

# HIGH PLAINS ECE-8 SCHOOL Loveland, CO, USA

2018 James D. MacConnell Award Submission



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“The school was intended to be a state-of-the-art building that would someday be a design standard at Thompson School District.”

- Past Executive Director of Facilities  
Thompson School District

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## Executive Summary



The design process for High Plains School resulted in an engaging learning environment that offers students a variety of opportunities for hands-on, personalized learning.

### Executive Summary

In March 2013, the architectural team was selected by Thompson School District to design a vibrant ECE-8 school that would accommodate 600 students. **The completed school would embody a list of "firsts" for the Thompson School District—the first S.T.E.A.M. program built from the ground up, the first district-run school that encompassed early childhood through eighth-grade classes, and the first sustainably-designed facility in the district.**

After more than a decade of planning and a year of construction, High Plains School opened its doors to students to overwhelming excitement from the Loveland community in August 2016. **The design solution for the 63,500-square-foot ECE-8 facility was a drastic change in direction for the traditional-minded school district.** The school was designed to support S.T.E.A.M. curriculum and incorporate high performance design solutions—resulting in LEED Gold certification that was awarded in March 2017. The design incorporates two academic wings, common areas on both the main and second floors, and integrates creative design details illustrating science and mathematical learning concepts throughout the building.

**The architectural style merges simple forms with a bold color palette to create a rich, architectural language both inside the building and out.** A green roof and learning garden provide opportunities for environmental learning, and bike/walking paths connect the school to the surrounding neighborhoods. Flexible spaces allow for future change while providing the opportunity for various forms of educational collaboration within the school.

**The community's response to the new High Plains ECE-8 has been astounding.** Around 395 students were enrolled in classes for the first year (significantly higher than the District's projections) and it is expected to be at capacity within the first few years of its opening. The design team used an engaging and inclusive design process to develop clear design goals, gather input from a range of stakeholders, develop three distinct design concepts, and then garner consensus towards a final design solution, all while being responsible stewards of the community's finances and schedule.

## Scope of Work & Budget

The facility, designed from the ground up on a greenfield site, was funded through Tax Increment Financing, district funds and an intergovernmental agreement to provide a shared park area with the City of Loveland.

### Costs

Final Construction Cost:	\$16,166,000
FF&E Costs:	\$1,180,000
Site Costs:	\$1,822,000

### Scope of Work

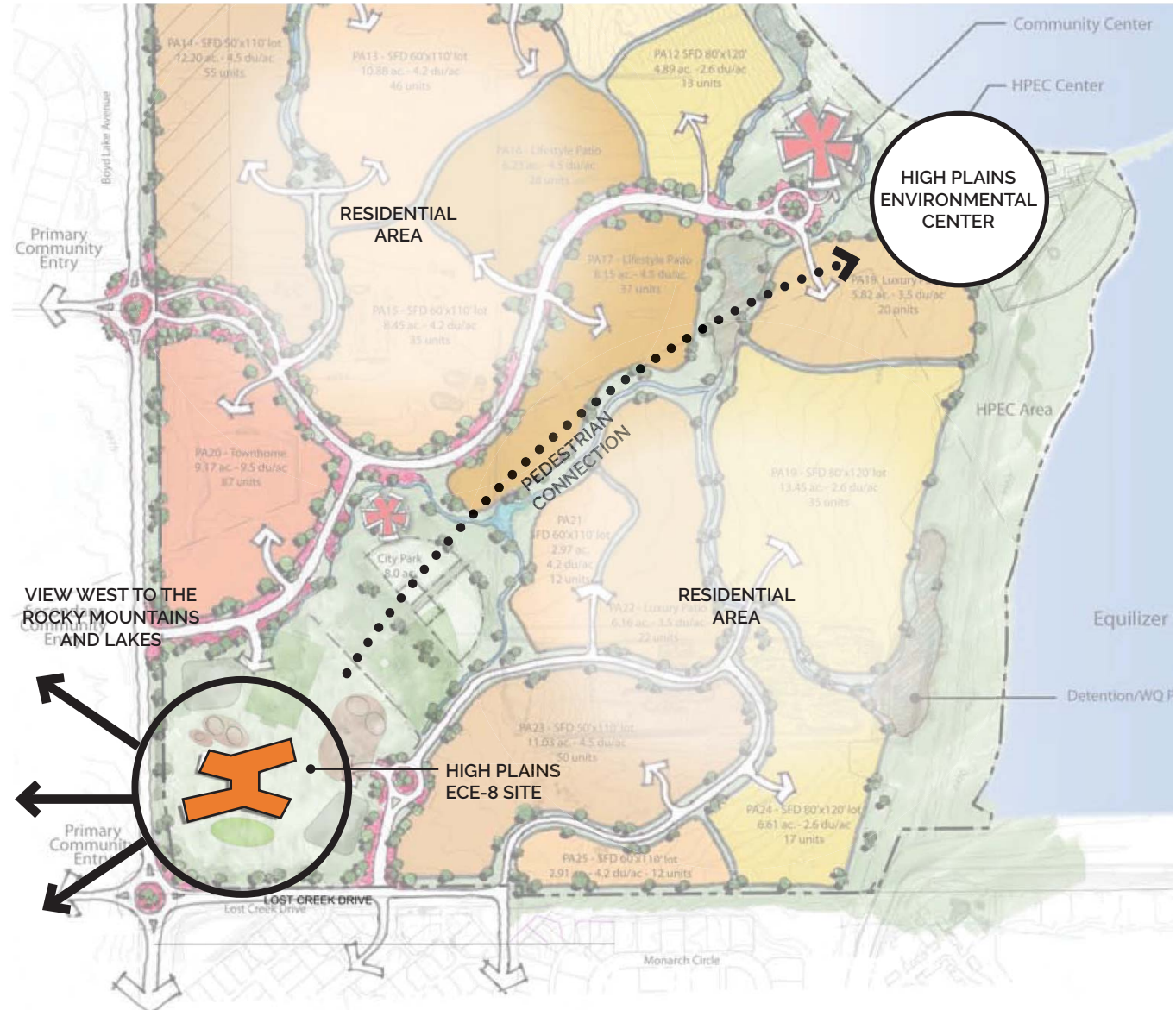
The architectural team's scope included Programming, Architectural Design, Interior Design, and FF&E Design.

### Unique Project Aspect: Programming

The educational programming and planning process went above and beyond a typical design charrette and resulted in the development of a thorough vision for the curriculum even before the Design Advisory Group began developing an architectural direction for the school. The architect and educational planner collaborated over several months with the 25-member Design Advisory Group (DAG) comprised of representatives from across the community to complete this programming task.

### Unique Project Aspect: FF&E Services

The architectural team was responsible for the FF&E scope of work. It was the first time the school district had used an architect to provide FF&E services. The process included the architect leading an eye opening tour of other schools and furniture vendor offices with the principal of the school, facilities personnel, buyers and the school's office manager. The benefit of the tours was to help those attending to see the vast array of options, assist them in creatively thinking outside the box, allow them to understand how the furnishings actually worked and to help realize their potential for using new types of furnishings in the design. The selected furniture at High Plains is usually one of the first items mentioned when asking the school what they like most about the project. The furnishings are very unique compared to what has typically been used in the district and end users feel it contributes heavily to the vibrancy and effectiveness of learning spaces.



**Making Connections: The High Plains site offered unique opportunities for making visual connections to the mountains (to the west) and physical connections to the surrounding neighborhoods and High Plains Environmental Center (to the east).**



## School / Community Engagement

### Community and Stakeholders

The Loveland community is vibrant and diverse with many demographic groups represented. The community places a strong emphasis on art and "traditional" values throughout the city. However, there is also a new influx of residents that have challenged the standard view of what the community should become in the future. High Plains School was formed in this dynamic environment and the stakeholders—who held views as diverse as the rest of the community—included the School District, City of Loveland, and the site developer.

### Challenge: Accommodate Growth

This particular part of the school district was experiencing significant growth with new housing numbers growing over the last decade. A majority of the kids in this area found themselves actually living closer to schools in a neighboring school district and, through School of Choice, were opting to attend those schools outside Thompson School District. The new High Plains School would fill the need to accommodate this growth and bring District kids the ability to more easily attend a school closer to home.

### Available Assets

The project was funded through Tax Increment Financing and the site was given to the District by a local developer. Community partnerships allowed for shared spaces to be utilized in conjunction with the City of Loveland. Passionate community members volunteered countless hours to become advocates for innovative design and then continued to be involved throughout construction. Visionary leadership within Thompson School District helped motivate the community and school stakeholders to embrace a new way of thinking about educational design. Collaboration with the nearby High Plains Environmental Center also took place.

### The Design Advisory Group Process

Design for the two-round early childhood through 8th grade school began with significant inclusion of a Design Advisory Group, which included roughly 25 members involving District staff, administrators, educators, facilities personnel, parents, designers, and community members who helped set the vision and direction of the new school. The DAG discussed curriculum options, how the facility might serve that curriculum, as well as unknown changes that would certainly occur in educational delivery over the next 50 years. The group formulated goals for the school and explored concepts for site and building layouts.

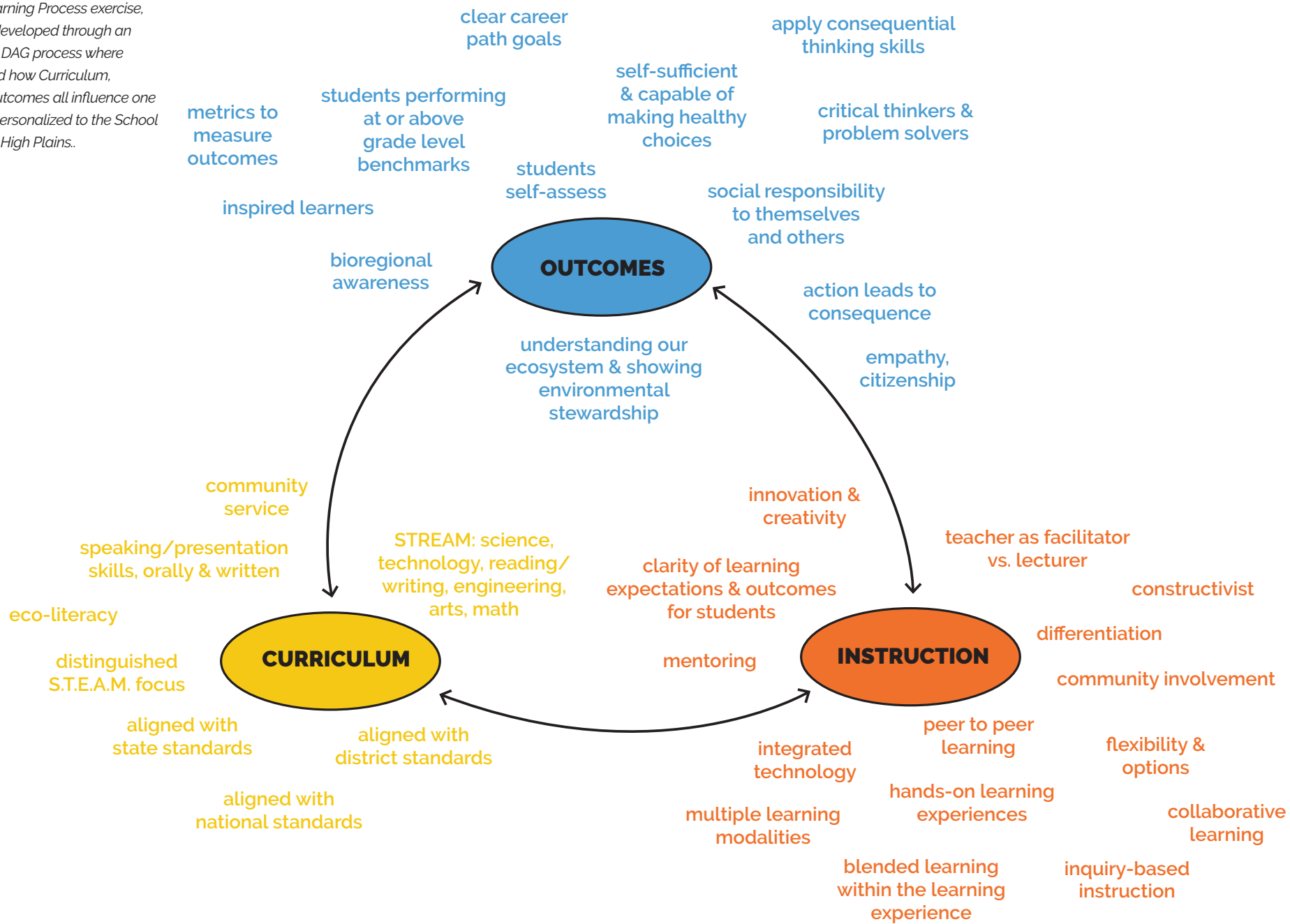
“**The Design Advisory Group/Construction Review Committee was a melding of community members and school district staff. Throughout the process you had a constant reiteration of asking questions and making sure things were implemented into the design and then installed correctly.**”

*- Past Executive Director of Facilities  
Thompson School District*



# School / Community Engagement

The result of a Learning Process exercise, this graphic was developed through an activity during the DAG process where members explored how Curriculum, Instruction and Outcomes all influence one another and are personalized to the School District's vision for High Plains..



## School / Community Engagement

During the charrette process, three distinct design concepts were developed (**Concept A, B, C, at right**). The design team took the best ideas from each scheme and merged them into one solution. This solution became the "building blocks" for High Plains' design (**below right**).

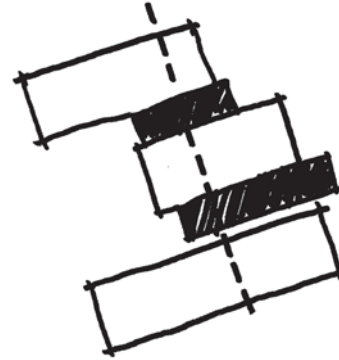
After the charrette, the DAG was reduced in size but continued to provide design input. Typically, a DAG has minimal involvement during construction. However, this group transitioned into a "Construction Review Committee" and had the responsibilities of attending monthly meetings to discuss project progress and then making decisions about the identity of the building (such as mascots, logos, and various coordination of the PTO). They also served as a community liaison to share information about the project and help garner community support.

One challenge within the project was that, due to the duration of the project and the associated changes in District leadership, the composition of the Design Advisory Group also changed. While this could have created significant delays and difficulty in decision-making, the design team was able to maintain consistency in direction and keep the project moving forward.

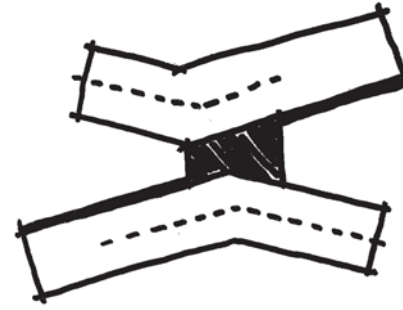


*During design, different learning pod arrangements, circulation ideas, and classroom seating styles were explored inside the building.*

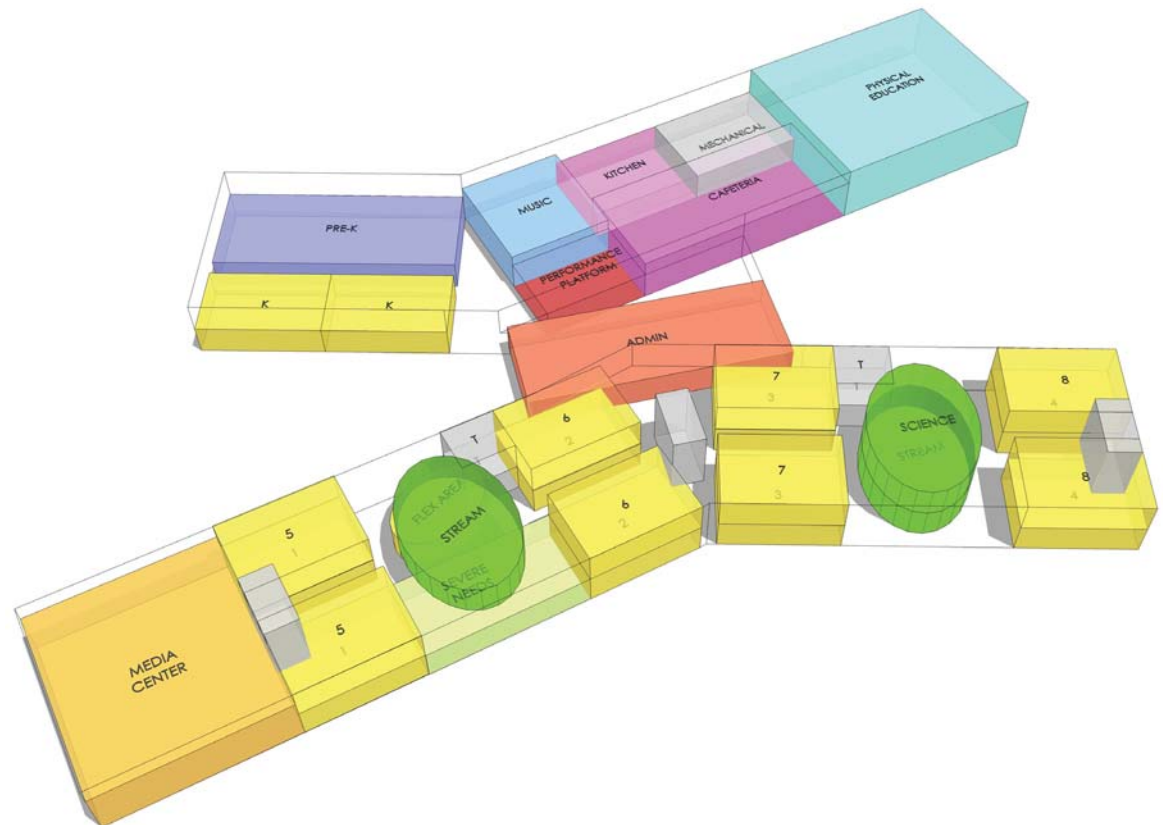
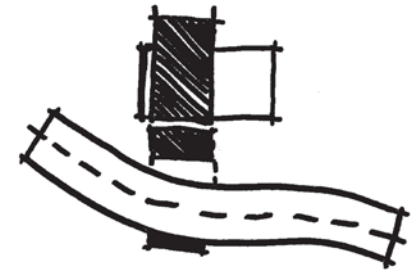
Concept A



Concept B



Concept C



## Educational Environment

The District leadership desired to create a new kind of school that used a variety of spaces to achieve their educational vision. At the Design Advisory Group's onset, six key goals were articulated:

### Goals for the Building

#### 1. Integrated/S.T.E.A.M. Curriculum

Students are supported by a mixed grade, integrated, learning environment which allows flexibility of learning time, subject, and style in the academic areas of Science, Technology, Engineering, Art, and Mathematics.

#### 2. Flexible Learning Environment

Students and teachers are provided an environment that is conducive to teaching and learning. Centering on the needs of the occupants, the learning environment addresses the needs of occupant comfort, safety and psychological wellbeing. (Attributes: open, flexible, warm/inviting, visibility)

#### 3. Personalized, Differentiated

Learning centers on the individualized needs and interests of each learner in terms of learning style, diversity, inclusiveness, and learning settings.

#### 4. Student Centered Learning

Learners are presented a curriculum and learning environment that integrates technology and is engaging, relevant, flexible and up-to-date.

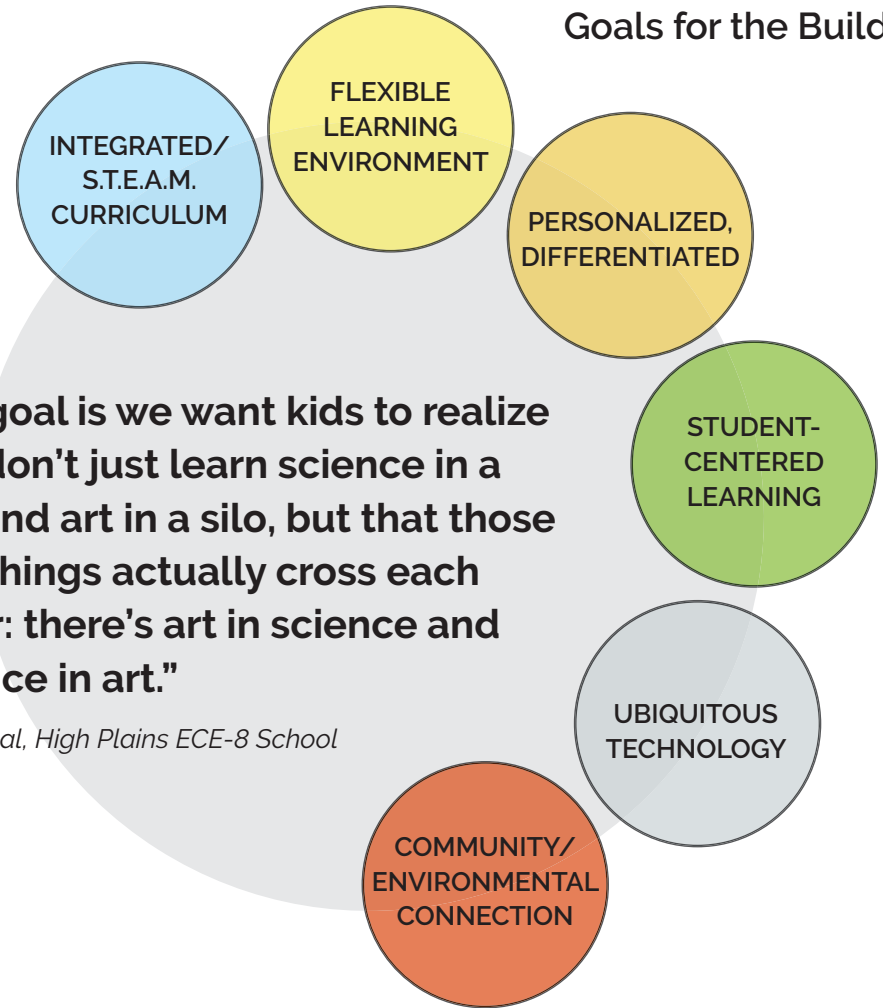
#### 5. Ubiquitous Technology

Technology is integrated as well as meaningful, ready and accessible. The infrastructure is robust and flexible.

#### 6. Community/Environmental Connection

The school is designed to consider the needs and identity of the community; utilize the High Plains Environmental Center as a resource in S.T.E.A.M. delivered curricula.

### Goals for the Building



“The goal is we want kids to realize you don't just learn science in a silo and art in a silo, but that those two things actually cross each other: there's art in science and science in art.”

- Principal, High Plains ECE-8 School





# Educational Environment

Preliminary renderings

## A Concept Emerges

The Design Advisory Group helped set the vision for the new school. After exploring options with the architectural team, the architects took the best components of each of the three initial concepts and developed a floor plan that included a north and south wing connected by a gallery space.





## Educational Environment

### Outdoor Learning

High Plains integrates a strong approach to outdoor learning. The unique direction of the curriculum boldly influenced the facility's architectural design. The building takes advantage of the majestic views of the Front Range of the Rocky Mountains and attempts to create a constant connection to the outdoors.





## Educational Environment

*Views of the Rocky Mountains and lakes to the west.*

“High Plains is great, because it takes that environmental component of learning and really allows you to structure the environment & use the environment as a learning tool.”

*- Principal, High Plains ECE-8 School*



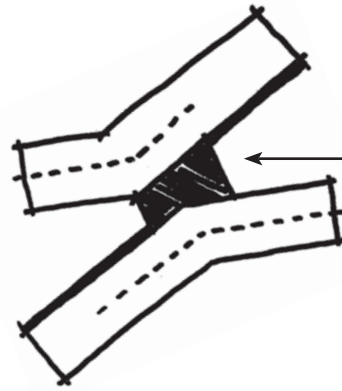


## Educational Environment

### Organization and Layout

The facility is organized into two wings which are connected by a glass-lined corridor that doubles as a gallery for student work. These two wings provide separation between the quiet, study areas and the more active areas of the building.

*Gallery connection/breezeway*



“My favorite space would be the breezeway because of all the sunlight coming in.”

*6th Grade Student, High Plains ECE-8 School*





# Educational Environment

## S.T.E.A.M. Curriculum

S.T.E.A.M. curriculum is supported through dedicated spaces within each learning pod. The north wing houses administrative offices, the Early Childhood and Kindergarten suites, gymnasium, and cafeteria while the south wing is

divided into four study pods, two on the first floor and two on the second. Each pod contains four traditional classrooms (grouped by grade), restrooms, a small group space and a larger, shared S.T.E.A.M. Lab.

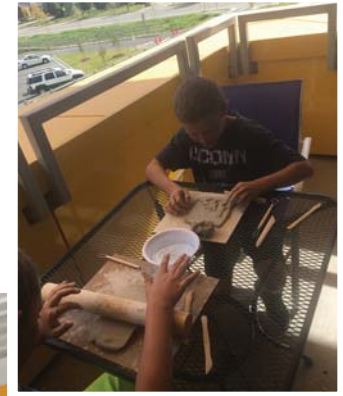


## Educational Environment

### S.T.E.A.M. Learning

As illustrated in the previous floor plan, High Plains' four large rooms are dispersed throughout the building and devoted to S.T.E.A.M. learning. These rooms maximize flexibility and creativity through a variety of architectural strategies. Their exterior walls are lined with glass and have direct access to covered outdoor space. Internally, they are completely open to adjacent circulation space and include movable, adjustable furniture systems.

*Balcony accessed from the S.T.E.A.M. rooms*





## Educational Environment

Every standard classroom is in close proximity to at least one of these S.T.E.A.M. spaces and each lab includes equipment that can be shared for specialized areas of study. For example, one room has an adjacent space that houses 3D printers and various robotic lab equipment. These S.T.E.A.M. rooms are incredibly popular amongst the students and teachers alike and are almost always full of innovation and activity.

Adjacent rooms with  
specialty equipment





## Educational Environment

### Supporting Various Learning/ Teaching Styles

All regularly occupied spaces have generous amounts of natural light and views to the outdoors. The configuration and size of these spaces is altered somewhat as the students move from first through eighth grade. The younger students are located on the first floor and share a centralized reader's

nook and covered outdoor learning space. A **learning garden** is located directly south of the reader's nook which is another opportunity for students to experience planting, tending to, and harvesting produce. On the second level, the 5th through 8th graders have additional **small group break-out spaces** located adjacent to the classrooms & **S.T.E.A.M. labs** focused on art and science with small outdoor roof patios adjacent to each. Additional shared spaces include a centralized media center and cyber café for both independent and group study and an accessible green roof located atop the student gallery.



SECOND FLOOR





## Educational Environment

“ I was able to lift up the table... and I turned the bookshelves—it became a standing location for them to work. All of a sudden, I'm looking at these kids and thinking, 'they work better *this way*.' Some kids still like to sit in a chair...but now they have an option.”

- Teacher, High Plains ECE-8 School





## Educational Environment



“ One of my favorite places is the reading nook.”

- 5th Grade Student,  
High Plains ECE-8 School

“ [The school is] really like an extension of a classroom. We can think about our school as our whole classroom, whether it's inside or outside, and our kids are able to learn in a space that is most appropriate to whatever we are doing.”

- Teacher, High Plains ECE-8 School



*Kids work together in a nook under the stairs.*





## Educational Environment

### Common Areas

A decentralized media center, spread over two floors, flows into circulation spaces and gives library services the casual feel of a bookstore or coffee shop. The media center combines a variety of spaces for learning including traditional reading/study, breakout spaces, a cyber café, and reader's nook.





## Educational Environment

An upscale cafeteria plan (see also page 26) utilizes large expanses of windows and multiple seating options, ranging from traditional, round cafeteria tables, to small restaurant-style 4-tops, as well as raised counter seating. The design

also includes a large outdoor dining area directly south of the cafeteria and has an unobstructed view of the Rocky Mountains. Because the cafeteria opens to the music room, the space can be used for gatherings and performances.





## Educational Environment

### Technology

The technology at High Plains School encourages teamwork and collaboration. Instead of the traditional projector screen at the front of the room, multiple television screens and smart boards have been placed in different sections of the classrooms. Teachers and students can tie those into learning and easily transition from small groups to entire class learning without the traditional set up of rows of desks.

### Flexibility for Change

The layout of the building includes rooms of varying sizes and levels of openness in order to provide many options for different learning environments. Some rooms have specializations incorporated such as science lab equipment or appliances for family and consumer sciences classes, while others are more generic in their layouts and offerings. All rooms were designed so that as curriculum changes occur, the functionality of the spaces endures. The technology was also wired to handle more devices than it is currently equipped with for future growth.

“I’m very intentional now with the ways that I use spaces in the building. Being in other schools, that was something I never thought of.”

- Teacher, High Plains ECE-8 School





## Physical Environment

### Fitting into the Loveland Community

In terms of building context, the City of Loveland has a rich historic core with a large area of more contemporary development surrounding the core. High Plains School is located on the eastern edge of the city, where the town and high plains of Colorado meet. This reference to the intersection of these two differing identities is not only where the name of the school stems from but is also reflected in the cutting edge style of the architecture. The horizontal lines mimic the adjacent fields and lake while the brick and metal panels follow the materials used in the majority of local development. Through these strategies, the architecture simultaneously works within its context while also creating a stand-out dialogue for the new direction the school is charting.



Image from Google Maps



Rocky Mountains

Foothills of the mountains

Downtown Loveland

Area of growth  
east of town

Plains & Rural/Agricultural Land





# Physical Environment

## Design Aesthetic

The aesthetic of High Plains is a modern interpretation of a traditional hillside village. This school acts in many ways like a village to its students. There are countless functions happening throughout the facility that the students will make use of over the 10 years they study here. The cohesive aesthetic enhances clarity and efficiency in the design. The facades of the building are divided into two main themes: the first theme emerges as gray brick and is used for the more

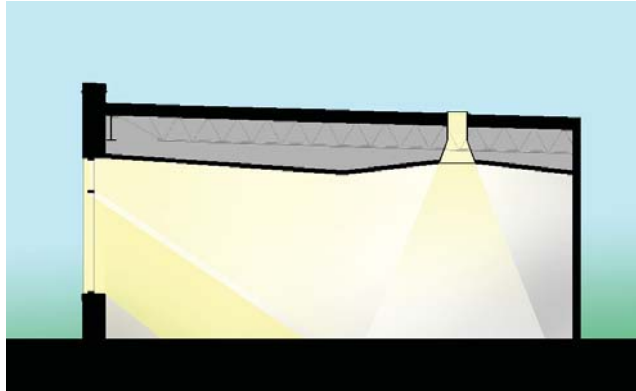
traditional spaces within the building such as classrooms and administrative areas. The second theme of vibrant colors is used at shared and community spaces such as the media center and S.T.E.A.M. labs. Rectangular forms both inside and out merge the building's simplicity with a rich aesthetic interest using the mosaic of these two themes across the building.



## Physical Environment

### Sustainability

Generous amounts of north and south facing windows provide optimal daylighting conditions throughout the LEED Gold building, enhancing creative and intellectual pursuits. The backbone of the heating and cooling system is a ground-source heat pump system. This system, coupled with 100% LEDs for lighting, allows for major reductions in energy consumption, saving the district thousands of dollars a year in operating costs.



*Diagram of classroom daylighting design*



*Transparency and daylighting create light, airy, vibrant spaces*



“High Plains involved sustainable design from the beginning.”

- Past Executive Director of Facilities, Thompson School District



## Physical Environment

“The goal behind a S.T.E.A.M. education is to help kids see how those content areas integrate and cross each other. The design of this building was very intentional in that it is not only a beautiful design that is energy and environmentally friendly, but also a design that allows a teacher to use different components [of the building] in their teaching.”

- Principal, High Plains ECE-8 School



The school's 870-square-foot green roof (situated over the gallery) is accessible to students and can be used as an outdoor study area. The green roof, along with the ground-mounted planters to the south of the school, offer gardening experiences to students and a unique outdoor learning space where various topics, including plant biology, are taught.





## Physical Environment

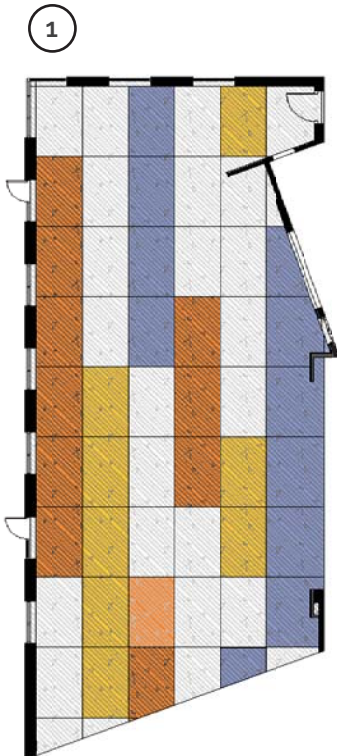
### Designed to Inspire & Motivate

The school physically embeds S.T.E.A.M. concepts within the building, encouraging students to seek out learning in the world that surrounds them. The geometric design of the cafeteria floor (1) is in set dimensions of feet in one direction and meters in the other, while various angles are etched into classroom floors, and both binary (2) and morse code murals (3) are used to label the elevator on different levels.

Other learning elements integrated into the design include various native species animal prints in concrete (4), exposed and labeled pipes and cables to show building systems and special lighting fixtures that form a collage of the school's bison mascot (5) when put together.

“You start to have these elements in the building that not only can teachers use, but it also helps kids to stop and look at their environment and *wonder*.”

- Principal, High Plains ECE-8 School



Plan view of floor pattern





## Physical Environment

### Safety, Security, and Building Access

Of primary importance in any school is safety and security. Both were emphasized at High Plains and the design (and integrated technology) reflect this priority. The school has advanced systems of cameras, access controls and intrusion detection that are integrated into the building. In addition, the entry sequence is designed with safety and security in mind. The primary entry area is located on the east side of the building. It includes a drop-off plaza and bike parking. This area includes an assembly lawn as well as a slab stone outcrop for aesthetics as well as seating, and is the entry used by all visitors during the day.

The secondary entry is located on the west side of the building and is open when buses are dropping off/picking-up children in the mornings and afternoons. This entry is closed when not in use for bus arrivals/departures so visitors to the school can be controlled at a single entry point. The office staff has clear views of anyone approaching the building from either entrance and will have the ability to lock down the doors if a threat is detected. All visitors must enter from the east and enter the Reception area before being granted access to the building.

The two main courtyards were also designed to use the "eyes on the street" concept to increase safety. All visitors must enter through these courtyards that have the natural feeling of casual surveillance by the building's occupants.





# Results of the Process & Project

## Achieving Educational Goals and Objectives

The building effectively responds to the six goals developed for the new school:

01



### Integrated/ S.T.E.A.M. Curriculum

Both floors of the south wing include two study pods on the first floor and two on the second. Each pod contains four traditional classrooms grouped by grade complimented with a small group space and a larger, shared S.T.E.A.M. room. The S.T.E.A.M. room utilizes flexible furnishings and durable finishes to support hands-on projects. Two of the S.T.E.A.M. rooms open out onto exterior patios to work through projects outdoors.

02



### Flexible Learning Environment

Learning spaces range from small to large, and rooms are detailed from generic (general classroom) to more complex (such as science labs). All rooms were designed so that as curriculum changes occur, the functionality of the spaces can respond appropriately.

03



### Personalized, Differentiated

Different scales of spaces are designed throughout the building to accommodate learning styles, ranging from traditional, to small group, and peer-to-peer learning.

04



### Student Centered Learning

The facility is vibrant, flexible and engaging. The environment promotes energy and innovation, both visually as well as through curriculum.

05



### Ubiquitous Technology

Two flat screen TVs are located in each classroom that the teachers and students are able to connect with. IT and wireless infrastructure is designed to accommodate more devices than the building has currently. Technology is accessible and integrated into the learning environment, from classroom to cyber café.

06



### Community/ Environmental Connection

(See "Supporting Community Goals" later in this section.)



## Results of the Process & Project

### Response to District's Goals

The school was designed to accommodate students in a growing part of town who were typically attending closer schools in a neighboring school district. One goal of opening High Plains was to bring students back to their home district by adding a new, innovative school closer to their home. This goal was achieved: High Plains is almost at capacity after being open only two years.

The District also desired that High Plains integrate high performance design and sought to achieve LEED Certification. The school achieved LEED Gold in March 2017.

### Supporting Community Goals

Pedestrian connections are made to the surrounding neighborhood sidewalk system which circumnavigates the school site. A trail connection on the northeast side of the site provides access to the High Plains Environmental Center. The multipurpose and softball fields are shared spaces with the City and neighborhood so they are better utilized all year long. The learning garden engages the community by giving community members partial responsibility in tending to the plantings during the summer.



### Surprising Achievements

The community's response to the new High Plains ECE-8 has been astounding. Around 395 students were enrolled in classes for the first year with over 500 enrolled during the second year. The project continues to receive a high amount of attention. Many groups—from other school districts to architectural design teams—have requested tours of this innovative facility.

### Art in the Community

Loveland has a rich tradition of supporting art and artists within the community. As a play on its name (Loveland), one initiative includes commissioning artistic "HeART"s throughout the community. Because of this tradition, a sculpture was commissioned for High Plains during the first year of school that reflected many of the most important aspects of the school from the students' point of view. This "HeART" is proudly displayed at the outdoor cafeteria area and features many of the design elements described throughout this document.



*The "HeART" at High Plains School*

**In closing, High Plains is an innovative, vibrant, and engaging school that elevates the learning experience for students and has enhanced the Loveland community.**





# HIGH PLAINS ECE-8 SCHOOL

2018 James D. MacConnell Award Submission



**“The heart that went into the design—to make it *really* great—is what made the project a success.”**

*- Past Executive Director of Facilities, Thompson School District*