

case study



Elementary School

forest edge elementary school



EDGE OF TOMORROW. Continuing a long history of sustainable construction practices in Wisconsin, Forest Edge Elementary is planned to be the first net-zero school building constructed in the state. A net-zero energy, or net-zero carbon, building uses a combination of energy efficiency strategies and on-site energy generation to achieve no net carbon emissions to operate the building over a 12-month period. Reflecting this progressive commitment of Oregon School District, the new elementary school will inspire innovation and sustainability by creating a learning environment that allows teachers to

leverage its net-zero properties as an educational tool.

Through its site orientation, the building embraces its location within a growing neighborhood, opening the doors of the main entry to the neighborhood and extending a dedicated pedestrian plaza to welcome students, parents, and community members to the school. By elongating the building along an east-west axis, production of south-facing photovoltaic solar panels are maximized, generating a majority of the building's electrical demand. The north side of the building is nestled against a heavily forested area, allowing core classrooms, the discovery center, and cafeteria to look out at the elevated natural landscape.

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PROJECT DATA

TYPE

Elementary (K-6), New Construction

CLIENT Oregon School District

LOCATION 4848 Brassica Road, Fitchburg, WI

MAX PROJECTED ENROLLMENT

600 students

SQUARE FOOTAGE 126,580

COMPLETION DATE August 2020





AGENCY IN EDUCATION

When students are given autonomy over their learning, it becomes authentic in that they have agency to pursue ideas that are their own. This develops a connection to the work which essentially then requires them to develop new understanding.





CONNECTING IN AND OUT.

Connectivity and architectural and material transitions are major themes throughout the design. Outdoor learning rooms are bordered by walls of various volumes, creating distinctive spaces inside and outside the building. Classroom and collaboration spaces open to glassy views of the outdoor learning rooms, generating visual connectivity between each environment. One of these outdoor rooms contains a student garden, fostering a deeper understanding of growth and development of the natural world.

Each outdoor learning room is located and sized to provide ample natural light to each classroom resource area. Within these resource spaces, both small-group and large-group collaboration is fostered through the placement of embedded resources. Every resource environment is branded with different natural energy sources (life, light, thermal, wind), and students are empowered to explore projects within their science curriculum that align with these elements. Flexible furniture allows multiple groups of various sizes to gather and provides students with autonomy to arrange themselves to best suit each learning activity. Interaction with the building itself is encouraged through physical portals providing clear transitions between spaces and habitable walls that provide seating within long corridors.









EXCEPTIONAL LEARNING SPACES. Each collection of classrooms is referred to as a grove. This reinforces the relationship between students and their peers and the connection between individuals and the natural environment. Groves were initially envisioned to house a single grade level, but as collaboration expands between grades there is flexibility for groves to be arranged around curriculum or staff teaming focuses. Additional resource spaces are shared by multiple groves, located a short distance away from the main collaboration space to provide students with mental distance and focus in each varied environment.

Column A on the right illustrates various ways that students could be arranged for different activities within a grove. Diagram A1 represents a more traditional instruction for four classes of 24 students, while Diagram A6 shows a full grove collaboration with nearly 100 students gathered in a single space. Column B illustrates the visual connections between classrooms and collaboration zones and how one or more staff members might supervise students in various locations.



































ENERGY GROUNDED IN NATURE.

One of the key design priorities throughout the project was to incorporate ample daylight to each core academic space. Not only does daylight provide positive impacts to student academic performance and general health, but for this specific project, natural lighting connects with the school's net-zero goals, helping to reduce energy use. This is best illustrated by the main collaboration spaces within each classroom grove. Figure 6.9 shows a section cut through the space from north to south and gives a sense of how providing daylight from multiple sources can activate every zone within the space.



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