



FFCA North High School Campus

Foundations for the Future Charter Academy
Calgary, AB





Corridor with opening to three-storey rock climbing wall

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Executive Summary

LEARNERS FIRST

Foundations for the Future Charter Academy (FFCA) is a K-12 public charter school in Calgary with the vision of excellence in student achievement and character development through distinctive teaching and learning. The integrated architectural and interior design of the North High School Campus is centered on the notion of reducing the cultural gap between secondary and post-secondary student experience where collaborative learning activities are dispersed throughout the school. The shared goal of the design team and FFCA was to promote healthy group interactions and create an atmosphere that would better prepare students for a successful transition into post-secondary education and into the future of their careers.

DIVERSITY, EQUITY + INCLUSION

The ethos of FFCA is to provide a welcoming, caring, respectful, safe and inclusive learning and working environment that respects diversity and fosters a sense of belonging. FFCA student opinions, alongside the administration and faculty, were highly sought after to create a new school that can adapt to the changing needs of the contemporary student and be accessible to any learner or educator who wants to be a part of the FFCA community.

INNOVATION

The entire school is designed around the assembly space which, while open to all three floors, was designed as three unique spatial experiences for three different types of activities. There is a more formal presentation area at the lower level meant for TED talk-type functions with smaller groups of 30. The next level is more social with niches and seating pods for daily social interaction and then the upper level is designed for group study adjacent to the learning commons with laptop and charging locations.

COLLABORATION + CONNECTION

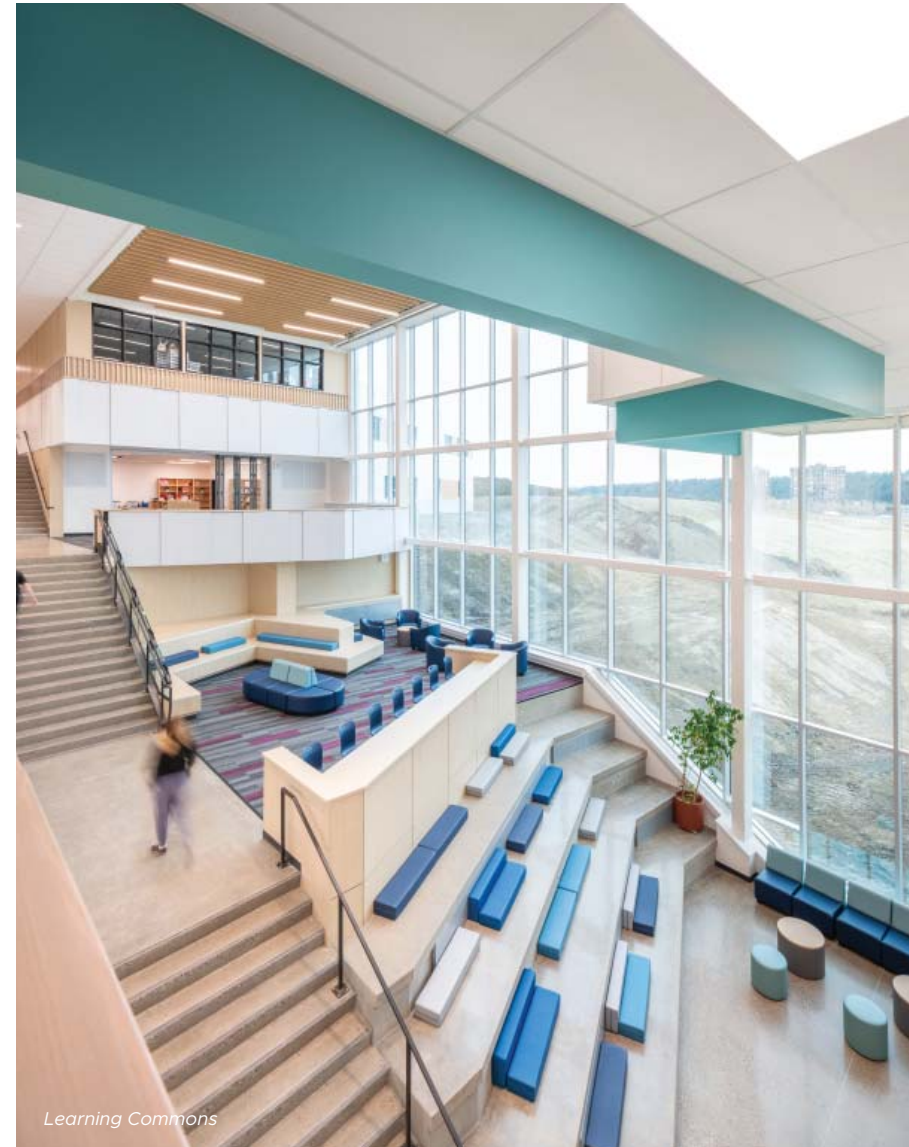
The architecture team utilized BIM and other collaborative tools early in the design process to create models that could be shared with engineers, trades and other consultants for collaborative input and continuous improvement. This integrated process fostered a positive and efficient working environment through seamless information sharing, participation from all disciplines to solve problems and waste reduction by sharing modelling duties between technologists, engineers and trades.

PLACE MATTERS

Community and family are at the heart of FFCA's charter and large gatherings such as theatrical performances and sports events can now be accommodated within the new facility. The Learning Commons blends new methods of teaching, learning, studying and socializing to form the heart of the school.



Above: Each floor is open to a three-storey climbing wall. Colours designate different floors and compliment the glulam beams and natural daylight seen throughout the space.



Learning Commons

Above: The Learning Commons has three distinct zones to support different social interactions and gatherings.



Scope of Work + Budget

OWNER

Foundations for the Future Charter Academy (FFCA)

SITE AREA

406,800 sq. ft.

BUILDING AREA

150,049 sq. ft.

GRADES

9-12

STUDENT CAPACITY

1,000 students

OCCUPANCY DATE

March 2024

CONSTRUCTION COST

\$36.1M

The school supports multi-modal access through connecting to well-established pedestrian and cycling networks.

School Community Research + Engagement

CONTEXT

The Community

The school is located within the well-established community of Montgomery in the northwest quadrant of Calgary. The neighbourhood is characterized by its tree-lined streets, history and family-friendly charm with nearby retail amenities on Bowness Road, access to a plethora of walking and cycling pathways as well as proximity to the Bow River and Shouldice Athletic Park. The population of Montgomery is just under 5,000 and is expected to grow by 55% by 2042.

Interested Parties (i.e., stakeholders)

Interested parties (i.e., stakeholders) for this project include the Foundations for the Future Charter Academy Project Team, Alberta Infrastructure, the City of Calgary, teachers, staff members and administration, students and local community members.

Project Challenges

As a sloped site south of Shaganappi and the Children's Hospital, the area featured several plateaus over 15 metres. Building on the flattest portion meant a building with multiple small steps along the road, which would cut the site into a very defined front and back. The design team's approach leverages the various plateaus by orienting the building east and west along the most dramatic elevations. At three stories, the building creates an animated school playfield as a courtyard and opens up the site to better visibility and access.

Available Assets

As part of the initial base documentation, Alberta Infrastructure engaged a firm to provide a Site Investigation report, which included a Site Survey, an Environmental Site Assessment, a Geotechnical report and an arborist study. In the former building, structural concerns were raised when a series of ceiling tiles fell from the ceiling, prompting a structural assessment that resulted in a portion of the building being rendered unfit for use—exacerbating the pressing need for a replacement facility. As an interim measure, FFCA has leased an additional school facility in the community of Acadia from the CBE to house a large portion of the displaced student population until the replacement school building is ready for occupancy. This meant that the site was vacant and didn't require the project team to create a plan to work around an active school schedule.

PROCESS

Visioning Process

As a relatively small charter school board, this is the first time FFCA has had the opportunity to design a new facility that is specifically suited to the academy's needs and requirements. FFCA put together a comprehensive building committee led by FFCA's Superintendent and the Director of Facilities and supported by the school's principal and educators.

FFCA worked closely with Alberta Education to refine the school's program in a manner that meets the needs of FFCA while complying with the school capital manual requirements. The design of the educational spaces provides the flexibility to meet the objectives of the school and the Province now and into the future.

FFCA has a highly engaged student body that is constantly learning and striving for excellence in leadership and education. The busy curriculum means that there is little time or need for large informal spaces for students to spend their free time, something that tends to be more prevalent with other school boards. As a result, classroom space is in high demand with open learning spaces, break-out rooms and informal study spaces being less of a requirement. The project design team worked collaboratively to develop a school layout that provides the educational efficiency that FFCA is looking for, while still including some unique programmed areas such as the terraced learning commons that will break from the more structured and focused learning environment elsewhere in the school.

Value to the Community

FFCA currently has four Elementary campuses, with one facility in each quadrant of the city and two middle schools serving north and south populations. The new North High School Campus is the only high school under the FFCA umbrella of facilities. Admission to the school is highly competitive and the student population comes from across the City of Calgary and surrounding area, resulting in larger commuting distances than a typical high school. FFCA has a robust bus program which will capture the majority of students commuting to the campus and with the larger capacity, this new high school will be able to accommodate more learners.



Gymnasium in the former high school (left) versus the gym in the new FFCA North High School Campus (right).

Within the community of Montgomery, FFCA North High School Campus contributes significantly to the neighbourhood's vitality by providing high-quality education and fostering a culture of academic excellence, innovation and community engagement. The school serves as a hub for learning and personal development, preparing students to become responsible and successful members of society. Beyond academics, this school enriches the community through various extracurricular activities, sports programs and community service initiatives, instilling values of leadership, teamwork, and social responsibility in its students. Additionally, the school often hosts events and open houses that welcome members of the community, strengthening ties between the school and its neighbours. By nurturing the intellectual, social, and emotional growth of its students, FFCA Montgomery High School enhances the overall vitality and cohesiveness of the Montgomery community, leaving a lasting positive impact for years to come.

Engagement that Fostered Diversity, Equity and Inclusion

Since this school was being for a Charter Board that had never built a school before, the design team needed to provide FFCA with examples and illustrations to demonstrate the potential of a new construction project as well as research in best practices for spaces that could accommodate robotic labs, indoor climbing, science labs and other essential spaces for high school students. This provided an opportunity to engage with students, faculty, administrators, community members and other interested parties to consider all perspectives. The design process primarily took place during COVID-19, so all of the sessions happened over Zoom to make it accessible for everyone to attend.



Drama room in the former school (left) versus the drama room in the new FFCA North High School Campus (right).



Exterior ribbons derived from striations of the adjacent land are also highly expressed in the interior spaces. These ribbons wrap themselves around the Learning Commons, allowing for the Learning Commons space to be conceptually part of the exterior land.

Physical Environment

CONTEXT

Physical Attributes of the Environment

FFCA North High School Campus is located in Calgary's northwest community of Montgomery. The area is characterized by its pronounced topography due to its location on the slope of the Bow River Valley escarpment. Initially established as a community in 1911, the Montgomery community has gradually grown over time with residential development dating back to the 1940s. The community was a town before being annexed to the City of Calgary in 1963. Montgomery has strong urban connections, with the Shaganappi Trail providing a boundary to the east and the Trans-Canada Highway intersecting the community near its southern edge. Bowness Road provides additional connections to surrounding communities and its mixed-use commercial and residential streetscape attracts visitors from within the community and surrounding areas.

The Bow River provides a natural boundary to the south and east, flanked by the Bow River pathway—a busy commuting and leisure corridor for pedestrians and cyclists alike. Major destinations in the immediate community context include several major healthcare facilities (i.e., Alberta Children's Hospital and Foothills Medical Centre), the University of Calgary and Shouldice Athletic Park.

Fits Within the Community

To accommodate the site requirements, the project team opted for a three-storey building layout that optimizes the building footprint on-site. The building location is set back a considerable distance from the road to maintain an appropriate scale with the surrounding neighbourhood while still providing a meaningful presence and an inviting interface to the community.

RESPONSE

Inspires and Motivates

Nestled amidst the scenic beauty of Calgary’s northwest, the campus offers an environment for learning and growth. Its modern architecture and state-of-the-art facilities (e.g., interior climbing wall, multi-media labs, performing arts, physical education, science labs, learning commons) foster creativity and innovation, encouraging them to reach their full potential. With a diverse community that celebrates individuality and collaboration, students are inspired to excel academically and personally and learn the necessary skills needed to excel in their pursuits after graduation.

Innovative Aspects

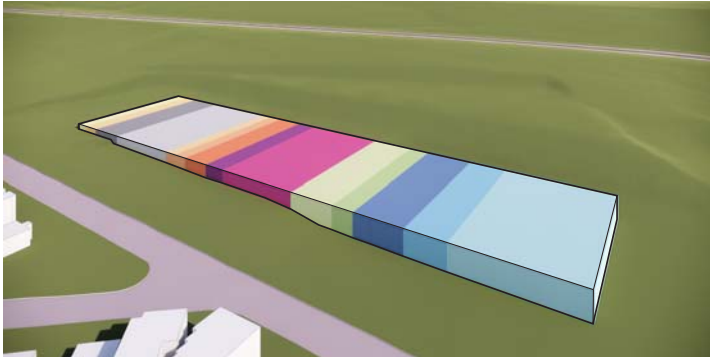
Located on the edge of a steep slope in the community of Montgomery, the design team was inspired by the unique topography. To provide more playfields and green space to the neighbourhood, the building is turned 90 degrees from the existing school footprint with the program laid overtop of the hillside resulting in a three-storey structure. At the confluence of these levels is the Learning Commons, a program element that blends new methods of learning, teaching, studying and socializing, forming the heart of the school. Tiered seating that extends through the triple-height glazing into the exterior helps unite this unique space with the landscape. Horizontal striations from the topography express themselves as ribbons on the facade, bending inward to wrap around the Learning Commons—establishing datums and patterns that find their way through the entire project at every scale.

Diversity, Equity and Inclusion

FFCA North High School Campus provides a unique variety of spaces that cater to lecture-style teaching but also to collaborative, multi-purpose functions. The interweaving of open spaces, compartmentalized classrooms and specialty program addresses the fluid needs of 21st century teenagers as they navigate the threshold to adulthood and adapt their environment to suit their learning needs.

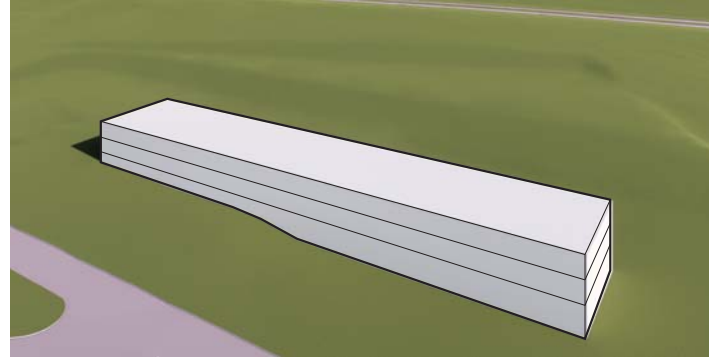
Sustainability and Wellness

The facility is set to achieve LEED Silver status. The materiality of the interior and exterior is grounded in natural materials, connecting with the surrounding landscape. The use of natural materials and calming colours is intended to provide a sense of comfort, well-being and belonging. The materials feature both neutral tones and vibrant colours visible along the Bow River and nearby Rocky Mountains. This design also aligns with the school’s approach to teaching students environmental stewardship and connecting with the landscape through outdoor education and the campus’s trail system (i.e., Nature Loop).



Program

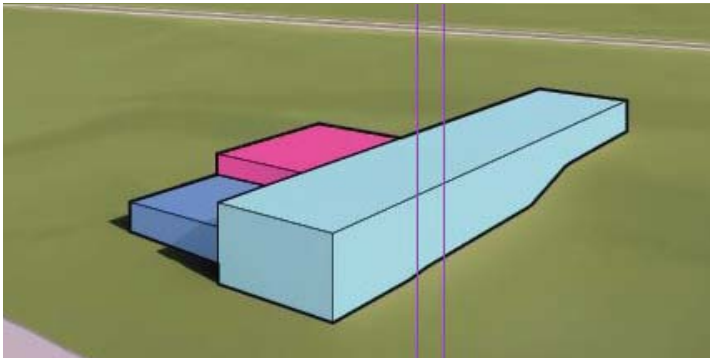
A simple review of the programming requirements on-site highlights the need for the school to be a multi-story building in order to accommodate the building and site requirements.



Stack

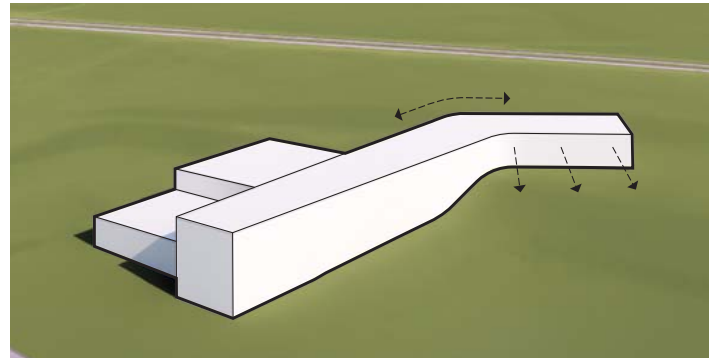
Upon a review of several two-storey and three-storey building options, it was determined that a three-storey school would provide the best and most efficient use of space, allowing FFCA to achieve all of the building and site requirements without sacrificing any key requirements.

- CLASSROOMS
- SCIENCE ROOMS
- ANCILLARY LARGE
- ANCILLARY SMALL
- INFO SERVICES
- CTS LABS
- GYMNASIUM
- LEARNING COMMONS
- ADMIN & STAFF
- MECHANICAL
- PHYSICAL EDUCATION
- STORAGE
- WASHROOMS
- FLEXIBLE SPACE
- CIRCULATION
- WALLS & STRUCTURE
- WIRING NETWORK



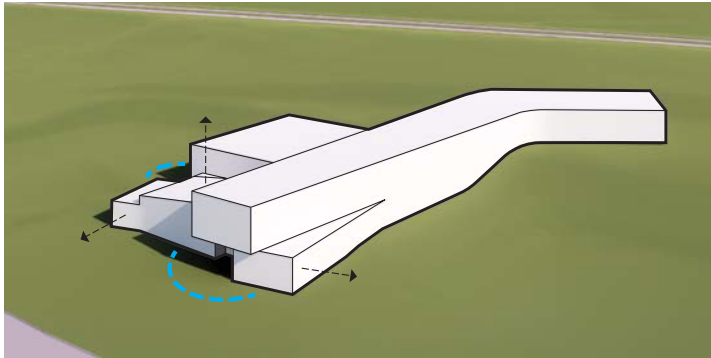
Organize

The school has been organized into three defining elements: Single-storey performing arts space, double height gymnasium and service area as well as a three-storey educational block, efficiently consolidating the core educational components, and providing access to the upper bench of the site.



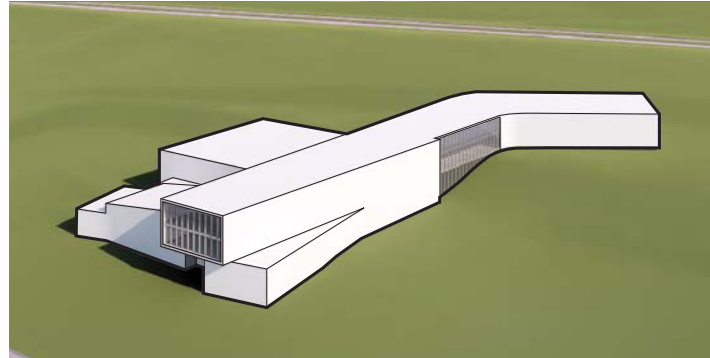
Bend

The simple move of 'bending' the educational block of the building creates a better interface with the surrounding site by aligning the building with the edge of the surrounding slopes. Doing this also increases and enhances the amount of South and West views towards the surrounding community, the Bow River and the mountains beyond.



Pull

By pulling key elements of the massing entrances are formed and outdoor public spaces are created. The main entrance has a large overhanging element that will signal the importance of the entrance way while providing shelter from the elements.



Open

Providing large glazing elements at strategic locations creates a sense of openness and connects the inside of the school with the natural environment outdoors. A large expanse of glazing will connect the learning commons to activity outdoors which includes an outdoor classroom and naturalized areas.



Texture

The solid materiality and strong horizontal lines of the main level suggests a harmonious relationship with the earth, contrasted by the light and lustrous facade of the upper levels which appear to be lightly resting on the solid foundation. Wood elements provide warmth and a connection to nature, while textured panels will provide rhythm and scale to some of the building's larger massings.



Connect

Landscaping, hardscaped surfaces and parking access connects the school to the surrounding community and to students commuting to the site from other parts of the city.





The upper bench was highly under utilized and somewhat inaccessible, particularly for those with limited mobility. The new facility has improved access to the upper bench which takes full advantage of the site offerings.



Educational Environment

CONTEXT

Education Vision for the School

Progression: The typical student who attends FFCA North High School Campus is at the final stage of their education (i.e., grades 9 to 12). These critical years during high school will prepare students for the next steps of their lives, either entering the workforce or pursuing a post-secondary education. The concept of progression denotes this final stage that will help mould and define the students' future while preparing them for the next steps in their lives.

As you enter the school doors, your eyes are immediately led to the central open atrium and staircase. While walking down "Main Street," you will seamlessly climb to other levels of the school and the site leading to new perspectives, connections and educational opportunities.

Grounded: FFCA is grounded in the core principles of academic excellence, character development and leadership. At the core of the school, the leadership program is the central focus and an unmissable space as you move through the school. Clad in earth-like masonry materials, the core leadership component reads like an extension of the hill it is connected to—providing the foundations for the educational components above it.

Connected: The FFCA North High School Campus is a welcoming and cohesive facility. The effective and rational organization of program elements drives connectivity. The primary organizing element of the school is the main corridor, which we refer to as the "Main Street" of the school. This Main Street will be highly active on all levels and it will be connected to the learning commons atrium space, providing abundant opportunities for interaction, exchange of ideas and collaboration between peers and educators. Administrative hubs are provided in central locations on levels two and three to encourage openness and interaction with staff members.

RESPONSE

Environment Supports Curriculum

The increased number of classrooms, study spaces and unique program offerings aligns with the experience FFCA offers for its students who value having more time for academic pursuits as well as having the independence to engage in skill-building activities and customize their timetable to fit within their unique goals and learning needs. The well-rounded curriculum and facility offerings will help students transition into their adulthood and potentially a career or post-secondary.

Environment Supports Various Learning and Teaching Styles Through Adaptability

The design of FFCA North High School Campus blends dynamic open learning areas with traditional teaching spaces, fostering both collaboration and focus. This strategic harmony results in a versatile architecture that anticipates the future of education. This adaptable environment empowers educators to customize spaces according to their teaching styles and students' requirements. From smaller breakout areas to collaborative classrooms and specialized labs, the layout accommodates diverse learning needs. This flexibility not only enhances student engagement but also nurtures independence, allowing learners to personalize their educational journey for their personal growth and development.

Innovative Aspects of Educational Environment

The design team approached every area of the school as an opportunity for learning, maximizing the use of space. Corridors were transformed into versatile "third spaces," catering to group collaboration, independent study, social interaction and other fundamental aspects of a student's secondary school experience. Moreover, the building's design ensures future adaptability to evolving classroom technologies, ensuring that it remains relevant and functional for years to come.

The program offerings at FFCA, such as an indoor climbing wall, create a campus feel that mirrors a post-secondary institution and enables students to engage in diverse activities on campus without having to leave the facility.



Results

EDUCATIONAL GOALS + OBJECTIVES

The expanded array of classrooms, study areas, and specialized programs reflects FFCA's commitment to enriching its students' educational journey. This emphasis resonates with students who prioritize ample time for academic exploration and the freedom to partake in skill-enhancing endeavors, tailoring their schedules to suit individual aspirations and learning styles. The comprehensive curriculum and diverse facilities not only foster academic growth but also facilitate the transition to adulthood, equipping students with the skills and knowledge needed for potential career paths or post-secondary pursuits.

SCHOOL DISTRICT GOALS

A guiding principle was to cultivate a warm, compassionate and inclusive atmosphere conducive to learning and collaboration. The resulting facility offers a learning environment that's responsive to the evolving needs of today's students, ensuring accessibility and inclusivity for anyone seeking to join the vibrant FFCA community.

COMMUNITY GOALS

The school fulfills a need in the city to provide a charter high school experience to students enrolled in the FFCA program. For the local community, the school is a welcome addition that has provided opportunities for outdoor recreation, after-hours programming and an opportunity for teenagers to attend a local charter school.

UNITENDED RESULTS + ACHEIVEMENTS OF THE PROCESS / PROJECT

By pivoting the school and having it blend in with the surrounding topography made it possible to achieve all of the programmatic elements outlined by FFCA as well as provide more usable outdoor space even though the square footage of the school increased.

VALUE + GOOD STEWARDSHIP OF FINANCIAL RESOURCES

Having transparent and open communication between the design team, consultants and trades fostered a collaborative working environment. This was valuable for the project as issues were resolved in a quick time frame during working drawings, resulting in very few change orders. This was especially important during the design phase as it took place during the early stages of COVID-19, which required teams to be nimble and transition to working in a digital environment.

SUSTAINABILITY + WELLNESS OUTCOMES

The facility is on track to attain LEED Silver certification, reflecting its commitment to sustainability. Both the interior and exterior utilize natural materials, seamlessly blending with the surrounding environment. This design ethos aligns with the school's educational philosophy, emphasizing environmental stewardship and outdoor learning experiences facilitated by the campus's Nature Loop trail system.