ARCADIS

RIVER GROVE ELEMENTARY SCHOOL

LAKE OSWEGO SCHOOL DISTRICT | LAKES OSWEGO, OREGON

James D. MacConnell

EXECUTIVE SUMMARY

Our overall goals and outcomes.

Original building built in 1960s

In spring 2021, we partnered with **Lake Oswego School District** on a 6-week process to develop an Educational Specification based on the spatial needs of elementary school facilities that meet the **School District Vision and Guiding Principles developed in the 2020 Long-Range Facilities Plan (LRFP)**. The Programming and Planning process engaged district representatives and elementary school students to translate building user needs into specific space requirements.

The design of **River Grove Elementary School** emerged during a challenging period for the River Grove community, marked by forest fires, ice storms, heat domes reaching 116° F, and the global COVID-19 lockdown. Students spent over a year at home separated from school-based support systems, contributing to a sharp decline in youth mental health. This school addresses addresses two key challenges: **1) Fostering student mental health and rebuilding student/teacher relationships after the disruption of the pandemic and 2) Providing the local community with emergency resources in the event of a natural disaster.** The design team developed solutions to both challenges through a collaborative, student and community-driven process.

Several features enable the school to be operational during a natural event including a structure designed to a higher seismic factor, an onsite microgrid to connect to alternative power sources during an outage, and external water connections to supply safe drinking water to the plumbing system in case of utility disruption. Additionally, conversations with students and teachers led to an approach to support diverse learning needs and student mental wellbeing through the use of biophilic design, differentiated learning environments, outdoor learning, and distributed student services.

FEB '20
WE BEGIN EDUCATIONAL ADEQUACY ASSESSMENTS

MAR '20
PANDEMIC LOCK DOWN

JUN '20
PNW HEAT DOME

SEP '20
WILDFIRE EVACUATIONS

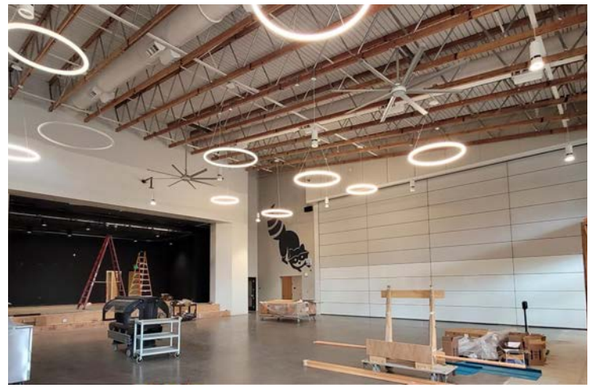
FEB '21
MASSIVE ICE STORM HITS

APR '21
PRE-DESIGN BEGINS

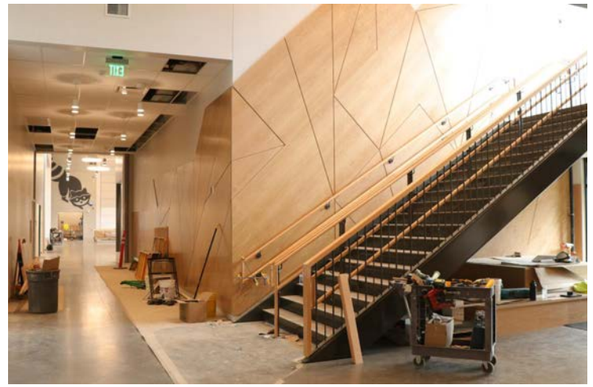
Rendering designed by Arcadis

SCOPE OF WORK AND BUDGET










River Grove Elementary serves students from Pre-Kindergarten through fifth grade, has a capacity of **600 students, and is a 79,500 sf, 2-story building on a 10-acre site.** It is a replacement building for a 60-year-old school that occupied the same site. Embracing the stunning natural surroundings, the building plan supports an educational experience that extends beyond the confines of the classroom, fostering a greater connection to the environment. By addressing the challenges of a fragmented school community caused by the previous facility layout and the impact of a global pandemic, the new design aims to create a cohesive and connected environment. The design meets the new elementary school standards established by the Lake Oswego School District's 2020 Elementary Educational Specifications and provides classrooms, extended learning areas, an innovation lab, music room, stage, library, administration offices, gymnasium, outdoor covered play area, outdoor learning spaces, and play fields.

As one of the key projects of the District's 2021 capital construction bond program, Arcadis designed the replacement school with a budget of $43 million.

DESIGNINGFORRESILIENCE.

SCHOOL & COMMUNITY RESEARCH AND ENGAGEMENT

The community and our stakeholders.

COMMUNITY.

River Grove Elementary School is a public school located in the Lake Oswego School District and surrounded by well-established single-family neighborhoods. This suburban community is multi-generational but has an ever-increasing aging population. This school is designed to be a resource for the surrounding neighborhoods and serve every household.

STAKEHOLDERS.

River Grove Elementary currently serves 390 students in grades Prek through 5. There are currently 55 teachers and staff including counselors, school psychologist, speech pathologist, motor therapists, teaching assistants, support specialists, administrators, and operations personnel.

390
STUDENTS

55
TEACHERS & STAFF

18,139
HOUSEHOLDS DISTRICT-WIDE

photo credit: Alina Mohr

> The issues were really hitting front and center as we were leading up to the design. Resiliency and sustainability came up over and over in conversations with the community as we observed and dealt with the things that kept hitting us. It really confirmed the work we were doing, and pushed us to continue to gather the momentum we needed to do this work. Now, the community has a versatile and resilient facility to show for it.
>
> - Tony Vandenberg, Executive Director of Project Management for the School District.

Drawing by one our surveyed students

SCHOOL & COMMUNITY RESEARCH AND ENGAGEMENT

Challenges and available assets.

CHALLENGES.

1. Fostering student mental health and rebuilding student/teacher relationships after the disruption of the pandemic.

2. Providing the local community with emergency resources in the event of a natural disaster.

During the Educational Adequacy Evaluation process in conversations with students and teachers, it was clear students needed to have access to places like this “calming corner” throughout their school day. We wondered: Why not build them in to every classroom so that every student can access a place of calm and self-regulation?

AVAILABLE ASSETS.

A school community that is curious, cares deeply about the students it serves, and is willing to dedicate the time to get it right.

A supportive community of voters who were deeply involved in setting goals for sustainability and resilience.

A 10-acre site with well-established trees nestled into a neighborhood.

The Collective Wisdom of hundreds of students to teach us how to design for the unique needs of their generation!

> “Coming off of the pandemic, which was a pretty significant piece of history, we also had a number of other regional disasters that had … closed buildings down for more than a week or two. We wanted to make sure that we were being resilient, and we were able to respond sustainably to climate change, and being able to showcase that in a building like this is very important for us.
>
> - Tony Vandenberg, Executive Director of Project Management for the School District.”

photo credit: Alina Mohr

SCHOOL & COMMUNITY RESEARCH AND ENGAGEMENT

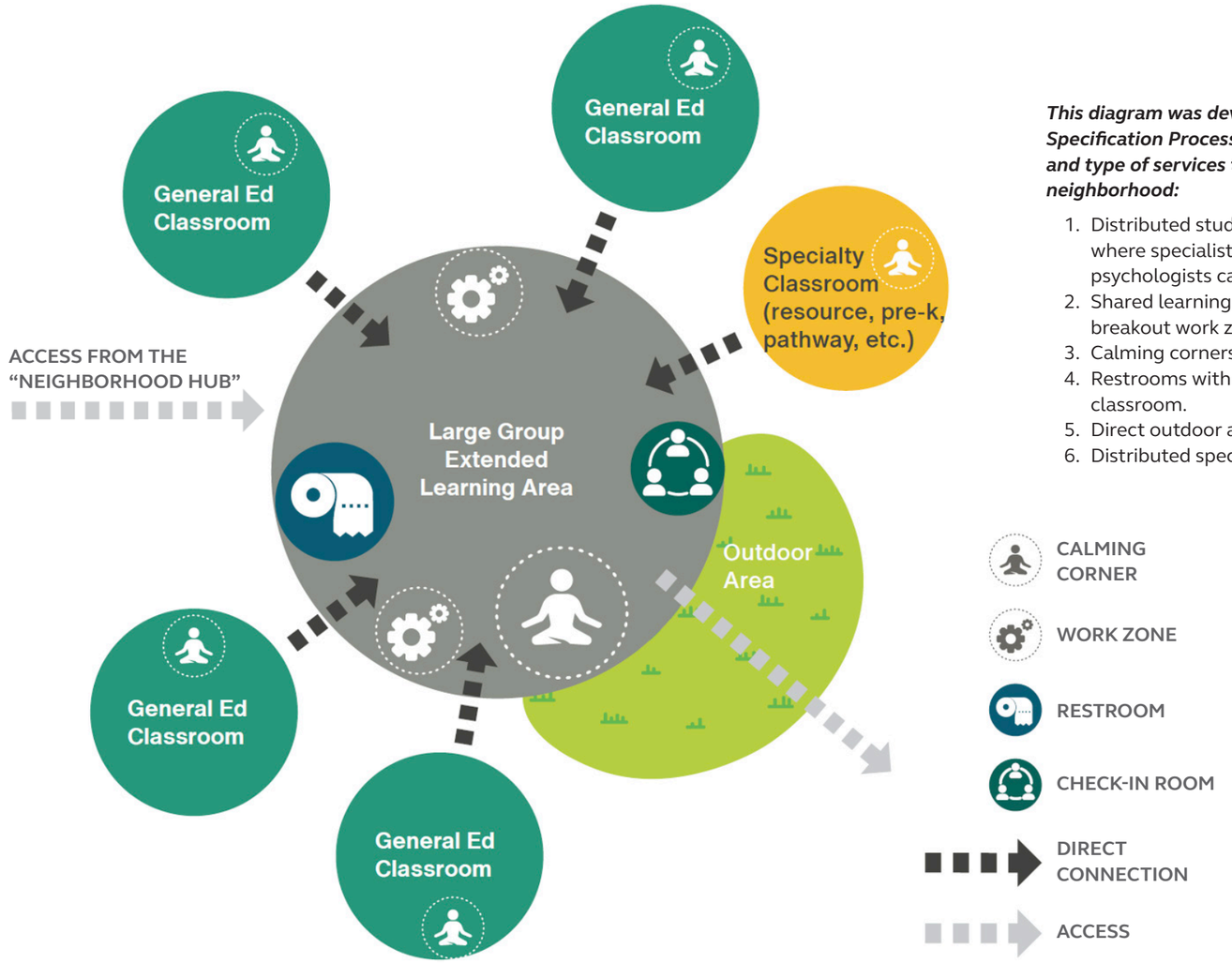
The visioning process and its value to the community.

THE VISIONING PROCESS.

It had been over three decades since this district had built a new elementary school. As a result, Arcadis was first hired to complete a new Elementary Educational Specification to establish the district's vision and planning principles for River Grove, the first of three re-imagined elementary schools.

During the visioning process, we started with an empathy exercise, asking planning committee members (made up of multiple stakeholder representatives) to picture a day in the life of a student 15 years into the future. We asked critical questions about their greatest hopes, fears, and measures for success. We presented the feedback from student and teacher listening sessions gathered during educational adequacy evaluations of the district's other elementary schools (including River Grove), and lastly we collectively established a set of guiding principals to steer decision-making.

The student perspective was key to influencing the vision and establishing the key planning principles described in the Ed. Spec. We began the planning process before the pandemic, but were required to pivot to a digital model partway through. Thankfully, we held multiple in-person listening sessions with elementary students in which we asked them to describe how their school environments do or do not support their learning, social growth, and overall well-being. This feedback was essential to the planning process.



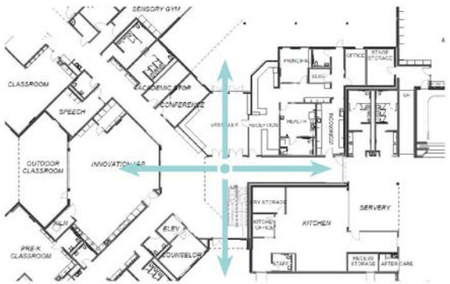
This diagram was developed during the Educational Specification Process to describe the arrangement and type of services that are found in every learning neighborhood:

1. Distributed student service check-in rooms where specialists like counselors and school psychologists can meet with students.
2. Shared learning area for large groups and breakout work zones.
3. Calming corners in every Classroom.
4. Restrooms with a clear line sight to every classroom.
5. Direct outdoor access.
6. Distributed specialty classrooms.

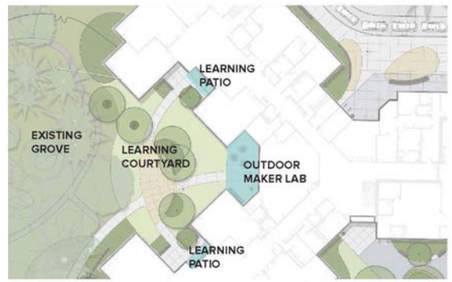
> "I think it would be good for us to have a place for creativity and feelings that isn't controlled by adults.
>
> I like to go under the trees."
>
> - Quotes from our surveyed students

THE NEW RIVER GROVE IS DESIGNED TO FOSTER A SENSE OF COMMUNITY.

The two large areas, the commons and gym, can be combined for large events by raising a large movable wall.



A central, double-height entry zone with views to the learning courtyard, commons, outdoor garden, innovation lab, and library.



Learning neighborhoods are connected to each other through the courtyard and central hub of the innovation lab and library.

SCHOOL & COMMUNITY RESEARCH AND ENGAGEMENT

How our engagement fosters diversity, equity, and inclusion.

RIVER GROVE'S LEARNING TREE IN THE SHARED EXTENDED LEARNING AREA.

photo credit: Art Ross

Our engagement efforts were completed over several years: from Ed. Spec Visioning through the design and construction documentation, and now into Post-Occupancy. Taking this long lens allows us to hear from new voices along the way who may not know about the project on day one but are looking for an opportunity to get involved.

We held different types of engagement exercises from large community gatherings to small group listening sessions. We facilitated multiple types of exercises in order to attract different types of input from different stakeholder groups: design workshops, critical feedback sessions, physical tours of newer elementary schools in the region, digital surveys, etc. For many of our student engagement efforts, we were able to reach nearly 100% participation.

The engagement process remained transparent with publicly-available documentation about the feedback and input gained from the community over the course of planning and design. This feedback loop was critical to maintaining momentum and support through the lengthy design and construction process.

STEP 1:
EDUCATIONAL ADEQUACY EVALUATION OF THE EXISTING RIVER GROVE SCHOOL

SPRING, 2020
ENGAGEMENT EVENTS:
RIVER GROVE STUDENT & TEACHER LISTENING SESSIONS.

PRINCIPAL INTERVIEWS.

OBSERVATION AND TOUR OF THE FACILITY.

STEP 2:
DISTRICT EDUCATIONAL SPECIFICATIONS AND LONG-RANGE PLAN. SETTING ELEMENTARY SCHOOL GOALS, AND PLANNING PRINCIPLES.

SPRING, 2020 THROUGH SPRING 2021
ENGAGEMENT EVENTS:
DISTRICT-WIDE INPUT FROM PARENTS, STAFF, STUDENTS, AND COMMUNITY MEMBERS.

MULTIPLE OUTREACH EVENTS INCLUDING SURVEYS (FALL 2020), COMMUNITY-LED COMMITTEE MEETINGS (FALL 2020-SPRING 2021), AND OPEN HOUSES (WINTER 2021)

STEP 3:
VISIONING & MASTER PLANNING FOR RIVER GROVE ELEMENTARY. DETERMINING THE GUIDING PRINCIPLES FOR DESIGN.

SPRING/SUMMER 2021
ENGAGEMENT EVENTS:
MEETINGS WITH RIVER GROVE TEACHERS AND DISTRICT LEADERSHIP.

STUDENT SURVEYS.

STEP 4:
DESIGN

SUMMER '21 THROUGH SPRING '22
ENGAGEMENT EVENTS:
BI-WEEKLY DESIGN ADVISORY MEETINGS WITH TEACHERS & STAFF FROM SUMMER '21 THROUGH WINTER '22.

FALL '21 SCHOOL TOURS

FALL '21 STUDENT SURVEYS

WINTER '22 STUDENT INPUT SESSION

SPRING '22 STUDENT WORKSHOP

NEIGHBORHOOD COMMUNITY MEETINGS

FALL '21 THROUGH SPRING '22.

FOCUS GROUP MEETINGS WITH TEACHERS

FALL '21 AND WINTER '22.

SCHOOL & COMMUNITY RESEARCH AND ENGAGEMENT

Exhibits & Our Visioning Documents.

THE VALUE OF PROCESS AND PROJECT TO COMMUNITY AT LARGE.

The original 1967 school was a series of disconnected out-buildings driven by fast-paced growth, leading to a fragmented school community. We heard directly from teachers in multiple engagement events: “We want to feel like we’re one community!” This was critical to developing the design vision.

This project was highly valued by a community that had just been through several regional natural disasters and the imminent threat of the Cascadia subduction zone earthquake. This new facility would be the emergency resource the community needs during a natural disaster.

The process of student engagement provided the design team with the insight to understand the students of River Grove. Hearing directly from them in small group listening sessions, digital outreach, and finally classroom-based workshops was highly valued by the staff and administrators in this community who place student wellbeing above all.

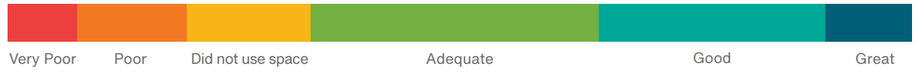
When asked how students see themselves interacting with the natural world, we heard four main themes: nestled/enclosed (like a tree fort or cave), levels/movement (like climbing a mountain), connections to nature (like listening to birds or sitting in a forest), and height/vantage point (like a treehouse). The design team developed these experiences throughout the building at different scales and moments.

QUOTES FROM OUR SURVEYED STUDENTS

PARENT AND COMMUNITY ENGAGEMENT

163 parents, community members, staff, and volunteers responded to an online survey issued District-wide in May 2020. When looking at the survey responses district-wide and per school, River Grove Elementary’s original school building was rated as having the highest need for upgrades to the learning environment with many spaces indicated as Poor or Very Poor.

CLASSROOM RATING: DISTRICT WIDE



When filtering survey responses by school building, River Grove Elementary classrooms, library, and outdoor playfields were rated lowest.

CLASSROOM RATING: RIVER GROVE

PHOTO TAKEN DURING A STUDENT LISTENING SESSION.

PHYSICAL ENVIRONMENT

Attributes of the environment, building, and site.

At **River Grove Elementary**, classroom spaces are grouped into "learning neighborhoods" with access to outdoor learning gardens and courtyards at various scales, hands-on learning labs provide project-based experience for all grade levels, music and performance is celebrated within welcoming community spaces, and southern-facing play areas provide opportunities for social, active, and passive types of play.

The building is stick-framed, using pacific-northwest-sourced building materials in the structural lumber and exterior brick veneer. The 10-acre site is nestled into a neighborhood containing several large trees, encouraging Arcadis to design a school that celebrates the existing natural landscape. The school's organizing planning principal began by positioning the views of students in every learning neighborhood towards the existing grove of established trees and establishing an intimate learning courtyard that connects learning neighborhoods to the trees and to each other.

PHYSICAL ENVIRONMENT

How the facility fits within the larger context of the community.

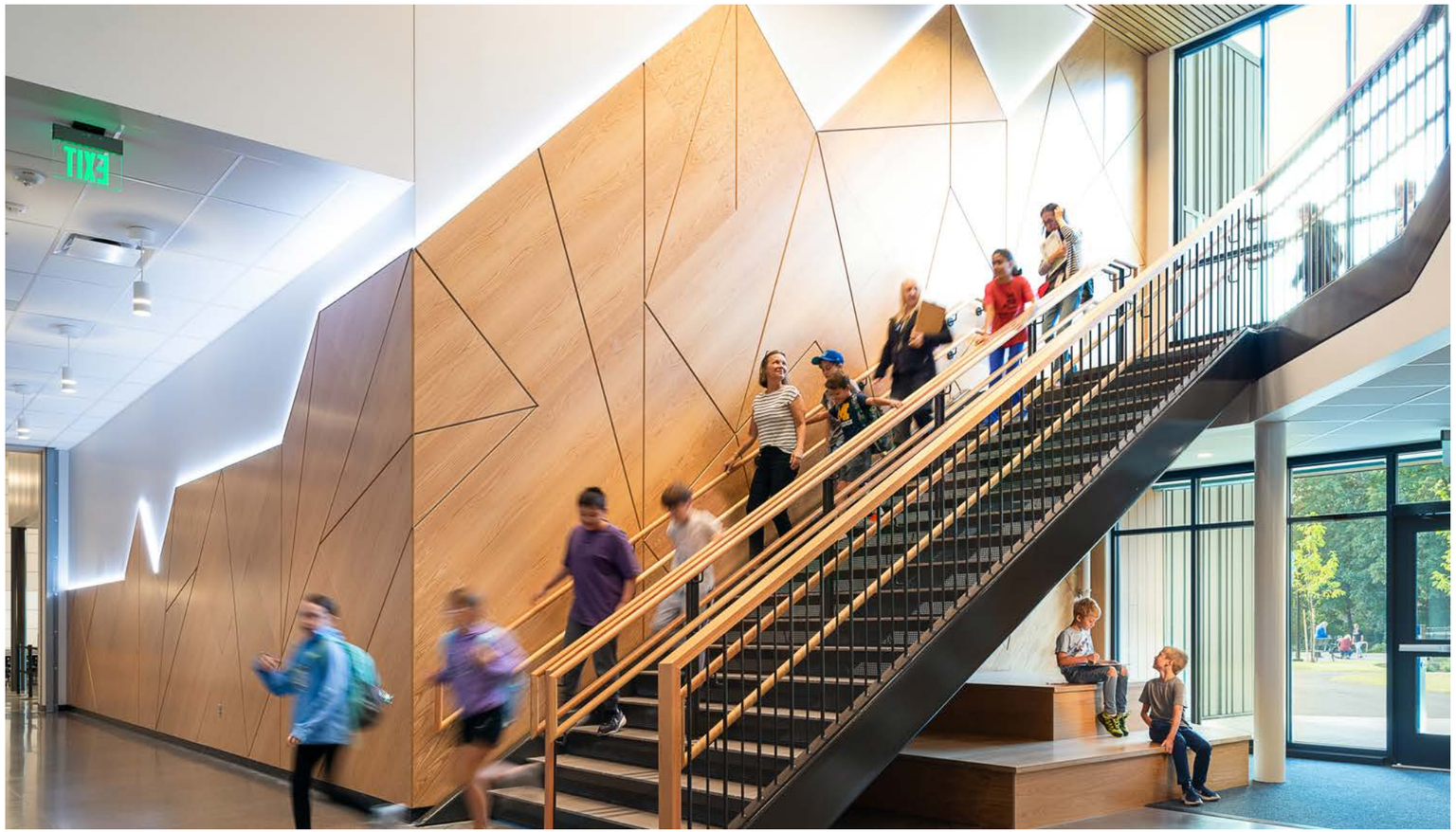
Early feedback from the community drove a “Little Houses” exterior design concept. This small, single-family-home suburban community felt strongly that the new two-story school feel part of the neighborhood with simple gable forms and the brick material often seen on homes in the area.

Community feedback also made it clear every tree has value, especially the large well-established Doug Firs lining the perimeter of the site and collection of trees forming a grove on the western property line. The resulting building footprint was constructed with the loss of only one established Douglas Fir tree, Tree #139, that was memorialized on the interior of the building.

During design, students were asked to draw their idea of a “learning tree”.

“The school’s sustainability focus and design — integrated aesthetically into the surrounding neighborhood and park — is part of the pattern of newly remodeled schools in Lake Oswego. Being highly sustainable, super resilient, we’ve applied that to all of our projects. I think that’s one of the things that I’m most proud of.”

- Tony Vandenberg, Executive Director of Project Management for the School District.



PHYSICAL ENVIRONMENT

How we provide environmental inspiration.

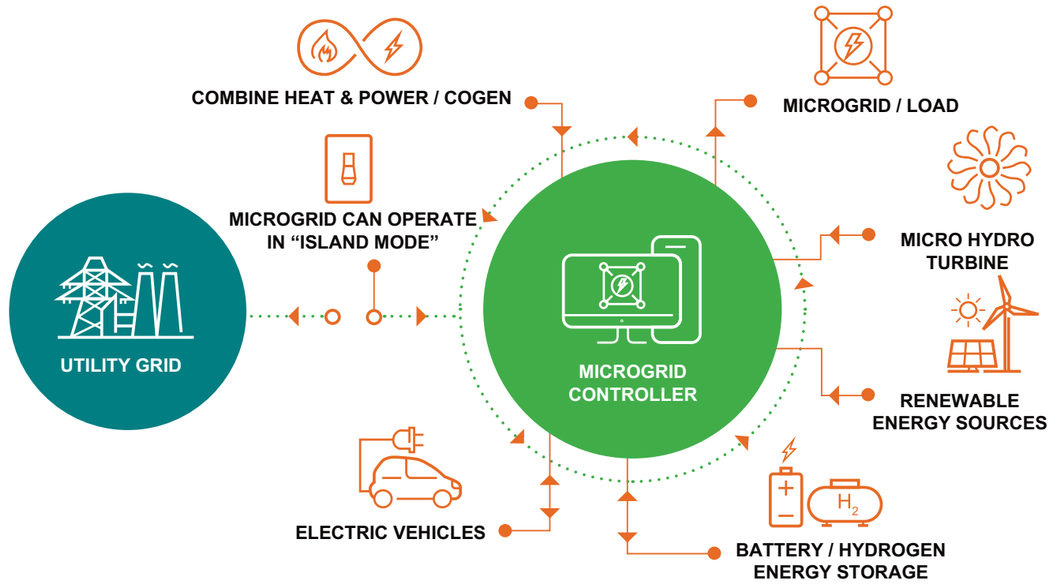
photo credit: Art Ross

WHAT IS THE MICROGRID?

A system of interconnected energy sources and loads that operate while connected to a larger utility grid and independently.

INSPIRATION AND MOTIVATION.

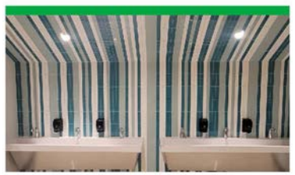
The design of the new River Grove Elementary School was the result of a collaborative effort involving students and teachers, with the aim of improving student wellbeing. Biophilic principles* including visual connections with nature, biomorphic patterns, prospect and refuge, and connection with natural elements are used to improve the physical, psychological, and cognitive wellbeing of students. Wood is used as a material throughout the building, focused on areas students will spend most of their time physically connecting to the built environment: reading nooks, stair walls, and benches. Glulam beams from the original building were salvaged to build "treehouses" in the learning neighborhoods, a concept derived from student feedback.



INNOVATIVE ASPECTS.

River Grove Elementary School is a fully electric, certified "Path-to-Net-Zero"* building. A collaboration between the school district, design team, and local utility provider enabled further innovation by developing a microgrid design, **one of the first American schools to feature this innovation and playing an active role in the state's effort to reach zero carbon energy production by 2040.** **program run by the Energy Trust of Oregon*

Connections to the natural world lowers blood pressure, improves short-term memory, decreases negative emotion, and reducts "Direct Attention Fatigue". The new River Grove is designed to offer opportunities to make these connections in a number of ways:



COLOR

In conversations with the users, a color scheme was developed with muted tones to act serve a canvas for student work. The color chosen is selective, vibrant, and mimics those found in the natural world, like flowers attracting bees.

MATERIALS

Natural wood and rubber are used throughout the learning environment on walls, ceilings, and floors. These low-VOC and sustainable products provide warmth and positively impact the indoor air quality.

VIEWS TO NATURE

Views of River Grove's beautiful site are framed throughout the building. Benches support rest and prospect, floor-level windows provide an immersive connection to the outdoors, and distributed & varied outdoor spaces invite learning to spill into nature.

PATTERN

Wood wall panels and tile are cut and arranged with complex, non-rhythmic patterns.

PROSPECT, REFUGE, AND MYSTERY

Qualities found in the natural world are mimicked with tree-houses, learning nooks, and corridors that open into large naturally-lit spaces.

PHYSICAL ENVIRONMENT

Fostering DEI, sustainability, and wellness.

FOSTERING DIVERSITY, EQUITY, AND INCLUSION.
Inclusive school design seeks to meet the needs of all learners. Put simply, different people learn differently. River Grove includes spaces for small, medium, and large group gatherings, quiet spaces for focused work, energizing spaces for group collaboration, and flexible classrooms.

FOSTERING SUSTAINABILITY AND WELLNESS.
In a region formerly known for passive design, architects in the Pacific Northwest have had to adjust to a new normal brought on by climate change. Passive strategies such as night flushing need to be rethought when annual smoke seasons fill the air with carcinogens. Passive cooling is no longer effective in a region experiencing hotter and longer summer seasons. More importantly, public school buildings are now being looked-to as a resource for local communities in a natural disaster.

The structure is designed to a higher seismic importance factor as a Category IV building that can be utilized by the community in the event of a seismic or other natural disaster. The microgrid controller utilizes the large photovoltaic (PV) array, battery storage system (BESS), and generator to enable the building to operate independent of the grid in the case of a power outage. Critical systems in the large common areas and kitchen are on emergency power for continued use during an outage, and external connections enable safe drinking water delivery to the building's plumbing system in case of utility disruption.

photo credit: Alina Mohr

River Grove Elementary has been designed to meet the Energy Trust of Oregon's "Path to Net Zero" program which provides increased levels of incentives and resources for projects that raise the bar of energy-efficient design and performance.

River Grove Elementary School is a fully electric facility; even lunch is prepared for students using induction stoves. As PGE moves to a carbon-free grid with the adoption of renewable energy sources (HB 2021), River Grove will be a contributing factor to a carbon-free Oregon.

High efficiency air-cooled chillers cool the classrooms ensuring continued comfort for students during warmer months at the beginning and end of the school year. Maintaining comfortable conditions for students supports an active and attentive learning environment.

100% outside air is delivered through the building ventilation through MERV filters, preparing for the increased likelihood of seasonal atmospheric smoke with the proliferation of wildfire events.

Heat is recovered from exhaust air as it leaves the building. This reduces the amount of energy needed to heat the building in the winter as well as operational costs, saving the district money.

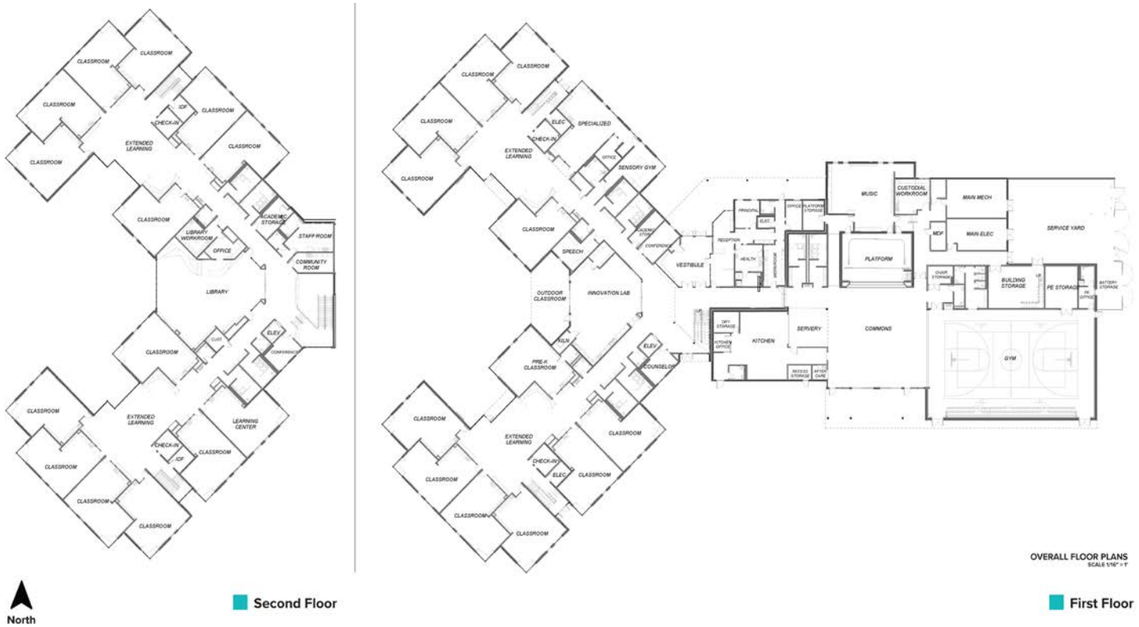
Lighting fixtures automatically dim when light levels are reached through sunlight, reducing energy use and maintaining a comfortable light level in the learning environment.

High volume, low velocity ceiling fans provide more efficient heat distribution and greater comfort in the larger spaces, such as the Commons and Gym.

Solar coatings and exterior shades reduce heat loads on exterior windows, minimizing heat loads and controlling glare in the classrooms.

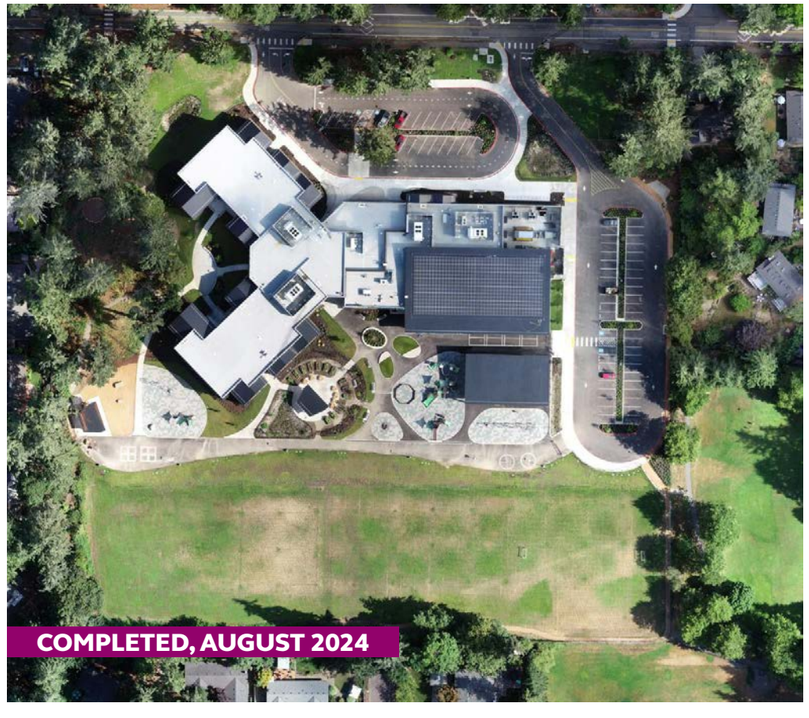
PHYSICAL ENVIRONMENT

Site Plans, Floor Plans, and Images.



THE ORIGINAL RIVER GROVE BUILDING, JUNE 2022

UNDER CONSTRUCTION, AUGUST 2022



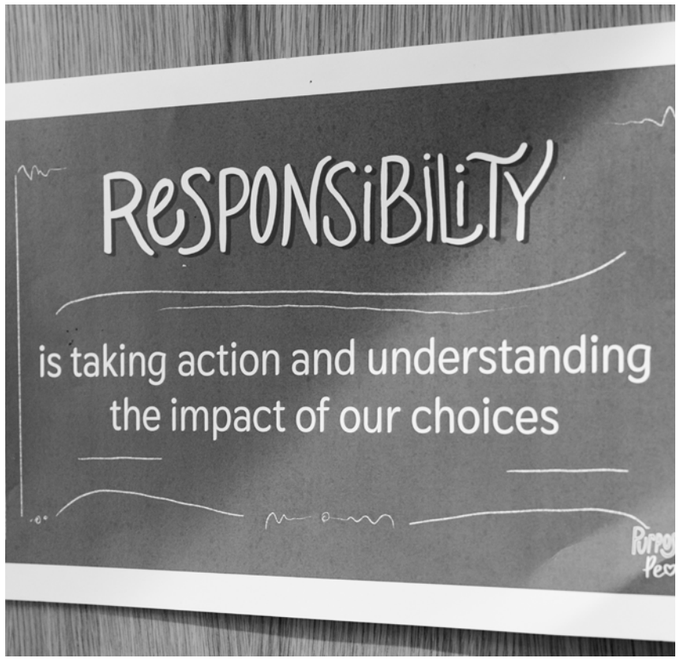
COMPLETED, AUGUST 2024

EDUCATIONAL ENVIRONMENT

The educational vision and goals of the school.

ARCADIS X Lake Oswego School District

photo credit: Alina Mohr



The Vision for **Lake Oswego Elementary Schools** is built from the foundational research, prioritization, and community-based process of the 2020 Long- Range Facilities Plan (LRFP). The LRFP provides a set of recommended facility improvements to meet the needs of educational programs and initiatives that are priorities of the district and community. These programs include:

- **Innovation Culture and Science, Technology, Engineering, and Math (STEM)**
- **Diversity, Equity, Inclusion and Access (DEIA)**
- **Student Wellbeing**
- **Sustainability and Resilience**
- **Saftey and Security**

Lake Oswego School District's mission, vision and values are authentic to our learning community, reflective of our students and their families, teachers and staff. Our mission is who we are today and our vision is who we aspire to be. Both are grounded in our shared values.

MISSION. We are a learning community dedicated to creating a culture of belonging and educational excellence.

VISION. We inspire socially responsible, globally conscious, critical thinkers who are empowered to contribute positively to a complex world.

VALUES. Inclusivity, Equity, Growth, Shared Leadership, Whole Child.

GUIDING PRINCIPLES

1. **Our school will be safe and welcoming for all.**
2. **Access to the outdoors is key, for learning, playing, and building community.**
3. **We will include places to gather as a community.**
4. **Making, Inquiry, and the Spirit of Innovation are front and center.**
5. **We will design for Wellbeing, Sustainability, and Resilience.**

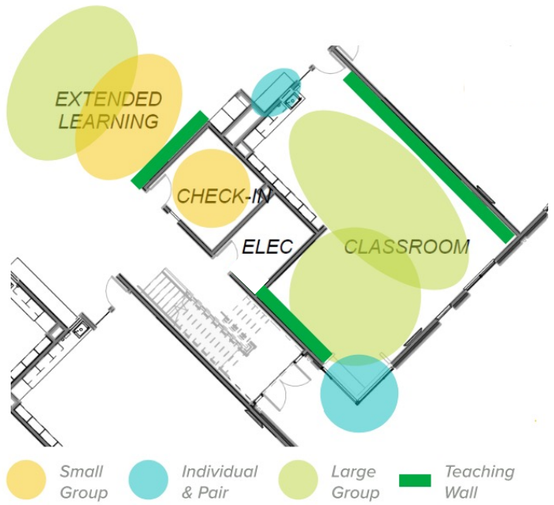
EDUCATIONAL ENVIRONMENT

How the environment supports a variety of learning and teaching styles to amplify the curriculum.

CLASSROOM CALMING CORNERS

photo credit: Art Ross

LEARNING NEIGHBORHOODS



A variety of teaching activities can be supported in this flexible and varied environment.

- One-on-One learning
- Small group break-out with specialists such as reading support or accelerated math teams.
- Quiet reading in a private window nook.
- Large, messy projects in the extended learning area that inspire nearby classes

Different people learn and thrive in different environments. River Grove Elementary is designed for every learner.

- Spaces for small, medium, and large group gatherings
- Quiet spaces for focused work, and energizing spaces for group collaboration
- L-shaped classrooms to allow for maximum flexibility, zoning, and grouping

A representation of the considerations to design differientiated learning environments. Graphic adaptation of the Dunn Learning Style Model, 1996.

This research was used to develop the Educational Specification and design principles for the school.

CLASSROOM FRONT PORCH DESKS

THE INNOVATION LAB

photo credit: Alina Mohr

EDUCATIONAL ENVIRONMENT

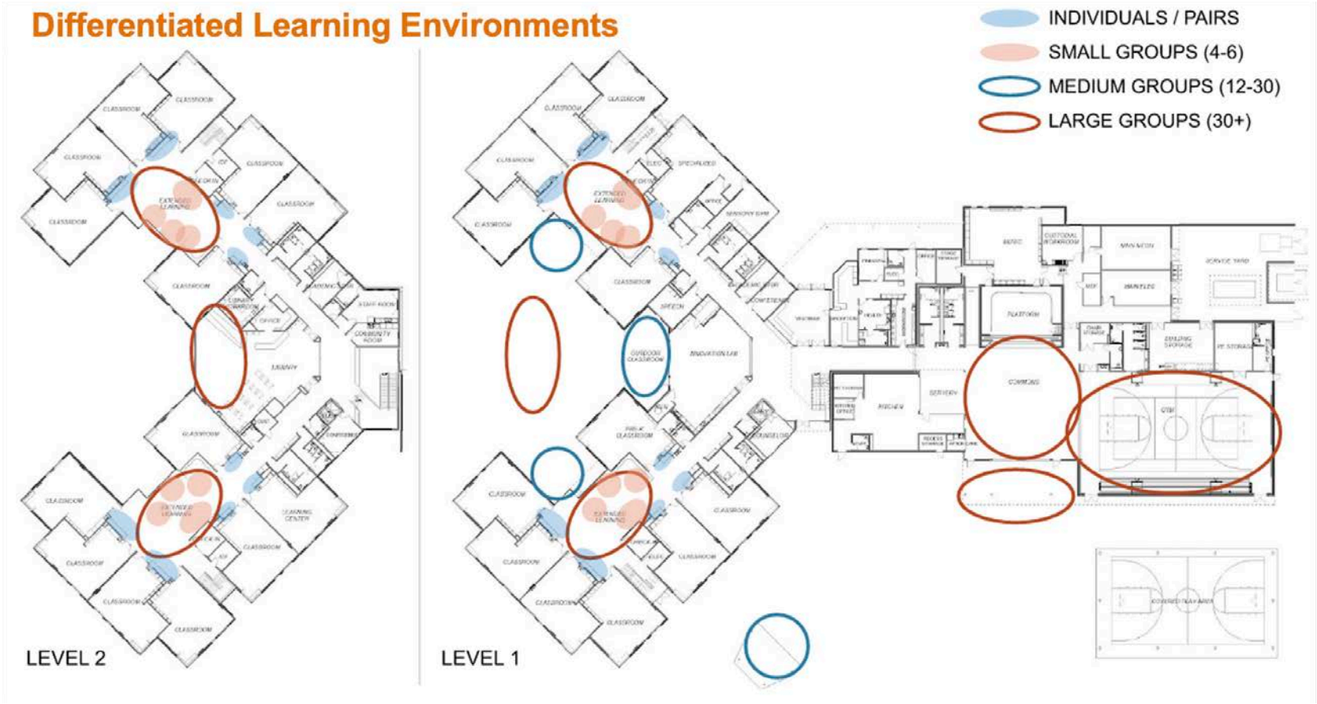
How we created an adaptable and flexible educational environment.

INNOVATIVE ASPECTS OF THE EDUCATIONAL ENVIRONMENT.

In the youth mental health crisis following the pandemic, the design team sought to develop an environment that reduced student anxiety and fostered the relationships between students and staff through elements like: distributed check-in rooms to de-escalate a charged situation without the stressed student(s) having to cross the building to seek support, classroom "porches" where students can be within sight of their teacher but have quiet space to focus on their work or receive one-on-one instruction, and interior windows that enable visual connections between classrooms around a shared learning zone, bringing classes together as a neighborhood of learners.

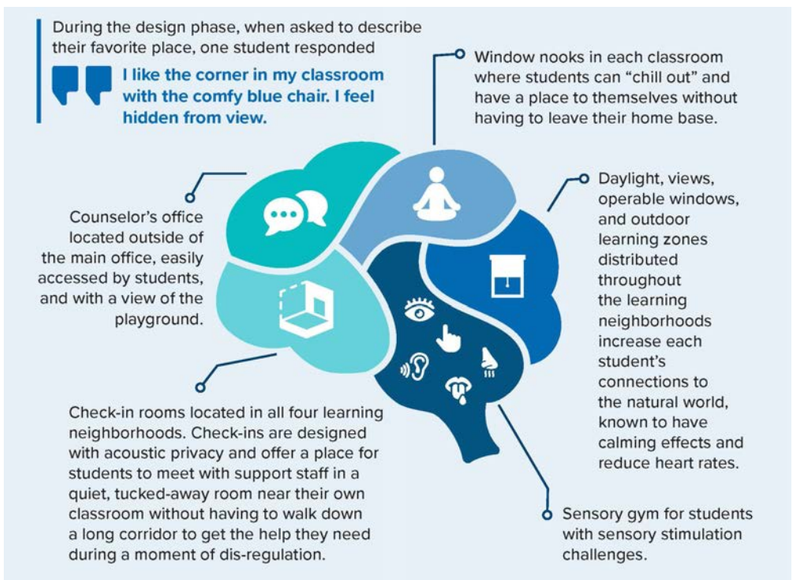
DESIGNED FOR WELLBEING

As we emerge from a global pandemic, it is more important than ever to prioritize student mental health and wellbeing. During the design phase, we heard from teachers "There is limited quiet space to build relationships with students". River Grove seeks to solve that and is designed with a distributed model for counseling and social-emotional support.



IMPROVED PHYSICAL, PSYCHOLOGICAL AND COGNITIVE WELLBEING.

- Reduces "Direct Attention Fatigue"
- Lowers Blood Pressure
- Improved Short-Term Memory
- Decreased Negative Emotion
- Places for "Micro-Breaks" & Attention Restoration



EDUCATIONAL ENVIRONMENT

A look into the educational specifications.

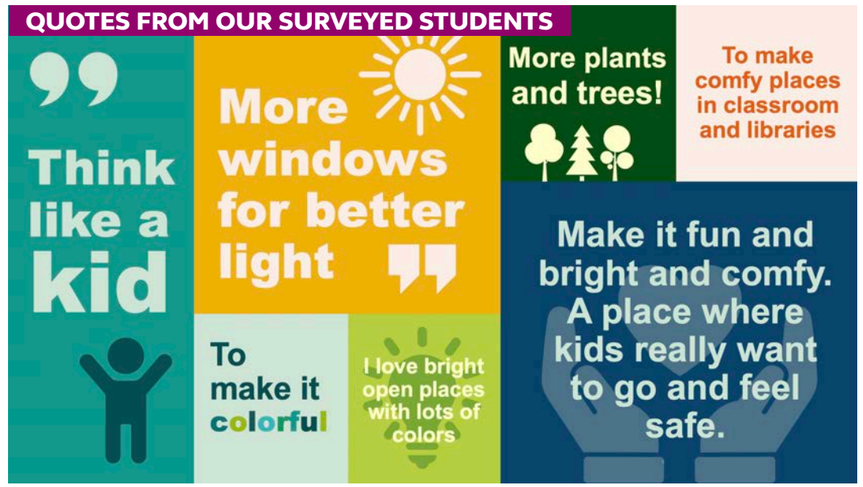
photo credit: Art Ross

HEARING FROM THE STUDENTS.

Digital surveys were distributed to the student population of the current River Grove Elementary School and completed anonymously by 210 individuals with representation by all grade levels. Three types of questions were posed to the students. The first two were designed to elicit a reaction by showing students an image of a modern elementary learning environment with no other context provided. Several different types of spaces were shown such as classrooms, chill out zones, presentation areas, collaboration areas, and spaces for independent learning. Students were asked to provide a star rating of the image, then to describe what about the image they did or did not like. The third question type asked students to evaluate their current school, and to provide design direction for their future school.

Q: When you go to school, what is your favorite place? Why?

When asked their favorite place in the school, 37% of responses listed the classroom, followed by the playground and library, which both had 23%. A further 14% responded the gym with the remaining votes being cast for various spaces such as the hallways or fields. The reason most consistently given for both the classroom and playground spaces as being favorite was the opportunities for social interactions, such as seeing friends. The library, by contrast, was appreciated for its “calm and peaceful” nature, with one student explaining that “the library makes me feel comfortable and happy.”



RESULTS

How the project achieves educational goals and objectives.

THE GUIDING PRINCIPLES ...
& HOW WE ACHIEVED THEM.

1 **Goal:** Our school will be safe and welcoming for all.

Achieved: River Grove is designed with all modern safety and security measures including digital access control, cameras, single point of entry security vestibule, areas of refuge, transparency, and security glass. These measures are intentionally designed without impact to the everyday learning environment. The school is fully accessible including universally-designed outdoor play and learning areas.

2 **Goal:** Access to the outdoors is key, for learning, playing, and building community.

Achieved: This school is arranged to embrace the outdoors. Classroom neighborhoods are connected by a learning courtyard with outdoor classroom zones buit-in to each. The large outdoor playground is design to support a wide range of play and gathering with covered outdoor tables, garden beds, turf mounds, play structures, and ball play.

3 **Goal:** We will include places to gather as a community.

Achieved: River Grove is designed with a 2-story entry zone in which visitors can see through to every space in the school. This school is flexible and can support large community events in either the commons or gym spaces, or by opening the large wall between the commons and gym to host larger events.

4 **Goal:** Making, Inquiry, and the Spirit of Innovation are front and center.

Achieved: The Innovation Lab is the hinge point on the lower level, facing directly into the entry of the school. The library is the hinge point on the upper level. These two spaces are fully transparent and strategically placed to passively inspire students as they walk by throughout the day.

5 **Goal:** We will design for Wellbeing, Sustainability, and Resilience.

Achieved: Several features enable the school to be operational during a natural event including a structure designed to a higher seismic factor, an onsite microgrid to connect to alternative power sources during an outage, and external water connections to supply safe drinking water to the plumbing system in case of utility disruption. Additionally, conversations with students and teachers led to an approach to support diverse learning needs and student mental wellbeing through the use of biophilic design, differentiated learning environments, outdoor learning, and distributed student services.

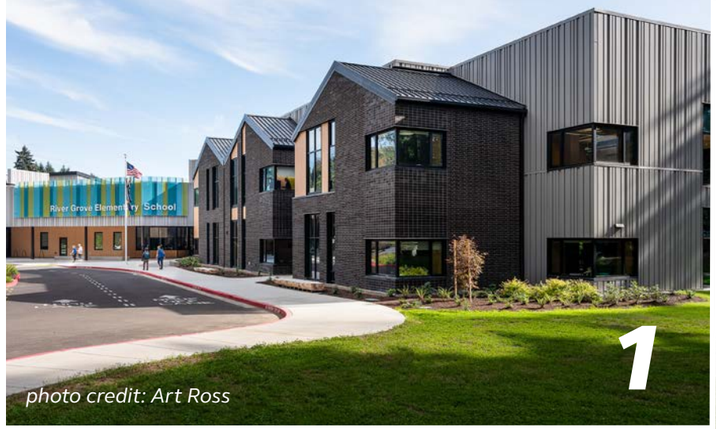


photo credit: Art Ross

photo credit: Alina Mohr

RESULTS

How the project achieves school district goals.

MISSION.

We are a learning community dedicated to creating a culture of belonging and educational excellence.

RESULTS.

River Grove Elementary supports a culture of belonging and school pride with a focus on educational excellence, through our development of centralized learning spaces, centralized community gathering spaces, and learner-focused design.

VISION.

We inspire socially responsible, globally conscious, critical thinkers who are empowered to contribute positively to a complex world.

RESULTS.

Through thoughtful and sustainable design practices, Arcadis has provided the students of River Grove Elementary, present and future, an environment that fosters their creativity, encourages them to explore the world around them, and inspires them to have BIG goals.

VALUES.

Inclusivity, Equity, Growth, Shared Leadership, Whole Child.

RESULTS.

We built a school for the children, the community, and the environment. A place where everyone and everything, can grow.

"Meeting here at River Grove Elementary School highlights our priority of teaching and practicing sustainability. This school balances our capital improvement program, facility operations and construction as an awe-inspiring example of our new and remodeled facilities shaping our students' experiences."

- Superintendent Jennifer Schiele

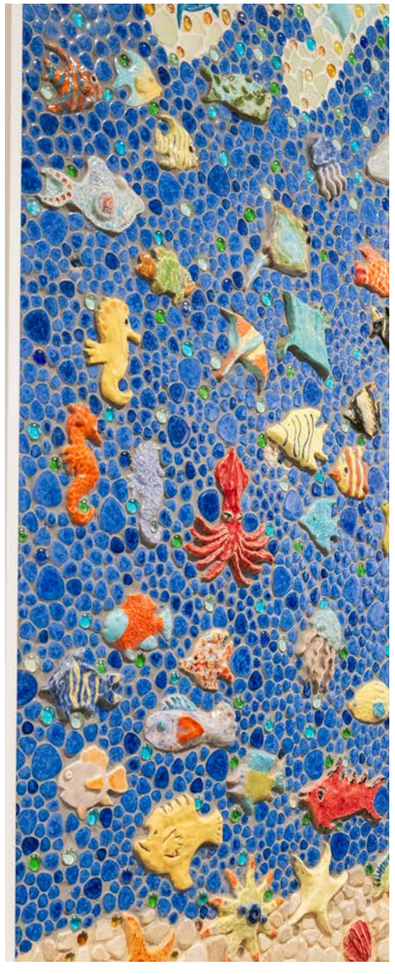


photo credit: Alina Mohr

RESULTS

How the project achieves community goals.

SERVING AS A COMMUNITY REFUGE IN A NATURAL DISASTER.

Portions of the building can continue to function during prolonged, large-scale power outages thanks to the school's microgrid, which includes a multi-part battery backup system. The school can also capitalize on this infrastructure when there's not a crisis.

For example, if the school recognizes that it's using more energy at certain times during the day, it can employ its back-up power system to supplement its usual power supply, in turn reducing the demand on the grid at peak times, conserving energy, and saving money, project leaders said. The backup system recharges when it's not in use.

The school also features electric-powered heat pumps for climate control and hot water, and energy-efficient windows and insulation to reduce energy demand.

The architects and school staff have worked closely with the Red Cross, local emergency departments, and county government leaders in designing River Grove to ensure it meets the requirements to be used as an emergency shelter and command center should disaster strike, said Josh Checkis, an engineer with sustainability consulting firm Glumac, who worked on the River Grove project.

The school is certified at the highest-level "structural performance code," meaning its structural integrity is stronger than that of a traditional school, mechanical equipment has been tested to ensure it can withstand the trauma of an earthquake, and the building can be immediately occupied following a temblor. Typically, facilities including hospitals and fire stations have similar structural integrity.

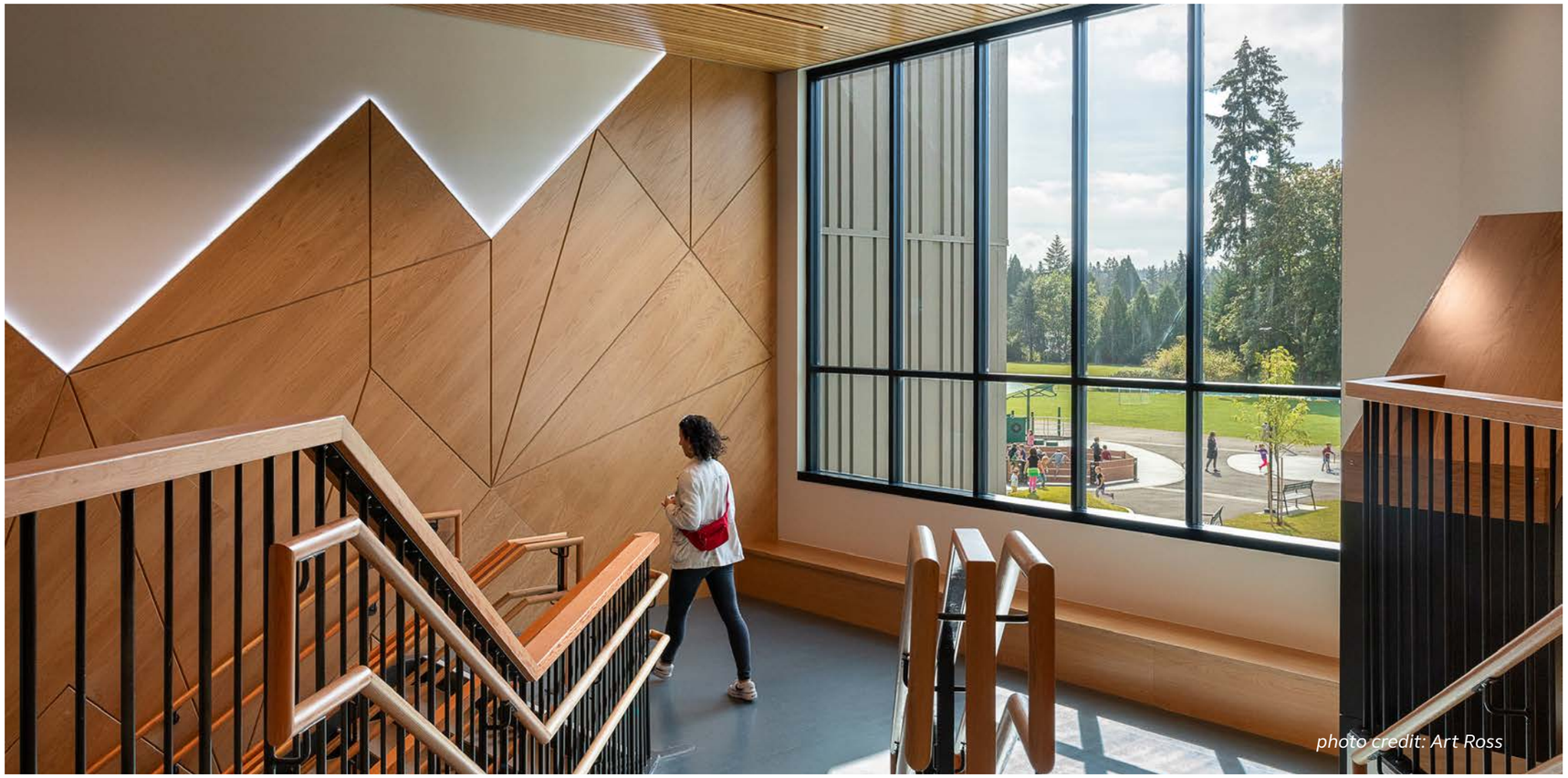


photo credit: Art Ross

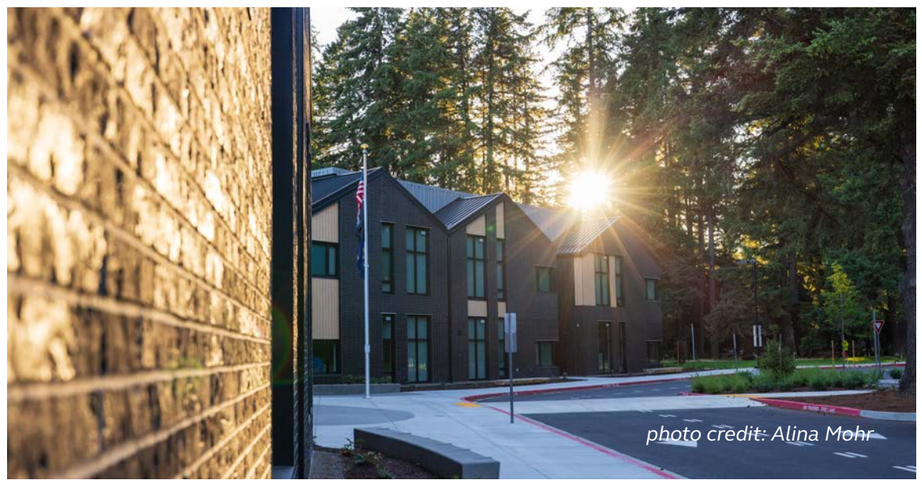


photo credit: Alina Mohr

RESULTS

Unintended results and achievements of the process & project.

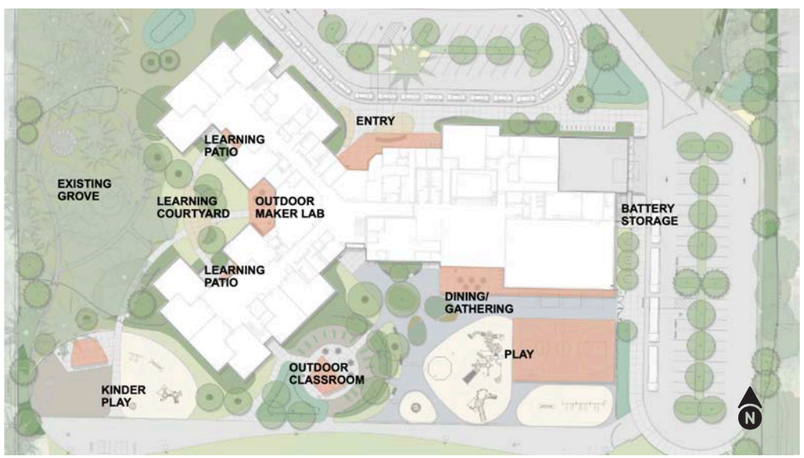
photo credit: Alina Mohr

SURPRISING OUTCOME: OUTDOOR LEARNING HAPPENS!

Although the River Grove has only been operational since August 2024, we were able to conduct a few post-occupancy observations and a staff survey in the winter of 2025. The most highly rated places in learning neighborhoods in order of preference are: outdoor learning garden and courtyard, classroom front porch desks, classroom calming corners, and learning center classrooms. In a region known for rain, it was surprising to see the high value and use of the outdoor learning zones. There are mutiple sizes and types of outdoor learning zones around the building. Many are covered, but not all. These spaces have outdoor teaching walls, built-in seating, and access to power and water. During the planning phase, outdoor learning was described as a high need but because it was lacking in the previous school there was skepticism around the frequency these spaces would actually be used. It is surprising and gratifying to know how highly valued they truly are.

SETTING THE BAR.

As the first elementary school in this District to be designed to the 2020 Educational Specification, River Grove is the flagship elementary school for the next capital improvement bond. It is being used as the example for achieving highly successful learning environments while meeting a greater need for resilience in the community.



STUDENTS FROM A STEM CLASS TESTING OUT HAND-MADE FLYING DEVICES IN THE LEARNING COURTYARD.

RESULTS

How the project provides value and good stewardship of financial resources.

DESIGNED FOR SUSTAINABILITY.

River Grove Elementary has been designed to meet the Energy Trust of Oregon's "Path to Net Zero" program which provides increased levels of incentives and resources for projects that raise the bar of energy-efficient design and performance.

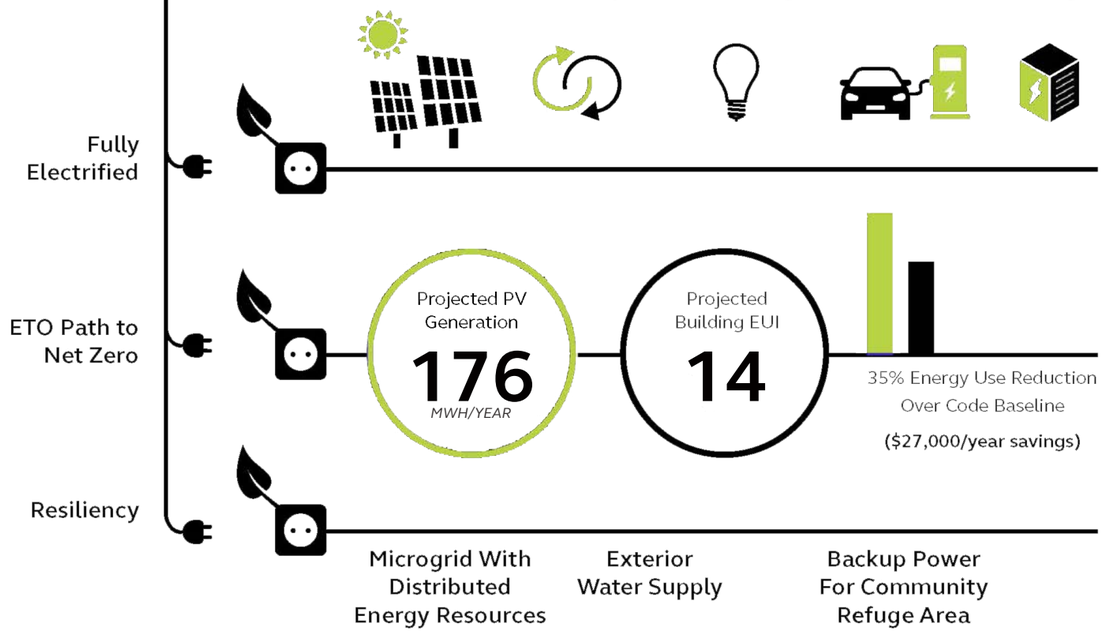
MATERIALS, SYSTEMS, AND PRODUCTS SELECTED FOR THEIR LONG-TERM RELIABILITY AND LOW MAINTENANCE COSTS.

THE MICROGRID REDUCES ENERGY CONSUMPTION BY STORING UNUSED PV ENERGY IN THE BESS TO SHAVE ENERGY DRAWS FROM THE GRID DURING PEAK HOURS.

"When you look at the life cycle of the building, and the fact we're going to have a building after a major event and systems that still work and be able to support our students and community—not to mention the significant saving on our utility bills from using cleaner energy—that adds up tenfold over the years."

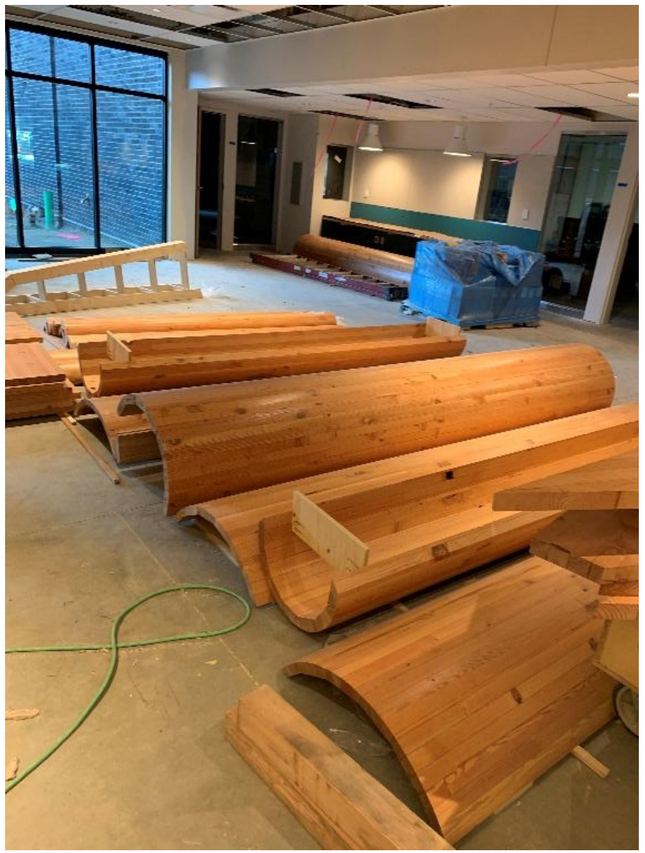
- Tony Vandenberg, Executive Director of Project Management for the School District.

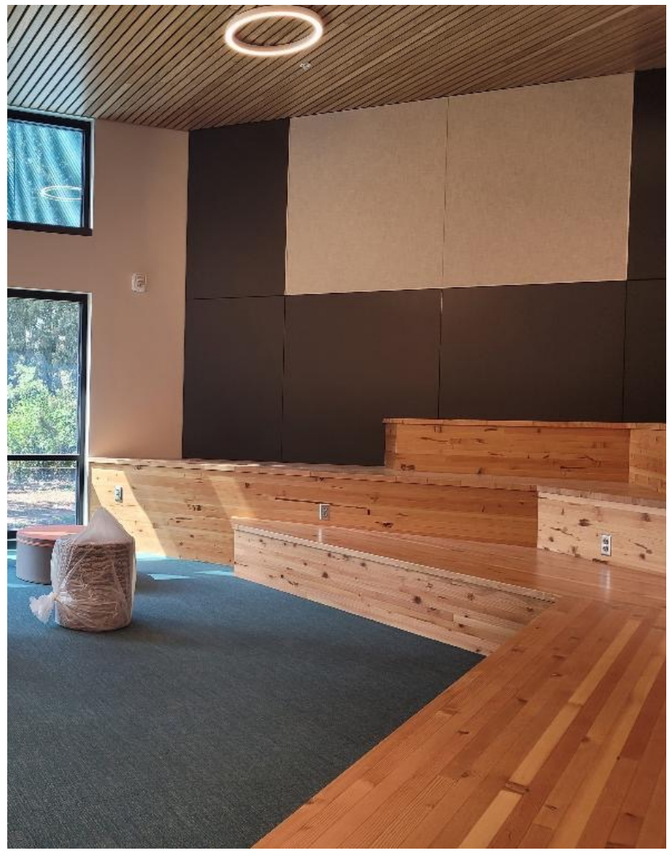
PATH TO NET-ZERO
AT RIVER GROVE ELEMENTARY SCHOOL



SOURCE: GLUMAC A TETRA TECH COMPANY

RECLAIMED WOOD BEAMS.



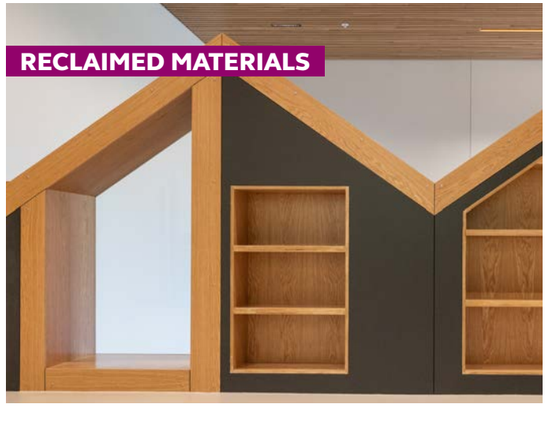


RESULTS

The project's sustainability and wellness outcomes.

photo credit: Alina Mohr

photo credit: Art Ross



We design
SCHOOLS
for all
STUDENTS.

photo credit: Alina Mohr


We encourage you to look at this school through the eyes of a 5-year-old for the first time.
- School Board Chair, Brian Bills
ARCADIS