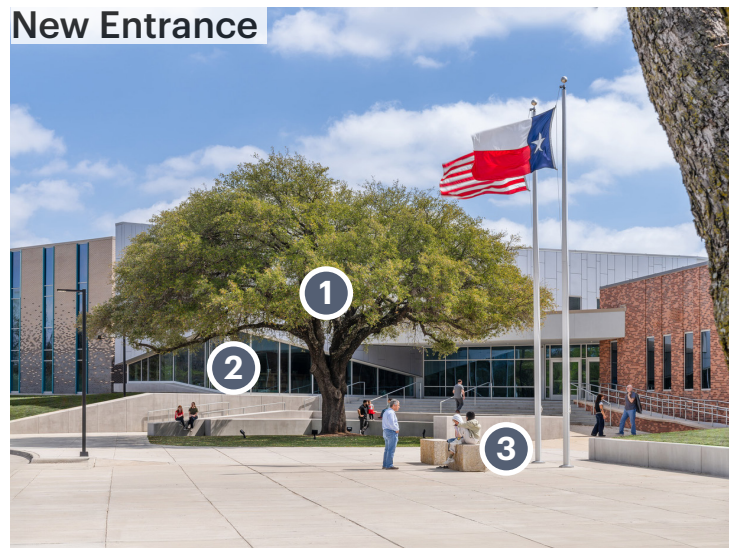
2 Central Tables Layout

3 Ample Storage Solutions

New Classroom

Original Classroom

After ← Before

New Entrance

Original Entrance

1 Original Tree to Oriented Entrance

2 Natural Lighting

3 Activated Entry Courtyard

Results and Impact
Attaining Client Goals and Outcomes

The classroom design has flexibility that allows for adaptability to better suit the school's learning objectives. An example of this is the collaborative spaces in the center of each learning pod that provide a shared learning space for classes to work together. This ensures cross collaboration across the grades and provides more opportunities for flexible learning. This choice better suits the active learning and growth that students can contribute to their own learning styles. Another benefit is shared resources across classrooms. With updated amenities and ample storage solutions, educators have more access to materials that can improve student learning. The attention to the entrance creates a new threshold for students to begin their learning journey. By activating the courtyard and preserving the existing tree, the entrance becomes a new identity marker for C.B. Berry Elementary School.

Exceeding Expectations

Results and Process

The project was able to enrich the community and continues to provide a sense of place for our students and staff. It engages with the context and has become a central space for growth, learning and exploration. By responding to concerns and design constraints this project has been received positively by the stakeholders. Below are some quotes from current users who have felt the impact of the intentional designs.


"The Arlington ISD is overjoyed with how well the actual facility came to life from the initial visioning. From the newly created special education suite and pre-kindergarten wing to larger classrooms for kindergarten through sixth grade, all constructed around dedicated, secure collaboration spaces with individual outdoor learning courtyards, the new facility also boasts a larger library, cafe and auditorium and gymnasium that serves as a storm shelter."

Kelly Horn, Berry Elementary School Assistant Superintendent of Facility Services

"We are excited about what this is going to bring to our community, not just for our district but especially in our east Arlington area. We know this building will provide opportunities for our east Arlington students."

Rose Ravin, Berry Elementary School Principal
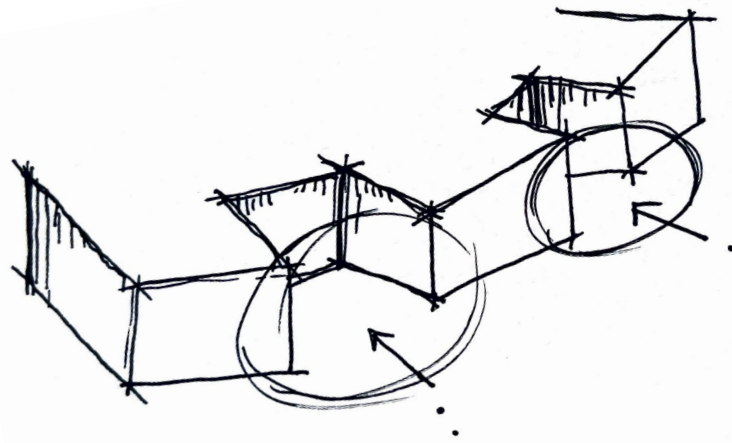
Unintended Results
The construction of C.B. Berry Elementary School has sparked increased community involvement. Parents, teachers and local supporters all came together to support the project, leading to stronger bonds and connections. Oftentimes limited resources in a school can hinder student success. With the intergeneration of updated technology and architectural spaces, educators are able to explore cutting-edge teaching resources that help prepare students for the increasingly innovative world.

Sustainability Goals
Through the hard work of the design team and the school district, the efforts resulted in a more sustainable project that accounts for increased eco-friendly features and considerations. Some of these are optimized energy studies that resulted in strategic window placement and saving existing trees during construction. Also, the detention pond provides water run off for the site and existing homes to help mitigate flooding.

Results and Process

District and Community Goals
The district goals of **community, resilience, wellness and student futures** were realized through a variety of dynamic interior environments. Through the established learning convergence and the dynamic collaborative spaces, the considerations of community and student futures were optimized. Within the smaller scales of the learning pathway and the seed spaces, ideas of wellness and resilience were prioritized through design thinking.