



Rock Ridge High School

Virginia, Minnesota



1. Executive Summary

Located in the heart of northern Minnesota’s Iron Range, Rock Ridge High School creates a progressive learning environment that emphasizes 21st-century skills, aims for a global education benchmark, and introduces career-oriented pathways. The project’s innovative design is a result of an extensive engagement and visioning process that united two districts.

In 2020, rival school districts Virginia and Eveleth-Gilbert consolidated into Rock Ridge Public Schools, reflecting the community’s commitment to enhancing the quality of education in northern Minnesota. With a shared vision to provide students with an exceptional educational experience and create community resiliency by establishing economic opportunities in the region post-graduation, people put aside longstanding rivalries and came together to boldly imagine the future. Workshops with students, staff, and stakeholders fueled a collaborative design process, ensuring the school environment met the community’s educational and cultural aspirations.

Rock Ridge High School, one of three new schools emerging from this process, features dynamic, multi-level learning neighborhoods, flexible and collaborative spaces, and a strong connection to its natural surroundings. Its multi-story Innovation Commons connects all three levels, fostering an open and inspiring atmosphere with visibility to specialized programs and furniture promoting gathering and collaboration. Sustainability is foundational to the design, with energy conservation measures ensuring comfort in extreme weather conditions with minimal environmental impact.

The school champions equitable opportunities by supporting all career paths, not just college readiness. Specialized spaces allow students to explore a wide range of trades and skills relevant to the Iron Range. Inclusive facilities, such as all-gender restrooms, promote equity and well-being. The school’s flexible learning spaces adapt to evolving curricular needs, promoting hands-on learning experiences and real-world connections.

The entire community rallied behind the formation of the new school; investments from local businesses support educational opportunities, state-of-the-art equipment, athletic facilities, and a performing arts center, helping to create a world-class learning environment. The design also preserves the surrounding natural environment, with less than one acre of wetlands disturbed and minimal impact on the site’s rock outcroppings and tree canopies.

Rock Ridge High School is a symbol of unity and pride, and stands as a community-wide commitment to educational excellence and resilience. By embodying sustainability and innovation, the school creates a progressive learning environment that prepares students for the challenges and opportunities of the future and contributes to the economic and social vitality of the Iron Range.

2. Scope of Work and Budget

OWNER	SITE AREA	BUILDING AREA	GRADES SERVED	STUDENT CAPACITY	SQUARE FEET PER PUPIL	CONSTRUCTION COST	CONSTRUCTION COST PER SQUARE FOOT	OCCUPANCY DATE
Rock Ridge Public Schools	110.7 Acres	292,000 SF over 3 levels	7-12	1,260	231 SF	\$113M	\$386/SF	July 2023



3. School & Community Research and Engagement

Rural Resilience in the Iron Range

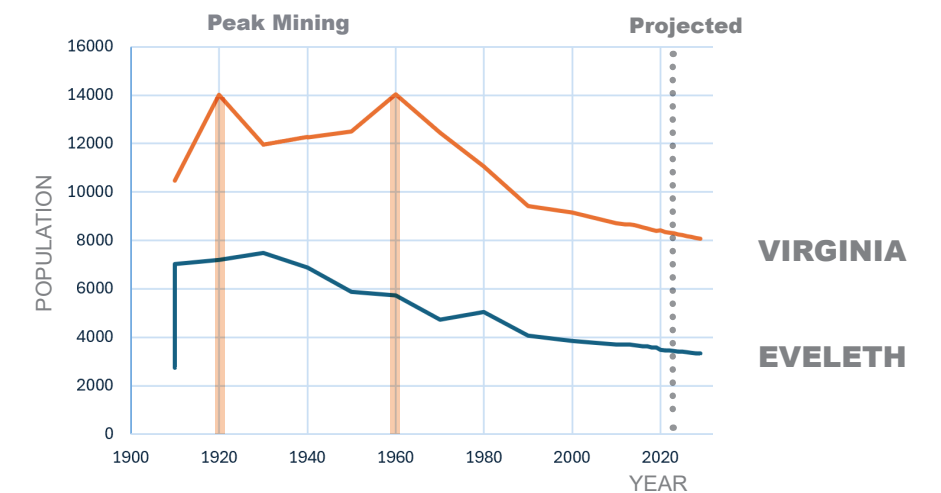
PLACE

The communities of Eveleth, Gilbert, and Virginia are located in the Iron Range of northeastern Minnesota. Their economies have historically centered on the taconite mining industry. The region is a primary provider of the United State's domestic iron ore. As with all natural resources, taconite is a finite resource and its extraction leaves massive scars in the landscape. The community wonders **what happens when the taconite is gone?**

ECONOMY

Over the years, the Iron Range's mining industry has grown and shrunk, including the closure of local mines. This ebb and flow has created economic uncertainty in the region's towns and contributed to a sustained population decline over the past 50 years. Today, the economic landscape is evolving to expand beyond mining. The largest employment sectors include health care, education, construction and manufacturing. The community wonders **how might the economy regenerate in light of mining's uncertain future?**

EDUCATION



Prior to 2022, two separate school districts, with two separate administrative teams, served these communities: Eveleth-Gilbert and Virginia. Some of the challenges facing these districts included declining enrollment, hundred-year-old facilities with deteriorating infrastructure and spaces that did not support 21st-century learning. This resulted in underutilized spaces that did not support flexible, collaborative learning and that required a lot of energy to run the inefficient buildings. Families were moving out of town for better educational opportunities. The districts realized that education was their ticket to future prosperity, but their current facilities were inadequately suited to prepare their kids for the jobs of tomorrow. Residents of these two communities came together around a fundamental question: **"What kind of education do you want for your kids and your grandkids?"**

Fiercely United

In 2017, the two former rival school districts embarked on an extensive community-driven, student-centered journey to forge a new educational vision together. Following more than **200 community meetings, 20 combined school board meetings**, community surveys, school tours, and visioning sessions, the newly-formed district committed to developing an educational model that emphasized 21st-century skills, project-based learning and a culture of innovation.

The Department of Iron Range Resources and Rehabilitation, a state economic development agency that reinvests local taconite production taxes back into northeastern Minnesota businesses and communities to strengthen the local economy, invested \$98M into the new district. In 2019, the referendum passed to consolidate into a unified district with two new PK-6 elementary schools and a new 7-12 high school. The new district’s name, Rock Ridge Public Schools, recognizes the landscape, geology and mining history that these towns share.

The two school districts, once divided by tradition and rivalry, found common ground in a shared educational vision for the future. **The catalyst for this transformation was the inception of the Career Academy. The community rallied around the idea of a school that would prepare students for both the local and global stage.** The Career Academy promised hands-on learning, real-world applications, and a focus on 21st-century skills like critical thinking and collaboration. It was a beacon of hope, a promise of a brighter future for individuals and community alike.

As plans for the Career Academy High School took shape, the walls of rivalry began to crumble. Parents, teachers, and students from both districts came together, united by the dream of a school that would inspire and empower. The Career Academy was more than just a building; it was a symbol of what could be achieved when communities set aside differences for the greater good. **On the day the school opened its doors, the towns celebrated not just a new school, but the birth of Rock Ridge—a district fiercely united, ready to rise and inspire generations to come.**



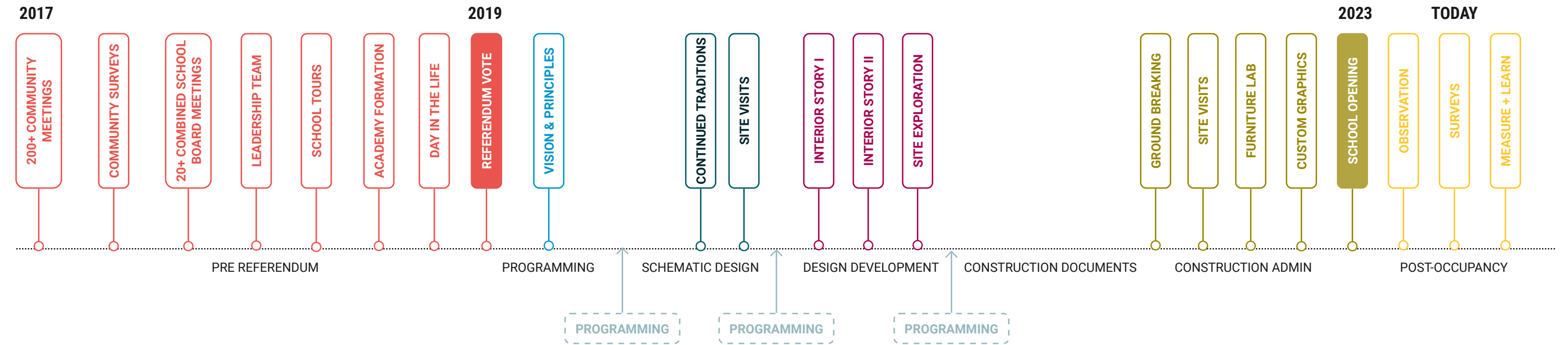
Students participate in a visioning workshop for their new school.

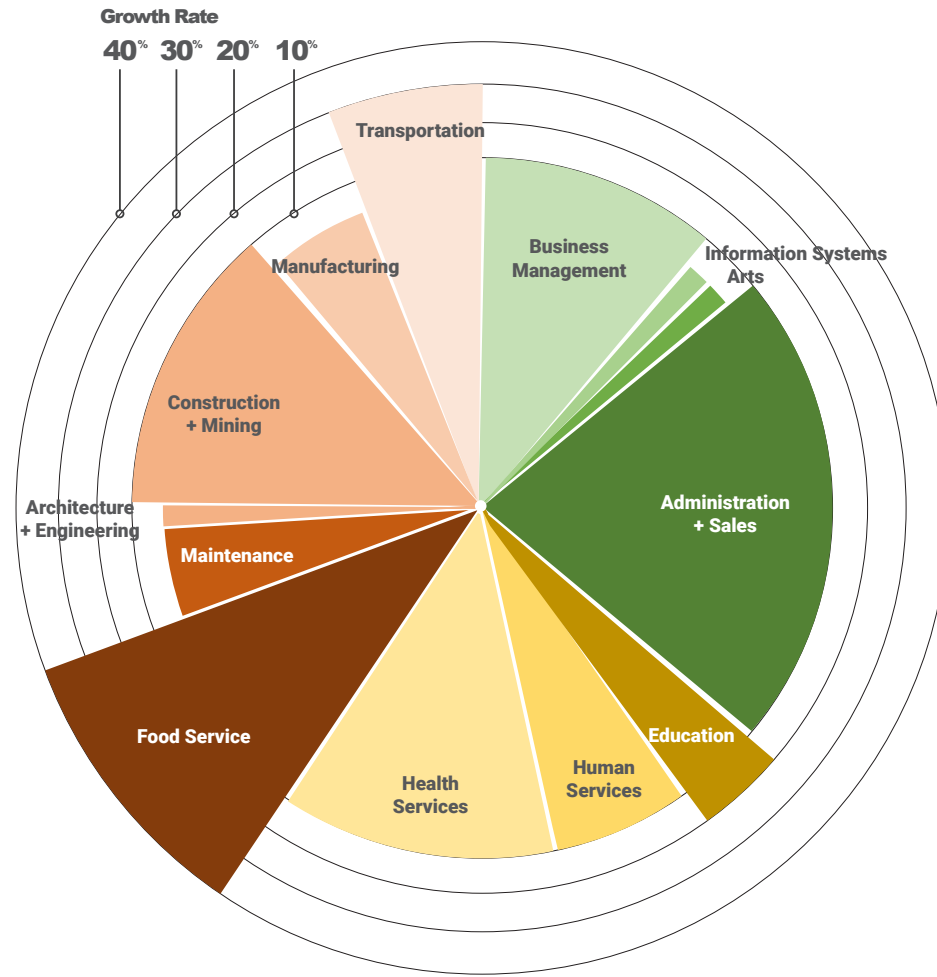


Captains of the Eveleth-Gilbert Golden Bears and the Virginia Blue Devils hockey teams united to reveal the new Rock Ridge Wolverines logo following a game.

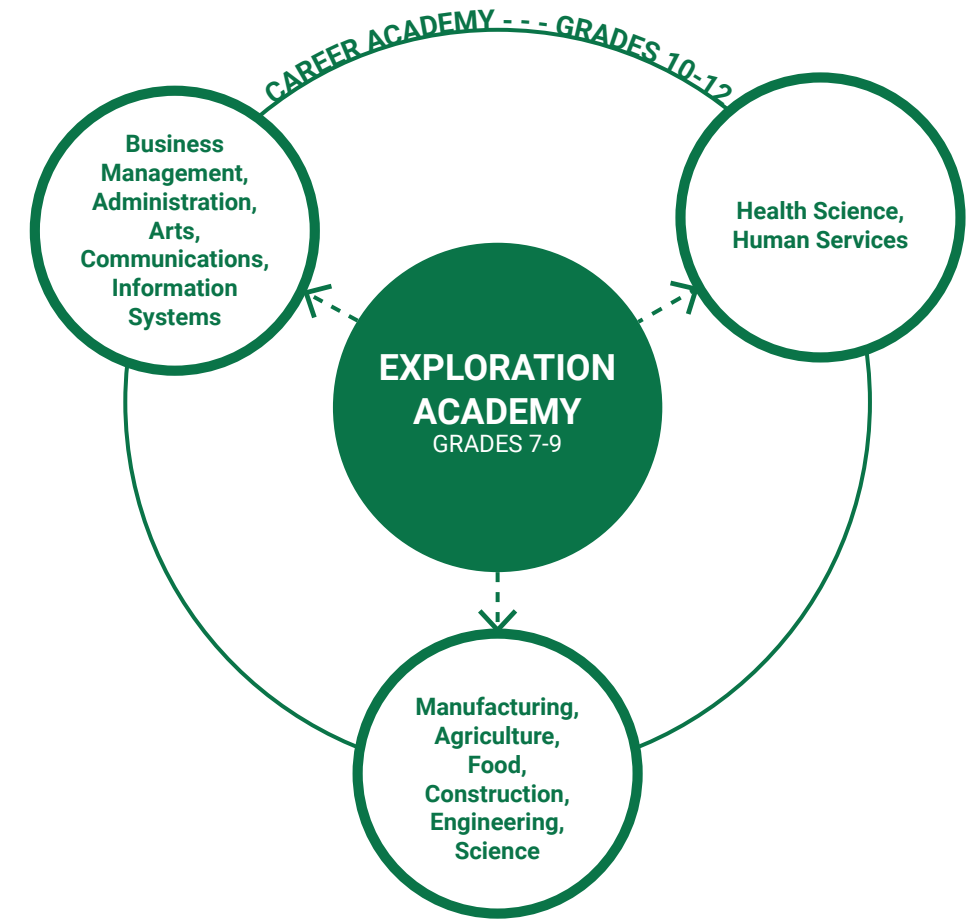
“This high school is the future of these communities because we want our kids to stay on the Range.”

- Dr. Noel Schmidt, Superintendent





Occupation Trends in Eveleth, Gilbert, and Virginia (2019)



Rock Ridge Career Academy Model

SHARED VISION STATEMENT

Community visioning workshops engaged neighbors, students, staff and families across both districts in the co-creation of a shared vision statement and the emergence of the Career Academy model and program based on local and regional occupation trends.

WE SEE...

- **An educational environment designed to inspire passion and joy for everyone**
- **Collaborative educational experiences with immediate real-world applications**
- **Meaningful integration of community professionals into the daily education of students**
- **Adaptable learning spaces that continually meet the needs of an ever-changing workforce**

[Everyone = faculty, staff, parents, students, community, visitors, etc.]

CAREER ACADEMY MODEL

Exploration Academy: In grades 7-9, all students explore career opportunities across industries and develop an awareness of their own unique interests and goals. Students will acquire resources to gain industry exposure in a wide variety of career clusters.

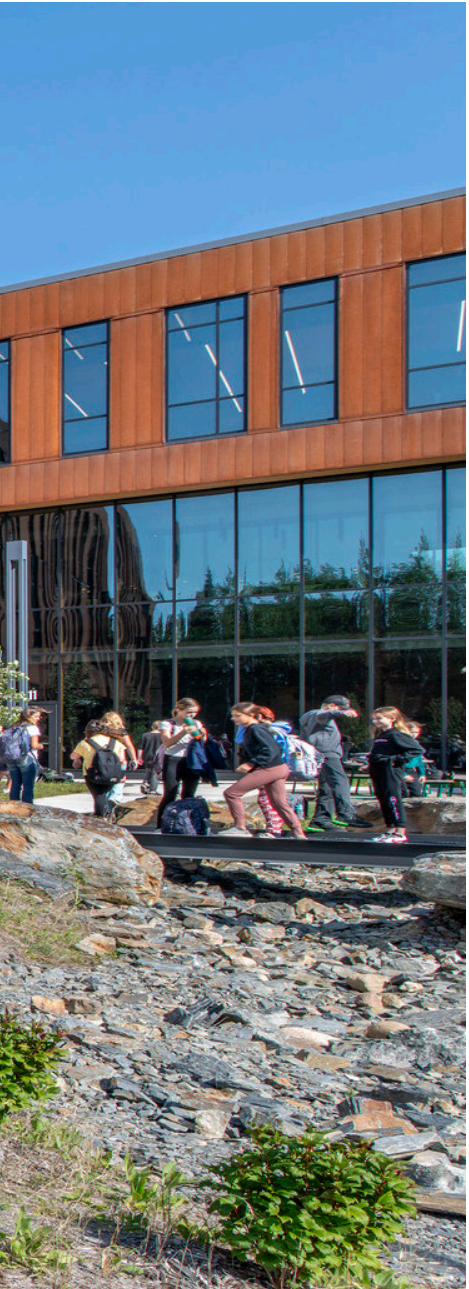
Career Academy: In grades 10-12, students select a Career Academy to participate in for the remainder of their high school years in the following tracks:

- **Business, Management, Administration, Arts, Communication, and Information Systems:** This academy features career pathway programming and activities in areas such as IT, finance, business administration, and the arts.
- **Health Science and Human Services:** This academy features career programming and activities connected to healthcare, education, law, public safety, corrections, and human services.
- **Agriculture, Food, Manufacturing, Construction, Engineering and Science:** This academy features career programming and activities connected to natural resources, architecture and construction, mining, manufacturing, science, and engineering.

A Day in the Life

As part of the co-creative design workshop process, the community was asked to imagine what a day in the life of their new school would be like in 10 years. These stories informed programming, space planning and design priorities. Working in teams comprised of neighbors, students, and families, across both districts, the community co-created stories describing their ideal future learning experiences, including this student-generated story:

“I walk into school each morning knowing that I have a flexible schedule with a couple of skinny blocks where I’m going to have diverse learning experiences followed by a mix of lecture and hands-on encounters. From those diverse learning environments, I move on to a more substantial hour working collaboratively with a couple different departments and teachers. We then move to an outdoor space to continue that learning. I have selection over my topics and my teachers trust me to have control over my learning path. Throughout this entire morning I’ve creatively collaborated with my community working directly with a business that my dad works for as well as with a couple different industry partners. I was able to collaborate with my peers in other academies. At the end of the day, I’m really interested in pottery so the building is open and I am able to go into the art lab and do a little more work on my own.”



4. Physical Environment

Ecology of Place

CONTEXT OF PLACE

Eveleth, Gilbert and Virginia are in Climate Zone 7, one of the coldest climate zones in the country. Frigid, snowy winters give way to mild, rainy summers. However, this region is quickly warming and the region's iconic pine forests are experiencing an influx of deciduous birch and aspen trees, which are more adaptable to the warmer weather.

THE SITE

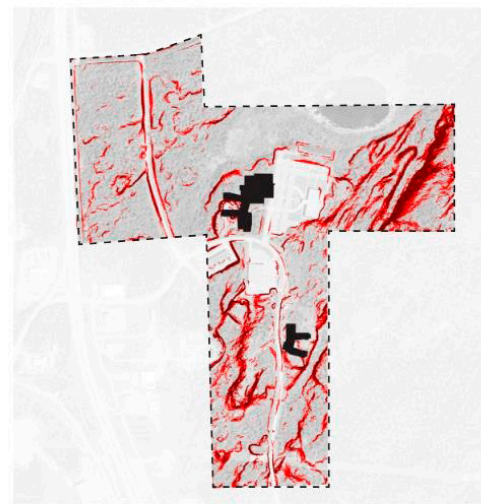
The site is an ecologically diverse landscape of shallow marshes, alder thickets and hardwood swamps. Wetlands and slate outcroppings reveal rich stories of habitat, water, and human development. The siting of the new school and fields was critical to supporting and minimizing harm to the mature woodlands and wetlands. Thus, the building was sited at the location of a former development to reduce the impact on the existing ecosystems. Overall, less than one acre of wetlands on this 110-acre site was disturbed.

Stewardship of these natural assets prompted the following design decisions:

- Three-story school to limit building footprint
- Constructed half the number of recreation fields as a typical high school by utilizing existing community fields
- Smaller pool to limit building footprint and water use

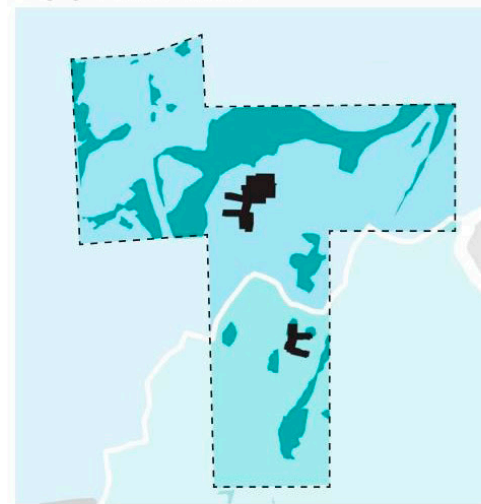
Local materials like wood and Corten steel, chosen for durability and regional significance, celebrate the area's mining industry. Outdoor learning spaces, wetland boardwalks and woodland paths connect students to nature. Rainwater harvesting, healthy materials and simplified material palette further demonstrate the school's commitment to sustainability.

TOPOGRAPHY
LAYOUT



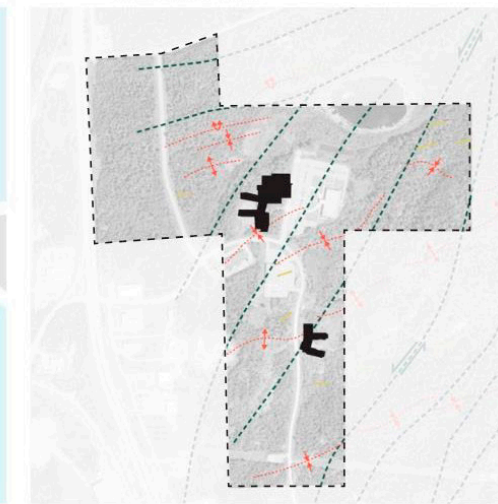
- 16% - 30%
Significant cut and fill and/or retaining walls required
- 30% - 50%
Undesirable building conditions

WETLANDS
ALIGNMENT



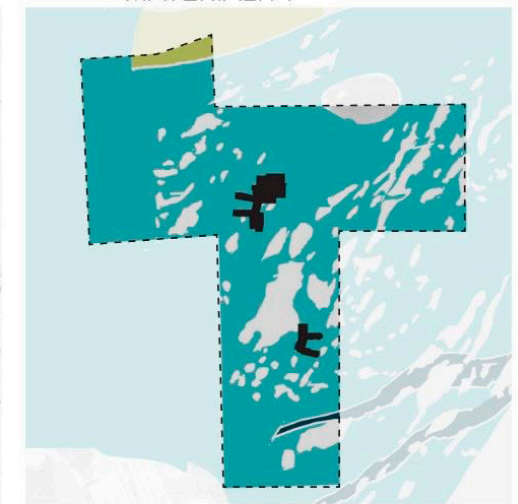
- Watershed 1 : Elbow Creek
- Watershed 2 : St. Louis River
- Wetland

GEOLOGIC FORMATIONS
GEOMETRY

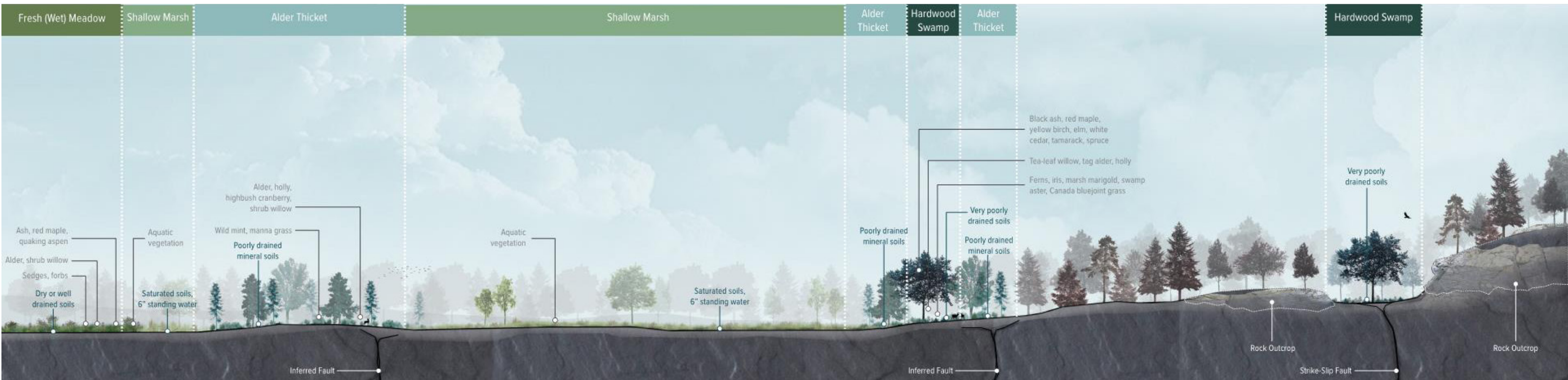


- Faults
- Folds
- Intrusions

BEDROCK
MATERIALITY




- Rock Outcrop
- Graywacke and Slate
- Conglomerate and Lithic Sandstone
- Volcaniclastic Sedimentary Rocks





Rooted in the Iron Range's industrial heritage, the exterior design highlights local materials like steel and iron ore to honor the region's mining legacy.

Regenerative Design Goals




Resource Stewardship

ENERGY: Net-Zero Ready

MATERIALS: No vinyl; Minimize Red List materials; Specify local | sustainable timber

HABITAT: Preserve 15-25% of site for habitat




Occupant Well-Being

DAYLIGHT: 90% of classrooms fully daylit

VIEWS TO NATURE: All classrooms and regularly-occupied spaces have views to nature

THERMAL COMFORT: Operable windows; 90% of occupants comfortable

AIR QUALITY: Low | No VOC; Maintain below 800 ppm CO₂ in occupied spaces



Curriculum + Community

BUILDING AS A TEACHING TOOL: Students engaged in monitoring and operating; School as a living lab

OUTDOOR LEARNING: Outdoor classroom; School forest; Students maintain wetlands and local ecosystems

Natural wood ceiling and curtainwall, Corten metal panels, exposed naturally weathered steel

Direct connection to courtyard / outdoor learning landscape

Ceiling-mounted power provides flexible power supply, freeing up the floor space for further flexibility

Innovation commons welcomes all students to engage in project-based learning

High-performing wood curtainwall provides daylight and connections to nature





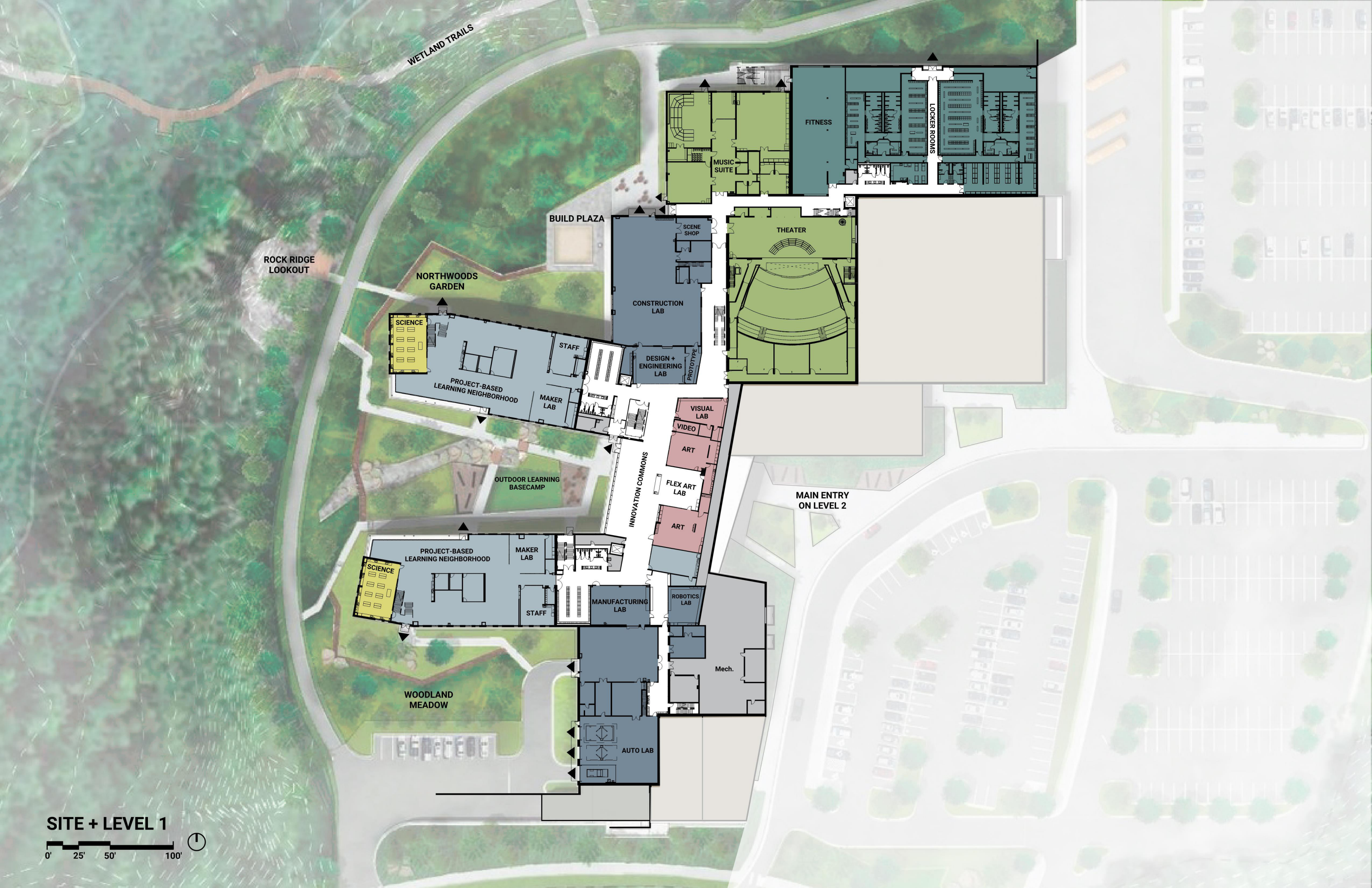
“Where the building is sited was encumbered with bedrock debris from years of construction development around it. The best place for the school was on that, so it became a process of actually healing the land and returning it to a place that’s better than we found it.” - Design Principal



Design Principles

- 1. Welcoming | Community Pride**
Facilities will be a source of pride for the entire community: multi-purpose, bright and open with a connection to nature, visibility and display to celebrate student activity and work.
- 2. Variety | Freedom | Choice**
Facilities will provide a variety of space sizes and types to allow students to experiment and grow, and allow them to focus on developing their unique skills and interests.
- 3. Flexible | Adaptable**
Facilities will incorporate flexible and universal learning spaces that can adapt over time to support a broad range of activities.
- 4. Collaboration | Creativity**
Facilities will create cross-disciplinary learning spaces that promote collaboration and innovation between subject areas, staff, and students.
- 5. Exploration | Discovery | Advancement**
Facilities will provide specialized learning environments that allow students to explore a wide variety of opportunities, discover their passions, and advance their skills in real-world settings.
- 6. Inspiration | Mentorship**
Facilities will provide inspiring learning environments that are comfortable, inclusive, and engaging to foster mentorship and opportunities for professional involvement.





WETLAND TRAILS

ROCK RIDGE
LOOKOUT

NORTHWOODS
GARDEN

SCIENCE

PROJECT-BASED
LEARNING NEIGHBORHOOD

BUILD PLAZA

STAFF

MAKER
LAB

CONSTRUCTION
LAB

DESIGN +
ENGINEERING
LAB

PROTOTYPE

SCENE
SHOP

THEATER

FITNESS

LOCKER ROOMS

OUTDOOR LEARNING
BASECAMP

INNOVATION COMMONS

VISUAL
LAB

VIDEO

ART

FLEX ART
LAB

ART

MAIN ENTRY
ON LEVEL 2

WOODLAND
MEADOW

SCIENCE

PROJECT-BASED
LEARNING NEIGHBORHOOD

STAFF

MAKER
LAB

MANUFACTURING
LAB

ROBOTICS
LAB

Mech.

AUTO LAB

SITE + LEVEL 1

0' 25' 50' 100'



LEVEL 2



LEVEL 3





“I feel welcomed every single time I walk into this building.” - Georgia, 11th Grade

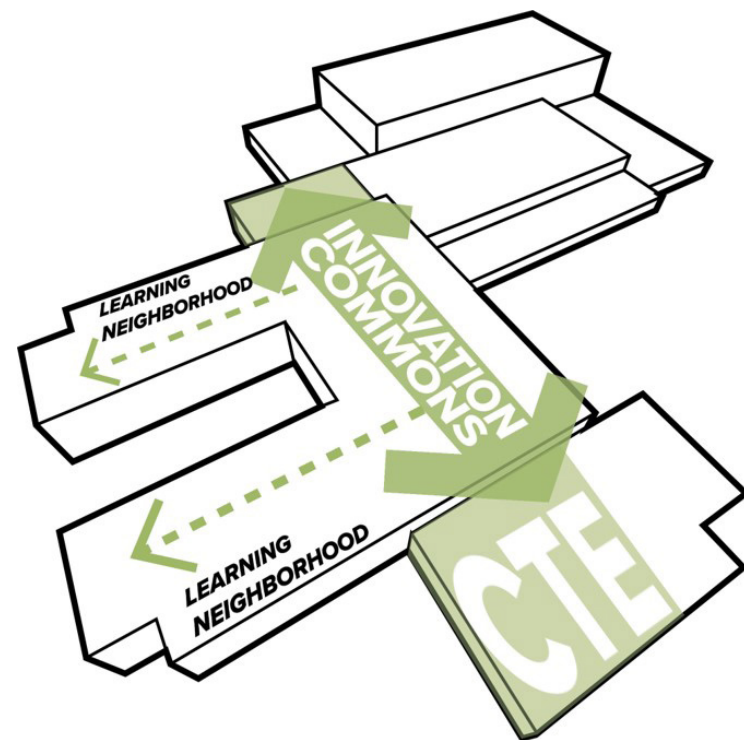
5. Educational Environment

Culture of Innovation

The Innovation Commons is the centerpiece of the school, serving as a social and academic connector. Spanning all three building levels, it fosters interdisciplinary learning and community interaction through rapidly reconfigurable spaces, connection to the landscape, ample daylight, and visibility to learning labs. Its open design, variety of furniture, and tech-enabled zones invite students to collaborate and innovate. Pathway programs, like advanced manufacturing, robotics, and culinary arts, equip students with skills needed to excel in current and future Iron Range industries, creating a strong pipeline of talent to support the future of the region.

Historically, CTE spaces were located far from classrooms, in the back of the school. This model, however, infuses hands-on learning everywhere, connecting CTE spaces with active learning, providing an inviting space for all students to explore various CTE programs and project-based learning.

There is a gradient of spaces where the most flexible and adaptable innovation occurs in the center of the school, and connected spaces in either direction become increasingly tailored to pathway activities and specialized project work. The transition from flexible to highly specialized spaces is physically and visually continuous through the Innovation Commons, showcasing project processes in their entirety and providing a dynamic hands-on learning landscape through the heart of the school.



“The open spaces inspire me because it’s a new way to learn. I can meet new people and push myself to do new things.”

- GraceLyn, 12th Grade







SPACE PLANNING

The question was asked: **“What types of next century skills do you want to see happening throughout the school?”** These skills were grouped into different types of spaces – Den, Maker Space, Learning Lab, Plaza, and Think Tank – that were then distributed throughout the floor plan, so desired skills informed the flow and adjacency of spaces. This design study prompted deep conversations around how space can support the development of critical skills and if there was the right balance of active, collaborative, and individual space.

DESIGN CONCEPT

Workshops with students and teachers informed the interior design story, which is rooted in an unwavering connection to the Iron Range’s landscape and industry. The Innovation Commons celebrate local materials like steel and wood, honoring the region’s mining traditions. Learning neighborhoods tie to the landscape with the first floor inspired by the colors of water, the second floor reminiscent of the forest, and upper level like the sky. The variation in color palette not only reflects the landscape but also supports wayfinding.

Learning neighborhoods establish a vertical connection to the natural environment: the ground floor draws from the rich blues and silvers of regional lakes; the second floor incorporates the green tones of northern forests; the upper level features the palette of Minnesota skies. This color application not only reflects the surrounding landscape but also serves as an intuitive wayfinding system.

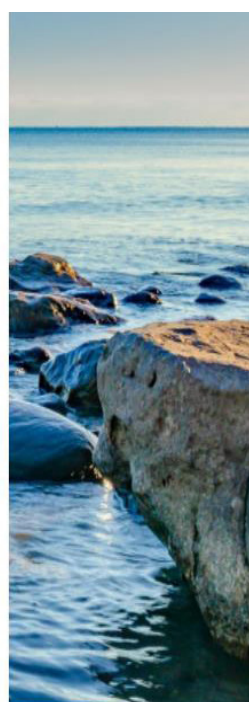
The Performing Arts Center, a centerpiece of community gathering, dramatically evokes the iconic iron pit mines that shaped the region. Its descending, terraced design creates an immersive space that celebrates local industry while providing exceptional acoustics and sightlines—symbolically connecting creative expression to the very foundations of the community’s identity.



HOME



PRIDE



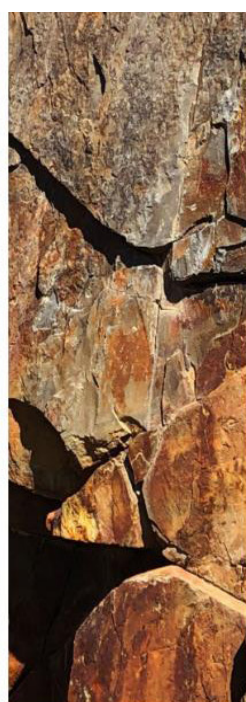
WATER



FOREST



SKY



EARTH



INDUSTRY



REIMAGINING THE LEARNING NEIGHBORHOOD

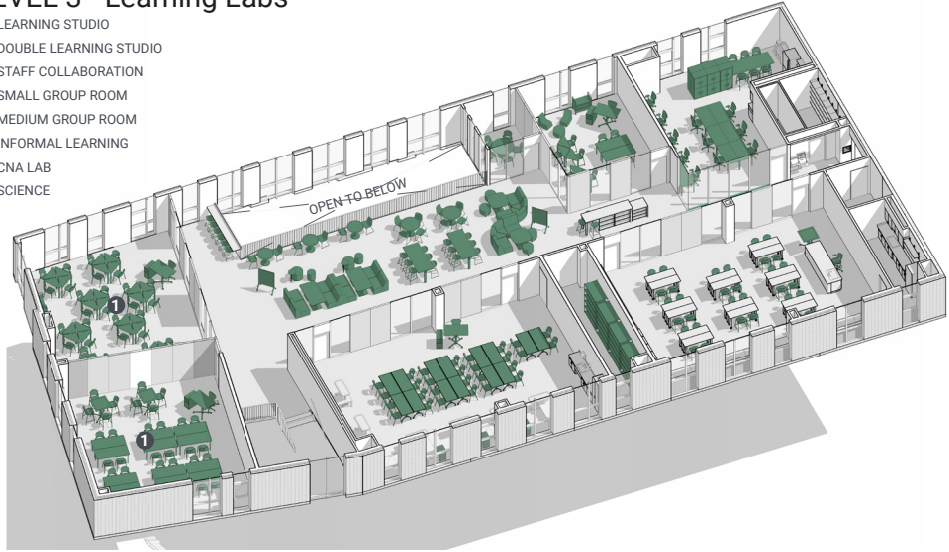
Working closely with teachers, the design team deconstructed a typical learning wing, reimagining it as a kit of parts that supports project-based learning. Under this new concept, dynamic, modular spaces support a range of learning styles, from individual study to group collaboration and pitch spaces. Movable partitions, demountable walls, ubiquitous technology, and adaptable furniture allow for easy reconfiguration, enabling seamless transitions. The flexibility of the learning neighborhoods ensures that the environment remains responsive to evolving needs both short and long-term. The neighborhoods foster autonomy, creativity, and peer interaction, cultivating skills essential for the future workforce and celebrating trust in students and their ability to chart their own learning paths.

“Collaborative learning makes me more open to learning new things and makes students better people.”

-Alison, 11th Grade

LEVEL 3 - Learning Labs

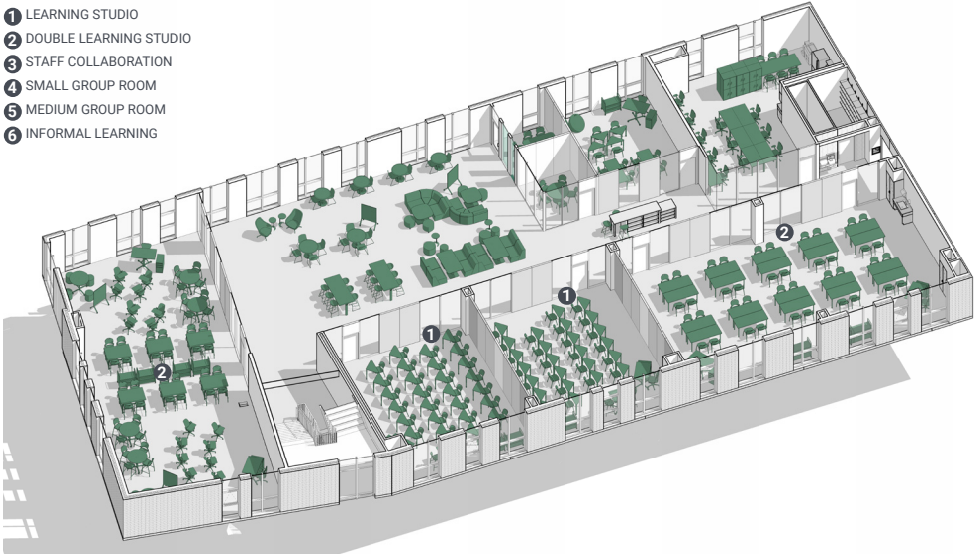
- 1 LEARNING STUDIO
- 2 DOUBLE LEARNING STUDIO
- 3 STAFF COLLABORATION
- 4 SMALL GROUP ROOM
- 5 MEDIUM GROUP ROOM
- 6 INFORMAL LEARNING
- 7 CNA LAB
- 8 SCIENCE



LEVEL 3

LEVEL 2 - Multi-disciplinary Collaboration

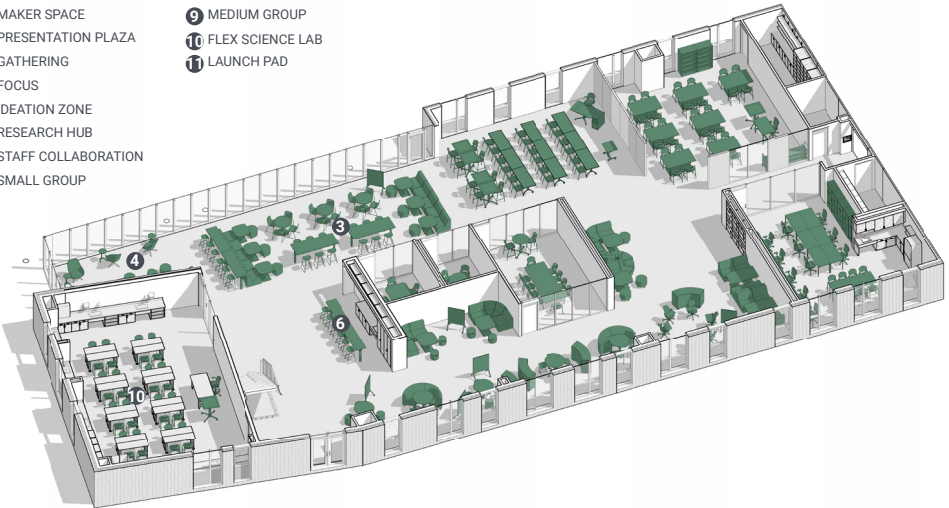
- 1 LEARNING STUDIO
- 2 DOUBLE LEARNING STUDIO
- 3 STAFF COLLABORATION
- 4 SMALL GROUP ROOM
- 5 MEDIUM GROUP ROOM
- 6 INFORMAL LEARNING



LEVEL 2

LEVEL 1 - Student-driven Learning

- 1 MAKER SPACE
- 2 PRESENTATION PLAZA
- 3 GATHERING
- 4 FOCUS
- 5 IDEATION ZONE
- 6 RESEARCH HUB
- 7 STAFF COLLABORATION
- 8 SMALL GROUP
- 9 MEDIUM GROUP
- 10 FLEX SCIENCE LAB
- 11 LAUNCH PAD

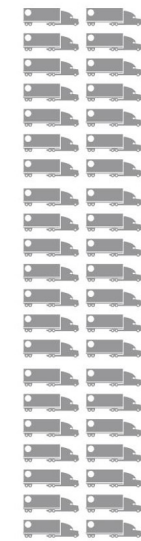


LEVEL 1



“I don’t feel trapped all day. I don’t get as fidgety. The furniture really helps.”

- Ryan, 8th Grade



42
Code Compliant

Code Compliant = 0.40 CFM/SF

Project Goal = 0.050 CFM/SF

Actual Measured = 0.015 CFM/SF



5
Project Goal



1.6
Actual



6. Results

Sustainability + Well-being Outcomes

RESOURCE STEWARDSHIP

The new facilities are right-sized, flexible for future use, and use a fraction of the energy of their previous facilities. The overall Energy Use Intensity (EUI) is 42 kbtu/sf/yr. The exterior envelope was designed to a very low infiltration rate, 0.05 cfm/sf. Whole building air tightness tests revealed that the achieved infiltration rate was significantly tighter, 0.015 cfm/sf, resulting in an overall EUI reduction of 1 kbtu/sf/yr. This would not have been possible without contractors' critical attention to detail and commitment to high performance. This extremely tight envelope allows the equivalent of 1.6 semi-trucks filled with air to escape from exterior walls throughout the entire building, compared to the equivalent of 42 semi-trucks' worth of air allowed by code.

OCCUPANT WELL-BEING

Over 95% of regularly-occupied spaces have ample daylight and significant views of nature. Operable windows in every classroom further promote healthy air quality, well-being and user control. To maintain indoor air quality, ventilation rates in classrooms is seven air changes per hour, CO2 levels are monitored to maintain suitable levels, and MERV-13 filters are implemented to mitigate risk of airborne pathogen transmission.

CURRICULUM + COMMUNITY

Rock Ridge's commitment to the building as a teaching tool began with students observing the construction process. The construction of this new school marks a significant advancement in local contractors' knowledge and experience in construction of a high-performing, healthy building. This prepares local trades to be leaders in resilient construction as the industry advances in sustainable development. In turn, contractors serve as mentors for students. Contractor workshops prepare students to enter the workforce. Student construction projects included the new dugouts for their fields.

Outdoor learning spaces engage students in wetland conservation, habitat support and biodiversity efforts through immersive woodland experiences. Approximately 50% of the entire Rock Ridge campus site (including Laurentian Elementary and district operations buildings) has been preserved for habitat.

"We needed this because we couldn't survive on our own anymore."

- Willie Spelts, Director of School-to-Work Engagement, Fundraising Coordinator

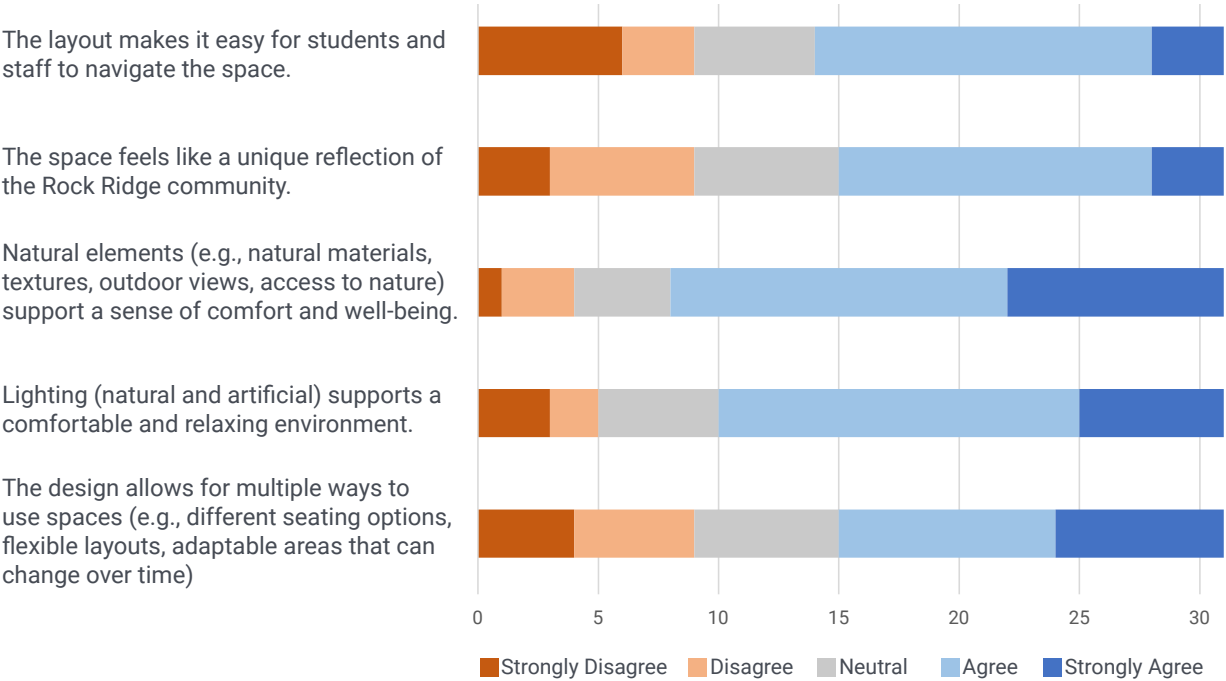
“This school prepares kids for the future - the open campus, the ability for our students to follow different tracks, becoming ingrained with local businesses and learning how they can take what they learn and move right into the workforce.”

- Bill Bryson, Technology Director



Survey Results

Staff were surveyed to understand how well the physical space supports collaboration, well-being and sense of community. The survey received 31 responses. Staff responded most positively to the impact of the space supporting ease of navigation, community pride and flexibility. Staff also responded that daylight, connection and views to nature, and the use of natural materials support a sense of comfort and belonging.



“This school makes me feel free because of all the windows, the outdoors, and it’s really spacious.”

- Anthony, 7th grade



Community Goals

As a community asset, the facility has exceeded expectations, with the building being used consistently late into the evenings and over the weekend. Some community partnership events that Rock Ridge has hosted include:

- "Dream It. Be It" career event spotlighting women in professional careers
- Minnesota Supreme Court traveling oral argument program
- Apprenticeship and Trades Expo
- Iron Range Engineering Expo
- Firewood shed building program with 5th grade students
- Community swim lessons and adult education
- Community theater and concerts
- Community education including wood shop, welding, and pottery classes
- Community youth and adult sports and fitness

"We've discovered that this is a game changer for the area. The kids own it, the community owns it. Kudos to them. It's theirs."

-Dr. Noel Schmidt, Superintendent

