

# Emerald Elementary School

Broomfield, Colorado



# Executive Summary

When the Boulder Valley School District passed a \$576 million bond in 2014, the leadership was challenged to think beyond the norm of school design and develop a strategic road map that offered new resources for professional learning while rethinking school design and their traditional approach to education. BVSD realized that over the last half century, the context in which they fulfilled their educational mission had changed dramatically; however, the design of their buildings had not.

Emerald Elementary School was selected to be one of BVSD's "Exemplar School" projects that would be an example of 21<sup>st</sup> Century innovation within the District. The District's goal was to create a facility that allowed teachers to personalize learning by using multiple modes of instructional delivery; facilitating learning and fully engaging students.



# Scope of Work & Budget

*Design Renderings*

**Services Provide** Architecture, Interior Design

**Grades Served** Preschool through 5th Grade

**Capacity** 432 Students

**Site Size** 9 Acres

**Building Size** 58,000 SF New, 4,000 SF Renovation

**Area per Pupil** 143.5 SF/Pupil

**Construction Cost** \$18,687,509

**Cost/SF** \$301/SF



# Project Narrative

## **SCHOOL & COMMUNITY ENGAGEMENT**

### **District-Level “Change”**

In preparing for the Bond Campaign, the District engaged in a rigorous planning process, the results of which became their Educational Facilities Master Plan. This process included comprehensive facility assessments and the establishment of a Capital Improvement Planning Committee; participation included District stakeholders, both district- and school-level personnel, parents, students, and the larger community, including those with and without children. The public was engaged through community values meetings, online surveys, and polling. The Bond Campaign passed with overwhelming support.

Emerald Elementary School is a site-specific implementation of the larger District-Wide planning process, bringing this site into compliance with the Educational Facilities Master Plan.

To fully appreciate Emerald as an individual project, it is important to emphasize the District’s intent to leverage the Bond Campaign to affect educational change, changing their perspective to improve their facilities through the lens of 21st Century design.

The District recognized that meaningful, lasting change is achieved by supporting their staff *and* their educational environments: changing staff through Professional Development and changing educational spaces in which to put theory into practice. Emerald was intentionally released in the first batch of Bond Projects to become a laboratory to study the proposed changes and a home base from which to advocate for change throughout the District.

### **Project-Specific “Change”**

At the project level, a large Design Advisory Group (DAG) was assembled to represent site specific issues within the context of the District-wide vision. DAG membership included District leaders, a District Project Manager, the Emerald principal, Emerald-based teachers from each area of practice (grade levels, art, music, PE, special education, etc.), Emerald parents, Emerald neighbors, and the Design Team.

A set of Innovation Guiding Principles was developed for the new Exemplar Schools to ensure innovative learning would be supported.

### **Innovation Guiding Principles**

1. Learning is Founded in Inquiry
2. Learning Fosters a Culture of Curiosity and Risk Taking
3. Mastery of Learning is Demonstrated in Multiple Ways
4. Learning is a Social Process
5. Learning is Powerful When Students Create Solutions to Authentic Challenges That Impact their Local, National, or Global Community
6. Learning is Personalized and Learner-Led

By district design, the architect was partnered with a national educational planning firm who was also retained to work with the districts’ educators to be more effective at integrating 21<sup>st</sup> century learning in the classroom. The planner was responsible for:

- Facilitating the development of Guiding Principles for Innovation that defined the District’s values for innovation in all schools;
- Creating a framework for innovative learning environments that draws on best practices in

school design, as well as teaching and learning;

- Partnering with Colorado architects to design exemplars of learning and design;
- Consulting with District Leadership on the development of a Professional Development Roadmap to ensure that school leaders and teachers are well prepared for innovative teaching and learning practices throughout the District.

### **DAG Involvement**

The Design Advisory Group (DAG) met a half-dozen times from the initial Discovery Phase into Design Development. They were involved during Visioning and Programming; they assisted through multiple Conceptual Design options for consideration; they were involved through selecting a Schematic Design direction; and they collaborated into Design Development when the design direction was refined. Along the way, a Community Open House was held to keep the larger Emerald Community informed of design progress.

Moving through Design Development, the Design Team continued to interact with a streamlined executive DAG in order to continue to seek feedback and keep project stakeholders apprised of project progress. During Construction, the Emerald principal continued to participate in Weekly Owner/Architect/Contractor Meetings.

### **Post-Occupancy**

Now that the building is open, an ongoing Educational Commissioning process is occurring alongside a traditional Commissioning process to ensure the building is functioning as intended. The Design Team’s Post-Occupancy Evaluation process will be deployed at the 11-Month Warranty Walk.

## **EDUCATIONAL ENVIRONMENT**

### **Learner-Centric Design**

From the beginning, the focus of the building was shifted from a teacher-centric view to a learner-centric view, creating a wider variety of learning settings to address a wider variety of learning styles. The resulting environment is different from a traditional school in that individual teachers do not have exclusive ownership of a particular learning space—suites of spaces are shared by groups of teachers, teachers share a separate collaborative office space, and enclosed spaces can flex into generously sized common spaces.

A variety of sized spaces support work by individuals, pairs, small groups, medium groups, and large groups. A variety of finishes and amenities support “messy,” hands-on work (hard surface “lab” areas with sinks) as well as traditional carpeted areas. Also provided are a more storage solutions than are typically present to support educational material storage, student belongings, student projects, and the display of student work. Educational technology is based around interactive flat panel displays, and there are multiple panels in each learning environment. There is very deliberately no “front of the classroom,” such that the ability to gather is more evenly diffused throughout the environments.

Inside the building, a central gathering space traditionally called a media center is redefined as the Curiosity Center to better reflect its use as a place for gathering, research, discovery and project creation.

Collaborative learning and project areas are associated with groups of three to five classrooms and teacher collaboration and planning areas are located throughout. The preschool and kindergarten wing has a common teaching/reading area.

The common area associated with the early childhood suite is a bit larger than in the other suites, being able to support indoor recess during inclement weather. Its size supports the interaction of multiple groups at once, and diffuses congestion that can occur during Pre-K drop-off/pick-up, which may happen multiple times a day. A tiered seating “amphitheater” area takes advantage of a level change required by the site and supports gathering outside the classroom. An alcove with curtain supports dramatic play/puppet shows/presentations and the meandering shape of the room encourages gatherings of all sizes.



## **PHYSICAL ENVIRONMENT**

### **High Performance Design**

Boulder and BVSD support a strong culture of sustainability. The District's environmental goals were prioritized and the District's Sustainability Coordinator was involved throughout design and construction. The USGBC's LEED for Schools program is being utilized throughout the Bond Program, although formal certification is not being sought. The Bond mandates each facility be net-zero ready to incorporate photovoltaic panels or other renewables to offset annual energy consumption in the future. The building is one of the higher performing new BVSD Exemplar Schools with energy usage targeted at a mere 30 kBTU/sf/yr. Natural daylighting is used throughout.

Some environmental features such as the high-performance building envelope (validated through blower-door testing) and highly energy efficient building systems are not obvious to students, while others, like full Daylighting and operable windows, are. The superstructure is largely CMU bearing wall, selected for its fantastic thermal mass, sound insulating, and durability properties. Much of the facility is carpeted, since young children often use the floor, although hard surface is used selectively in applied learning areas for cleanliness.

### **Flexible Furnishings**

Furniture is integral to implementing the educational program. Kids come in a variety of shapes and sizes, and the educational delivery calls for a variety of learning settings, so furniture is varied from soft and informal to rigid and more formal. It is lightweight and mobile to be moved easily by students and teachers. Most furniture allows kids to wiggle, and is provided in a variety of sizes or is adjustable. This flexibility is important for special spaces such as art, where any student from 5-11 years old may frequently use the same furniture.

### **Safety and Security**

A single, primary point of entry controls access to the facility, and the administrative suite has a commanding view of the approaches to the building. All visitors pass through a secure entry area—no one may gain access without interacting with reception staff. Within the facility, individual educational suites may be secured.

### **Connecting to the Neighborhood**

Emerald is a neighborhood school, surrounded by 1950s-era single family homes. The existing school was front and center on its site, with “leftover” space shielded from the neighborhood behind the building. The new building is located in this open area behind the existing, creating a wonderful park setting in the heart of the neighborhood, encouraging after-hours community use of the site and of the building. Outdoor learning areas surround the building, extending indoor space outdoors at the Dining Commons, early childhood area, and Curiosity Center. In addition to traditional playgrounds, areas of the site are sculpted and equipped with power and data connectivity to encourage staff to bring students outdoors.

## **RESULTS OF THE PROCESS & PROJECT**

### **Physical Connections with the Community**

There is strong neighborhood involvement in the school, and many of the parents and neighbors actively participated in the DAG process, ensuring features like community vegetable gardens were incorporated. Site circulation is important to the neighborhood, so existing vehicular circulation is revised to separate traffic flows to reduce previous congestion levels. Areas of the site are used strategically to remove cars from the neighborhood streets.

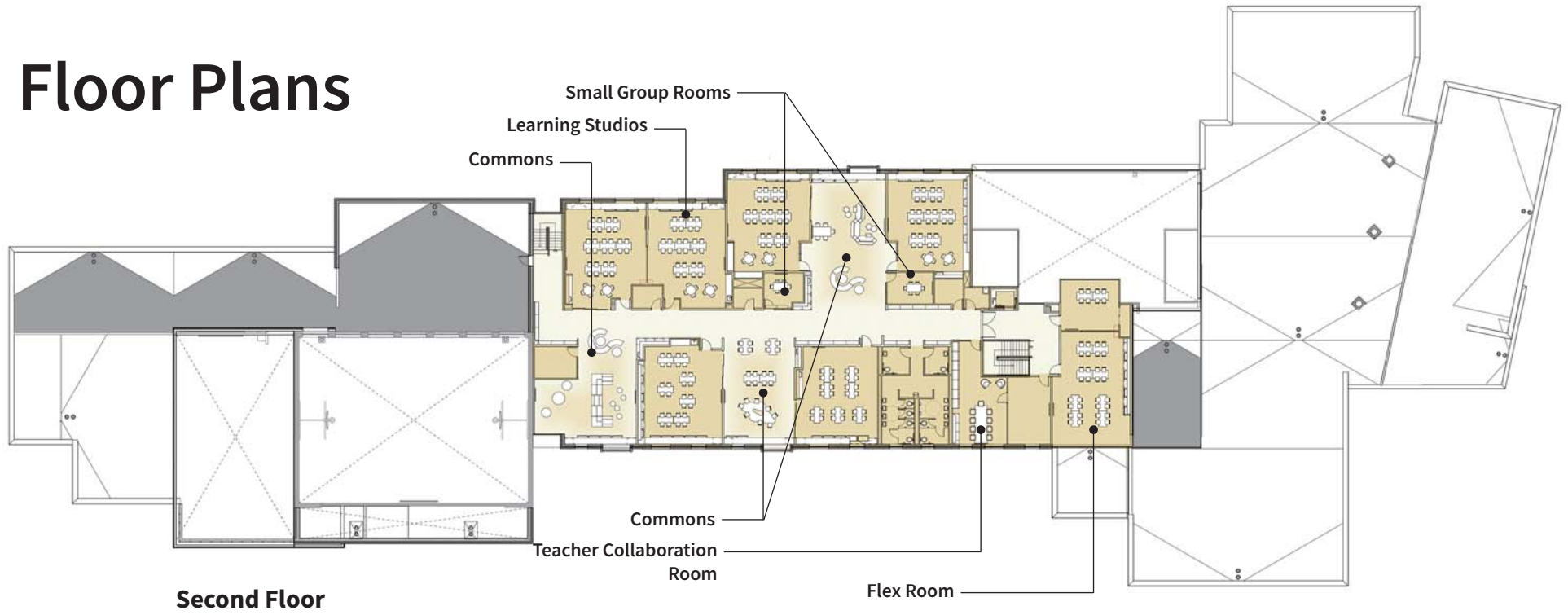
### **Site Access**

The majority of students walk and ride bikes to school, so pathways through the site are important. Some families had elected to choose out of this neighborhood school in favor of more modern facilities elsewhere in the District, so the principal is excited to see these families coming back to their neighborhood school. Scale and preserving view corridors was important to the neighbors during the DAG process, so locating the building deeper into the site allows the new school to be a more compact two-story arrangement.

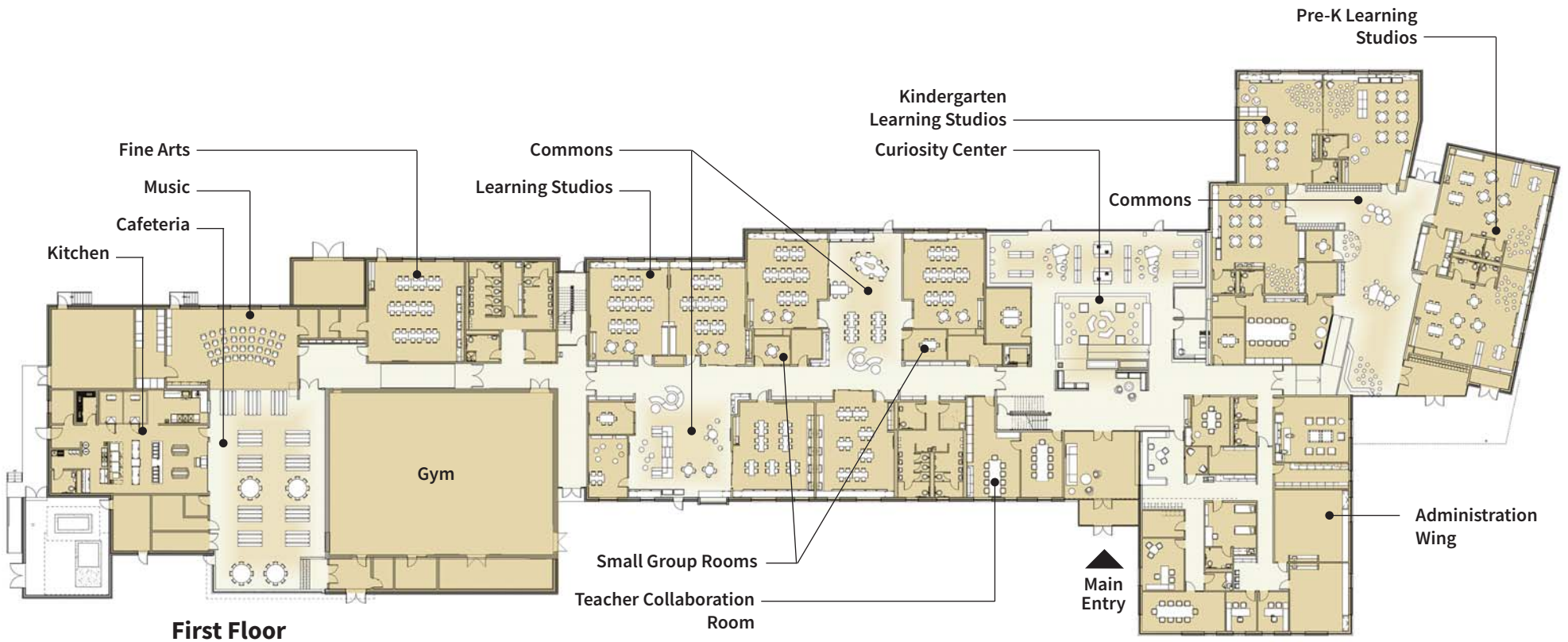
### **Creating Community**

The DAG envisioned Emerald as an important creator of community. The new school site is more inviting (less fencing and fewer barriers) and the building entry is much more welcoming with an area for visitors to gather. Emerald includes a signature fireplace in the heart of the school (with flames representing Emerald's dragon mascot and “FIRE” initials for the school's code of conduct) and amenities for the community, such as a coffee bar and a small suite from which a Community Liaison provides informational, emotional, and financial support.

# Floor Plans



**Second Floor**



**First Floor**





## Curiosity Center

At Emerald, the central gathering space—traditionally called a media center—is redefined as the Curiosity Center to better reflect its use as a place for gathering, research, discovery and project creation. A two-sided fireplace creates the comfortable feel of a living room on one side while serving as separation with the information side. The high volume space lets in abundant daylighting.



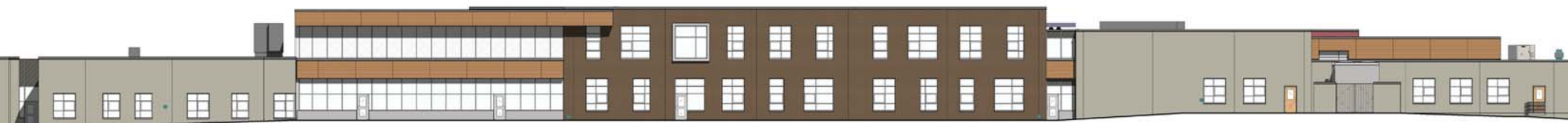
## Curiosity Center Furnishings

The furnishings are designed to create intimate layers of space throughout the Curiosity Center. Seating is varied in both height and style to create different experiences for students as they engage with the space. An English Language Development room overlooks the Curiosity Center from above.



## Entry and Common Areas

The entry vestibule was re-imagined to become a true space for visitors as opposed to a space one simply passes through. The cafeteria continues the bright color palette throughout the school and uses durable materials.



## Learning Spaces

Collaborative learning and project areas are associated with groups of three to five classrooms and teacher collaboration and planning areas are located throughout. Furnishings are flexible and movable to accommodate a variety of learning experiences. Teachers have numerous tools they can use to support learning, including white boards, monitors, and movable tools like flip charts. There is deliberately no “front of the classroom”, such that the ability to gather is more evenly diffused throughout the environments.



## Personalized Spaces

Throughout the school, personalized spaces were designed to be accessible to all students. The preschool and kindergarten wing has a common teaching/reading area (below). Various sizes of movable furnishings as well as built-in furnishings (at right) create opportunity for multi-purpose space.



## Outdoor Learning and Play

Play is instrumental in learning at Emerald. Outdoor learning areas surround the building, extending indoor space outdoors at the Dining Commons, early childhood area, and Curiosity Center. In addition to traditional playgrounds, areas of the site are sculpted and equipped with power and data connectivity to encourage staff to bring students outdoors.

