

2025 A4LE PROJECT AWARD - NEW CONSTRUCTION

Ledges Elementary School

Nurturing the Whole Child



EXECUTIVE SUMMARY

The Road Less Traveled

The new Ledges Elementary School is designed to foster a stimulating and joyful educational environment, incorporating excitement, wonder, curiosity, and joy. Its design emerged from collaborative workshops with stakeholders and the planning team, focusing on teaching and learning.

The building features grade-level neighborhoods that connect to shared learning spaces, promoting collaboration and community among students and staff. These “Discovery” areas, filled with natural light, offer flexible, technology-rich environments tailored to diverse learning needs and styles. Each grade

level has its own distinct “Discovery” area, aiding navigation and adding visual interest.

Ledges State Park, the pride of the local community, immediately took hold as inspiration for the design massing, spatial organization, and overall experience of this school.

Students are immersed in nature, where they can explore a space that encourages growth and diversity. Various materials, colors, textures, and shapes are informed by the local features of nature.

Classroom pods, which are linked by two commons spaces, are arranged to reflect a famous “splash road” within the state park that features a tour path with water running through a series of limestone blocks. As the primary wayfinding component within the pods, these commons spaces are where students pour out to the exterior. The building layout uses views to the exterior as a form of wayfinding and draws occupants to moments of reflection inspired by the natural landscape.

On the exterior, rock outcroppings along cliffsides of the park inspired the undulating clerestory roof form.



EXECUTIVE SUMMARY

Budget / Project Data

Scope of Work

<i>Project Name</i>	<i>Student Capacity</i>
Ledges Elementary School	475
<i>District Name</i>	<i>Site Size in Acres</i>
Boone Community School District	30
<i>City/State</i>	<i>Gross Area in SF</i>
Boone, Iowa	79,150
<i>Superintendent</i>	<i>Per Pupil SF</i>
Dr. Julie Trep	166
<i>Occupancy Date</i>	<i>Total Cost</i>
August 2023	\$29,907,000
<i>Grades Housed</i>	
PreK-1	



PLANNING

Combining Cultures

The district opted to retire two existing elementary schools and build one new campus, bringing together two groups of educators, students, and cultures under one roof. To be successful, a clear vision was crucial.

Planning for the new facility, which included key stakeholder groups representing students and staff, the district, and surrounding community, followed a nontraditional process. A series of workshops concentrated on the vision for teaching and learning that would happen within the school.

Design team members intentionally avoided all discussion of the physical environment until that vision was clearly defined and embraced by stakeholders. Upon acceptance, designers crafted a solution that brings the vision to life and pays homage to the beloved state park.



PLANNING

Bringing Together all Voices

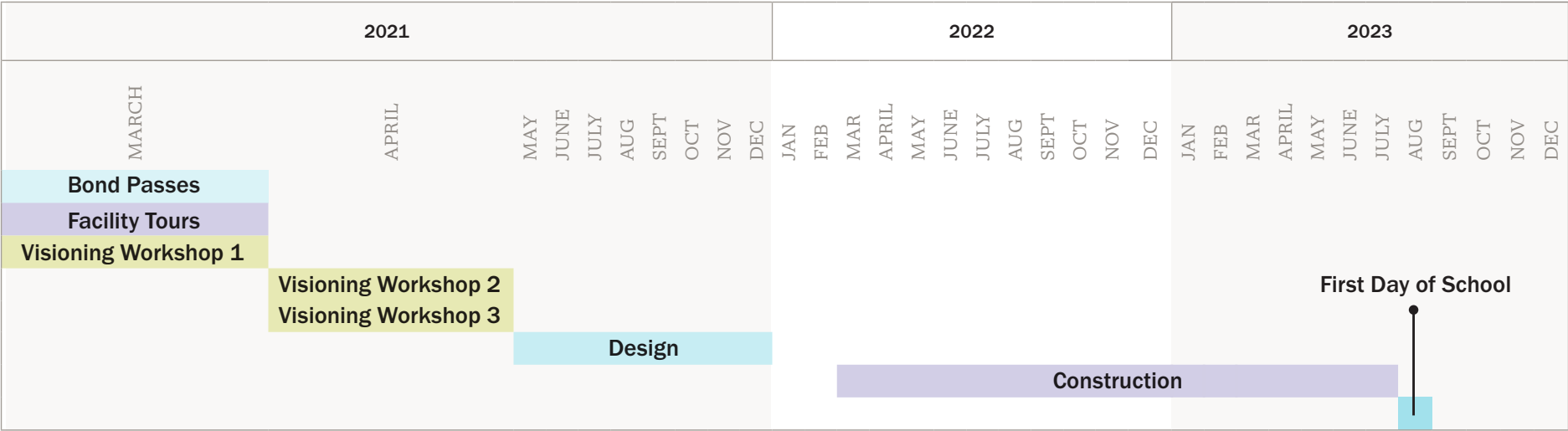
The foundation of teamwork was set at the very beginning of the project, starting with visioning workshops with stakeholders. Each workshop was dedicated to a single topic – the educator, the learner, and the environment.

As a result, district staff gained an understanding of modern learning environments which meet the needs of the 21st century educator and learner. This was a critical team exercise which carried over into the building design process with the school district administration and project team throughout design of the new facility.

District leaders and stakeholders toured several educational facilities across the region to help guide the visioning and planning process. They noted places and spaces to include in their new schools to elevate learning for all students.



Project Timeline



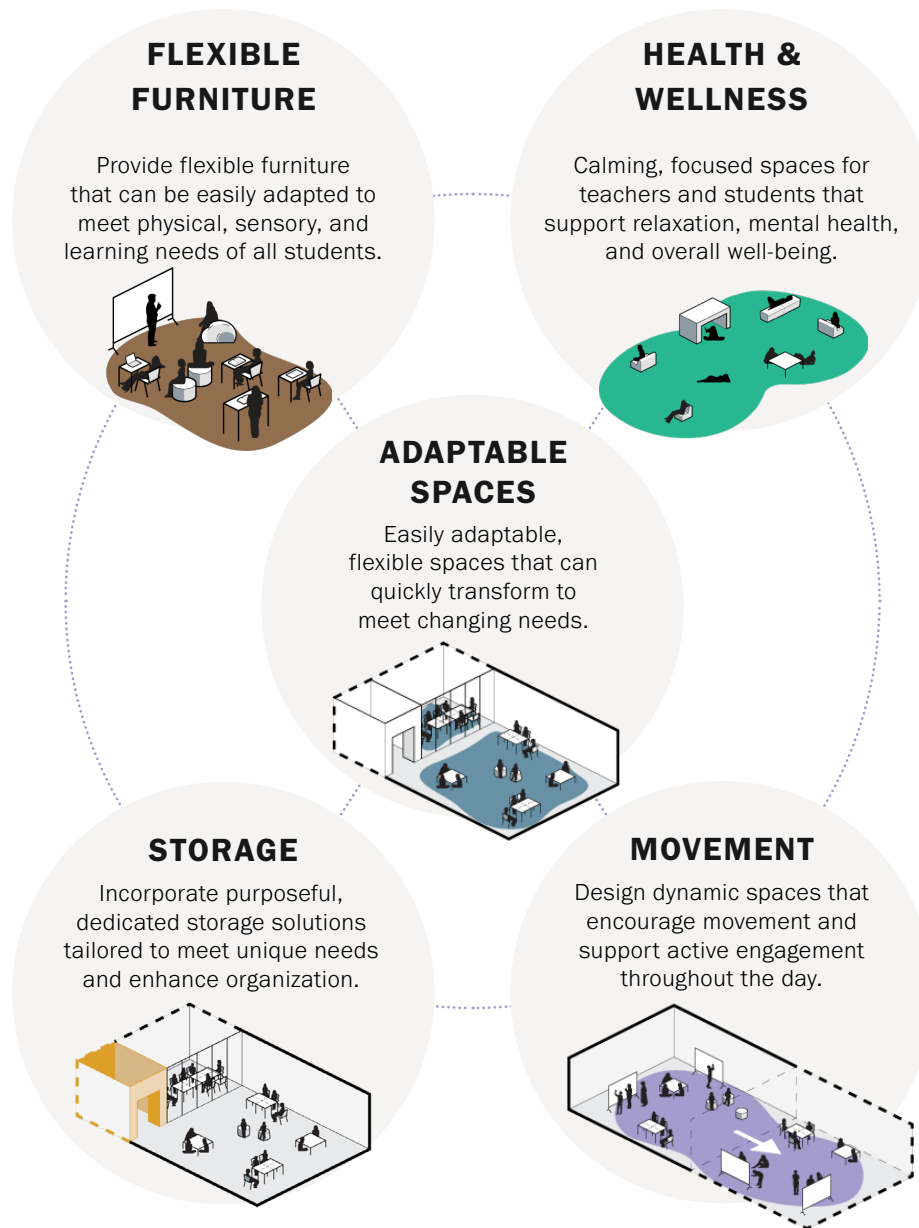
PLANNING

Workshop 1 - The Educator

LEARNING CONNECTIONS

The Learning Connections activity is meant to identify the core values that educators believe are essential to support effective teaching and learning. The participants also explored the tools and resources needed to help educators bring those values to life in their daily practice.

During this activity, educators defined the need for spaces to support small groups and social/emotional learning, as well as spaces that allow for movement and adaptability.



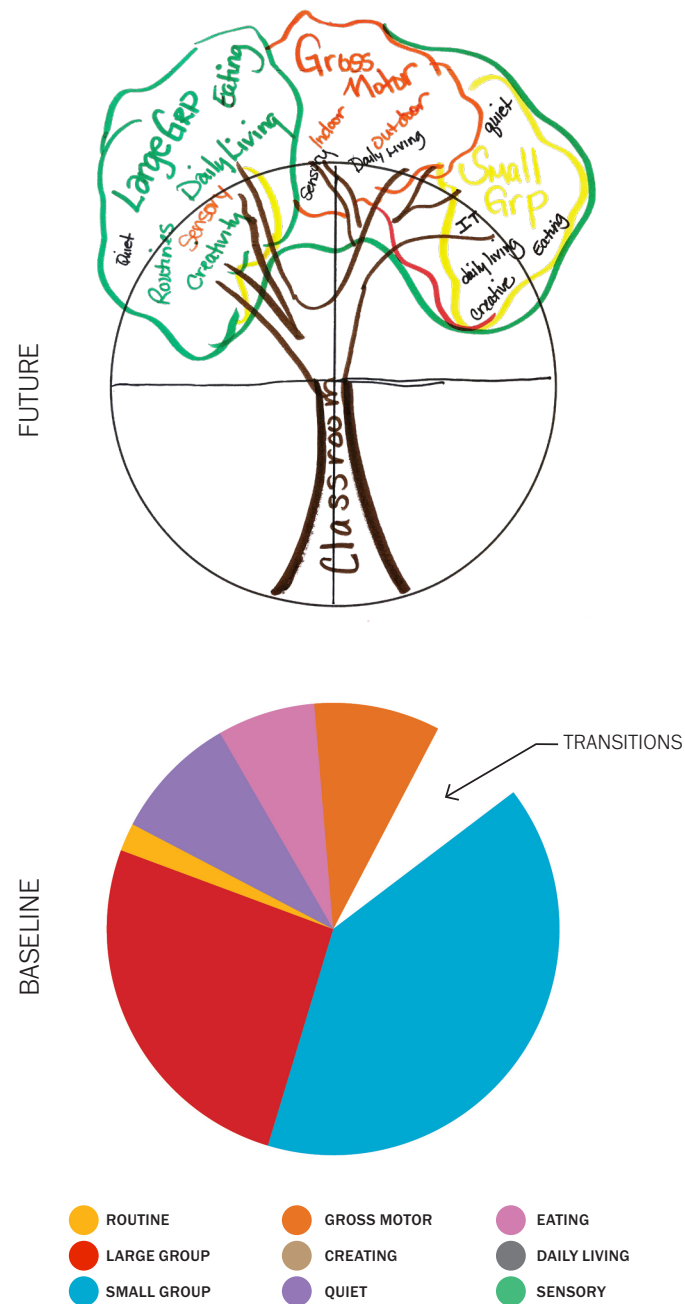
PLANNING

Workshop 2 - The Learner

DAY IN THE LIFE

The Day in the Life activity asks participants to reflect on what a typical day looks like for our learners today. Next, they were asked to imagine how that experience might evolve over the next 20 years, considering changes in technology, environment, and educational needs.

From this activity, participants shared a strong desire for informal instructional spaces outside of traditional classrooms. They requested spaces that allow for adaptability to accommodate both small and large group needs.



PLANNING

Workshop 3 - *The Environment*

GUIDING PRINCIPLES OF DESIGN

The Guiding Principles of Design activity encourages participants to think creatively and collaboratively about every aspect of the school—from its layout and learning spaces to its culture, curriculum, and community connections. Participants were asked to think about the road map to come back to as the design is embarked on.

Ledges Elementary School Guiding Principles



Discovery and Development

Authentic learning and inquiry teaching. Supporting students where they are and growing their knowledge and skills.



Flexible, Adaptable, and Accessible

Flexibility, adaptability, and accessibility that meet the learning needs through spaces and learning experiences. Curiosity and creativity.



Health and Wellness

Social and emotional learning. WIN!



Naturalness and Active

Outdoor learning, natural light, appropriate colors. Spaces that allow for movement.



Joy and Pride

A happy and welcoming place. A place where students and teachers are comfortable and where they want to be. A place parents want their child to attend.



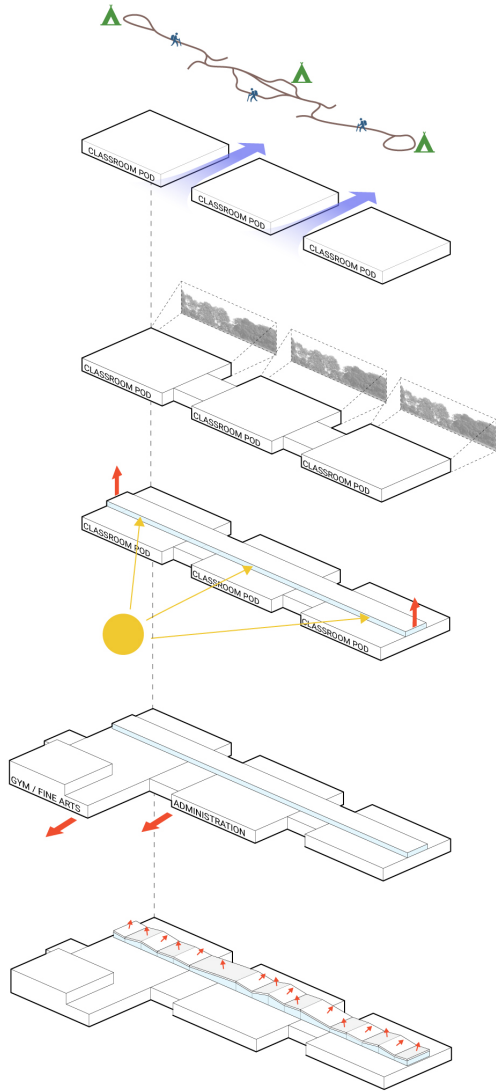
PLANNING



Ledges Elementary presents a single-site solution for students and staff previously located at two district facilities requiring a substantial amount of maintenance and renovations. Dark, narrow corridors, a lack of restroom facilities, and limited learning space from the two early 20th century learning facilities warranted a direct need for a new facility to cater to the diverse needs of 21st century learners. Visioning workshops with key stakeholder groups focused on teaching, learning, and educational environments to create a unified direction for the new facility to address these existing issues.

Ledges Elementary School's design story comes full-circle, concluding with the community's vote to name the facility after its design concept – Ledges State Park. The resulting impact is an inspiring facility that is planting its roots in a community ready to foster the educational journey of young learners for years to come.

LEARNING ENVIRONMENT



Circulation becomes a path for discovery and adventure.

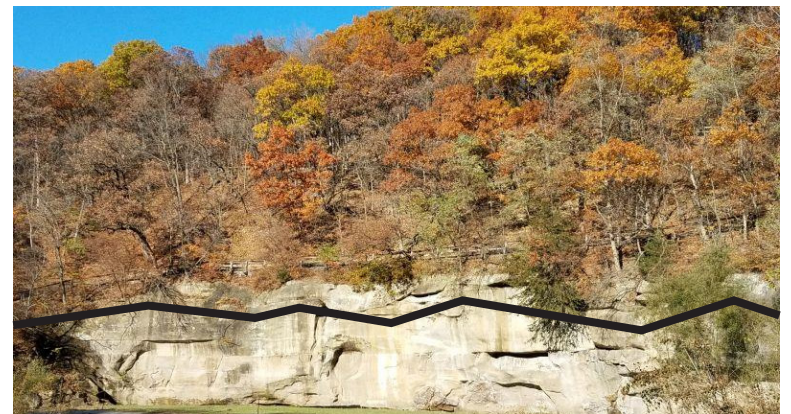
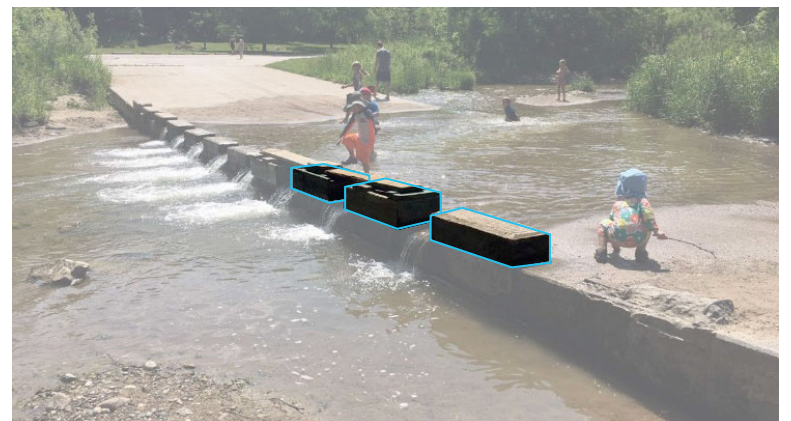
Classrooms become hubs for activity in between offers transparency for the flow of ideas and creativity.

Each classroom pod brings the outdoors in with views to the treeline beyond.

Natural light filters through a clerestory opening up the interior space.

Administration, Gym, and Fine Arts becomes front and center for ease of access and community engagement.

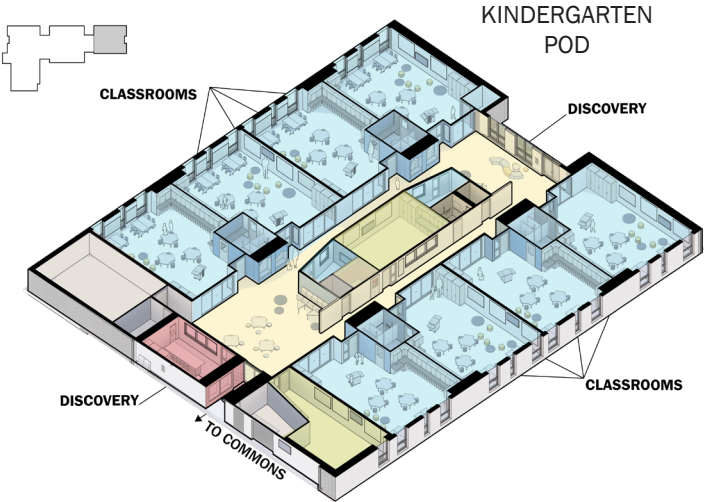
Roofline becomes focal point inspired by the strata lines at Ledges State Park.



LEARNING ENVIRONMENT

The building design fosters collaboration, inclusivity, and engagement through purposeful planning. Distributed teacher work centers keep educators connected, while clearly defined learning neighborhoods create structure and community. Distributed dining commons provide flexible spaces for meals and interaction, and special education spaces are seamlessly integrated for equitable access.

An interconnected media center, STEAM lab, and art room encourage creativity and innovation, supporting interdisciplinary learning. Natural daylight is thoughtfully integrated throughout, enhancing well-being and productivity. The design prioritizes functionality and accessibility, creating a dynamic and inclusive environment for students and educators.



LEARNING ENVIRONMENT

A Park-Like Place

Interior spaces continue to utilize contextual elements of Ledges State Park through a variety of materials, patterns, and textures, promoting unity, inspiration, and wayfinding for users. The elements found within the state park are reimagined and abstracted throughout the classroom neighborhoods and common spaces. The materials, lighting, spatial organization, and volume further enhance the school character by creating recognizable moments reminiscent of the nearby park.

Interior patterns, materiality, and spatial forms mimic the building's exterior. The undulating spine of the high clerestory roof compresses and expands spatial volumes while simultaneously reflecting the rolling tree line of its natural inspiration. Natural tones on the exterior tie the building to the landscape. The interior palette celebrates those tones while subtly introducing playful splashes of color to reflect the energy of the students within. The result is a playful facility that inspires the next generation of learners.



LEARNING ENVIRONMENT

Variety & Flexibility

Learning environments consist of a variety of spaces - classrooms, discovery zones, makerspaces, resource rooms, small group rooms, and support spaces - to allow for maximum flexibility. The building is organized around grade level neighborhoods that connect to shared learning zones. These light-filled discovery zones offer small group spaces and customizable settings to meet the needs of various learning and teaching styles.

To further recognize the creativity of learners, the art room, STEAM Lab, and media center are visually connected to the commons and main circulation path of the school, providing opportunities to showcase student work. These spaces also serve as distributed dining locations to reduce student travel time and provide additional assembly space for large group meetings.



PHYSICAL ENVIRONMENT

Site Amenities

The approximately 80,000 SF elementary school serves three grade levels—pre-kindergarten, kindergarten and first with the capacity for 475 students.

Site amenities consist of adequate parking and drop off lanes. A separate bus lane provides a clear delineation of vehicle circulation. Play areas consist of hard surface, soft surface with playground equipment, and a grass play field. For ease of access and supervision, the site arranges these items together.



Sustainable Solution

SUSTAINABLE DESIGN: ACTIVE SYSTEMS

Mechanical & Electrical

During the design process, a third party energy modeling team met with the owner and design team to establish criteria for sustainable mechanical/electrical design which most closely aligned with the owners budget and sustainability goals. Three packages were offered. The selected package then became the framework for mechanical and electrical systems throughout the building. Once construction was completed, the third party energy modeling consultant confirmed all installed systems to validate alignment with the selected package. Additionally, following occupancy of the building, metrics have been tracked by the commissioning agent of the design team to help fine-tune performance for the best possible energy efficiency. Any building performance metrics that exceed the ASHRAE 90.1-2010 baseline are then recognized as a rebate back to the owner from their utility company. During design the team estimated an annual savings of \$14,696, however the verified amount based on final construction is \$23,879 per year.

Indoor Environmental improvements:

- Adjustable thermostat for each classroom
- Quiet blower coil/fan coil units and air distribution

Mechanical Efficient design strategy:

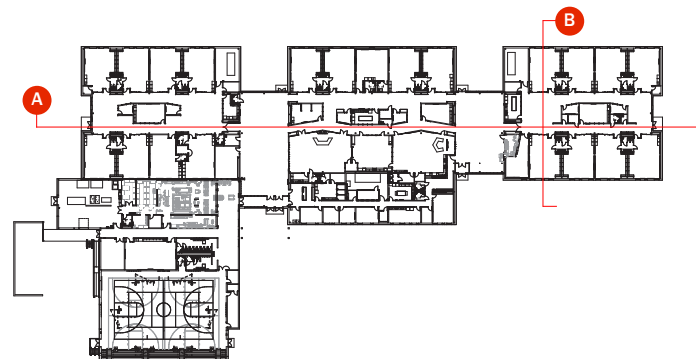
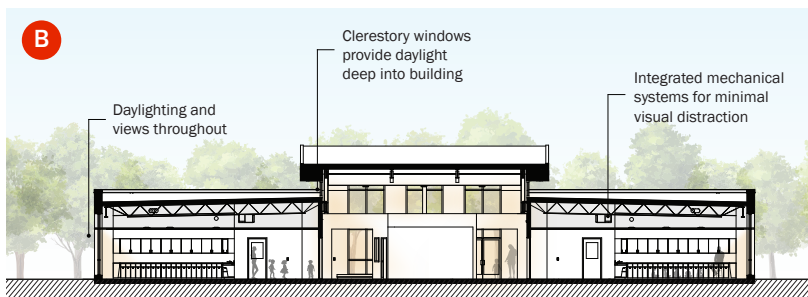
- Dedicated ventilation unit
- Condensing ventilation unit
- Condensing boiler and primary only pumps supplying hot water to heating units
- Multi-stage, magnetic bearing air-cooled chiller
- Equipment located near zones served to reduce pressure (energy) losses
- Demand-controlled kitchen ventilation - exhaust and make-up air rates change based upon actual cooking demand
- Energy recovery of restroom and general exhaust air

Sustainable Features

- Low-maintenance materials
- Bio-retention and native plantings
- Outdoor learning/Dining
- Building Systems Commissioning
- Daylighting and views throughout
- Clerestory window provide daylight deep into building
- Acoustic performance of interior finishes
- Integrated mechanical systems for minimal visual distraction
- Planned building expansion

Wilden's model estimated "standard year" vs. actual bills

	Standard Year	Actual Bill
Energy Costs	\$121,740	\$105,409
Electrical Use (kWh)	783,404 kWh	538,200
Gas Use (therms)	29,264	29,274



RESULTS

In Her Words

Autumn Seiler, Principal
Ledges Elementary School

“One thing that stands out about our entire school district is the emphasis on nurturing the whole child. Plus, our portrait of a graduate is unique. It highlights essential social-emotional skills such as self-awareness, self-regulation, relationship building, and even financial literacy. We want students to graduate from Boone with a comprehensive understanding of how to be a good human who contributes positively to the world.

Before Ledges, our buildings were incredibly old, one over 80 years, and we had two of them. We combined them into Ledges, where we saw an incredible opportunity to build a strong foundation for our kids at the beginning of their educational journey. It's easy to envision what we want them to graduate with, but it's harder to see how it starts in preschool.

I used to describe our situation as two different ecosystems because that's what it felt like. We were the same teachers, teaching the same things in the same town with the same kids. There was nothing magical between the two places. But I realize the space you're in, the people you're with, and the tools and resources you have create their own ecosystem. I thought it would be much harder to combine these two ecosystems than it was. There's something magical about a brand-new space that you plan together. It's like buying a house together, decorating it together, and moving in together. Everyone felt like they had a voice, or if they wanted to have a voice, they had one.



From its inception, Ledges was about creating a bigger picture of focusing on the kids, not just the buildings. And our community truly embraced this vision. Our bond passed with over 80% in favor during COVID. That's unheard of, but the whole community rallied behind this intentional place where kids can grow in a school that we are all proud of.

We kept saying, 'We don't know what we don't know,' during the design process. We were so constrained by the boundaries of our existing space that we couldn't see beyond what spaces we had available, or how we could spread kids out or meet in small groups. We knew we wanted something different, but we didn't know exactly what. The design team did a fantastic job of setting up learning opportunities for us and asking the right questions so we wouldn't get stuck in ruts, like focusing on what kind of chairs to use. Instead, we thought about creating schools that prioritize the overall well-being of kids.

Our team had a strong voice from the very beginning about how we wanted our kids to be seen, heard, and valued. I remember sitting in a spacious lunchroom with representatives from our staff, community members, and teachers from upper grade levels to provide their perspectives on what we wanted and needed. We talked a lot about our dream scenario, especially the flow of space, how we would respond to kids, and what we would need to effectively support them. We were well aware of the hurdles, like small groups meeting on the floor in the hallway, and knew we wanted to address these issues. Through the process, the design team helped us identify our priorities and create a space that truly meets the needs of our students.

Because of some of the conditions we experienced before, we were looking forward to the improvements. We had never had the opportunity for flexible seating before. I don't think we even realized we needed it until we saw it and thought, 'Hmm.' Now that we have it, it's funny how we can't quite live without it."

RESULTS

“We’ve come to rely on transparency for building relationships and teacher efficacy because teaching can be really isolating. As the only adult with all these little humans, being able to see what other teachers are doing builds trust and relationships, helping us value each other in ways we never could before. Just being next door to someone doesn’t achieve that. The transparency of those glass walls is huge. It encourages us to open our doors more and use shared spaces more. You see kids out there reading, with common expectations. We respond to kids similarly because everything is transparent all the time.

One of my favorite things is hot laps. We have some kids with a ton of energy, and living in the Arctic tundra, we’ve trained them to do hot laps. There’s a racetrack in Boone, so they know what hot laps are. They run around the think tank classrooms in our pods. They know what to do, to look around the corner, and keep going. Sometimes I’ll ask, “Do you need another one?” and if they say, “Yep, I need another one,” they can run another lap before coming back to their lesson. We’ve discussed this with parents, explaining that sometimes their child might miss a few minutes of class, but it’s better than them rolling around on the floor like a Roly Poly and missing most of a lesson. Doing a couple of hot laps helps them come back and learn, and parents have found this approach helpful.

Our sensory room has been phenomenal. We’ve seen such great results that we even added a sensory room at our other elementary school. I don’t think we could function without it now. It’s amazing how something we didn’t have before has become indispensable. We’ve also created a mini sensory center in one of our think tanks for our three-year-olds who can’t handle all the options of the main sensory room. This smaller space has options tailored for them and prepares them for the larger sensory room. It’s been a huge success.

The Mother’s Room has also been amazing. We’ve had three new moms each year, and it’s been marvelous. No one has to deal with the stress of pumping on the floor of a bathroom anymore. These little things, like having a lounge and workrooms where people can set their items and prepare, might seem small but they make a huge difference for our staff’s well-being.



There’s a strong connection to the social-emotional learning of our students. Do they know how to play with friends, initiate play, seek peer attention, solve conflicts appropriately, and regulate their emotions? That’s an area where we are proud of our progress. I think it’s because we’ve created consistent spaces. Every classroom has what they need, from flexible seating, to support from a behavioral coach. All these elements contribute to our success. And we’ve seen behavioral incidents drop by over 40% since opening Ledges. That’s success!

We’ve been able to really focus on the reasons behind everything we do and the functionality of our choices. I’ve shared this with parents, explaining why we wanted this space for their kids and why we need certain things for them. We’ve never received a harsh comment. We’ve seen more people here for basketball tournaments and youth sports using our gym and other spaces. Rotary even met here to tell the community more about it. There’s a sense of pride in our community for having this wonderful place for our kids to start their education, and that’s a big deal.”



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Autumn Seiler, Principal, Ledges Elementary School

