



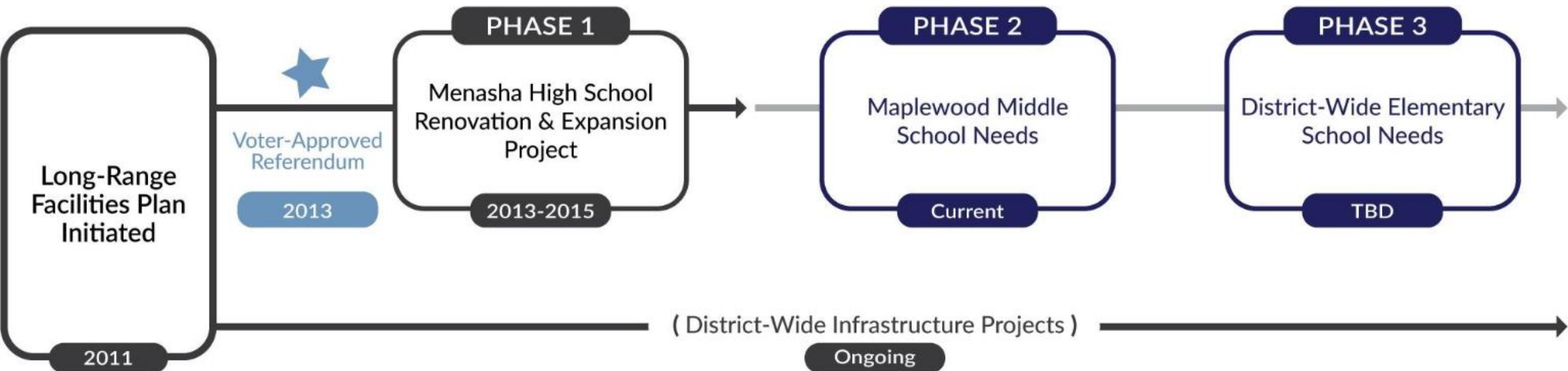
MENASHA

JOINT SCHOOL DISTRICT

MAPLEWOOD SCHOOL

PRESENTATION

PHASE 2 OF A LONG-RANGE FACILITIES PLANNING EFFORT



FACILITIES VISION STATEMENT

(Established March 2011 by MJSD School Board)

The Menasha Joint School District values facilities that promote student learning in safe, secure, nurturing environments.

We envision schools designed and maintained that can be adapted to the dynamic and evolving needs of students and the community.

Our buildings will be cost effective, energy efficient, and sustainable while maximizing existing resources.

MAPLEWOOD STAFF DESIGN EXERCISE AT BEGINNING OF THE PROJECT – WHAT TO STOP / START / CONTINUE

STOP

NO BASEMENT

Junior High School

- Waiting in bathroom lines
- Running into people
- Needing to "wait" for practices (early/late)
- Having lockers (PE & school) that don't work
- Narrow Corridors
- Practicing Track in parking lots or off campus
- Small Classroom size
- Multiple teachers sharing small spaces
- Multi-grade level cross traffic
- Looking @ walls; want windows

START

- More bathrooms (student + staff)
- Collaboration Spaces
- WINDOWS!
- Houses
- Teacher Work Spaces
- Flexible work stations/spaces for students
- STORAGE (Blue Jay in Nest in Foyer)
- Bigger staff lounge w/ windows
- FAMILY FCS Room Positive Welcome Space
- A Middle School OUTSIDE SPACE
- 2 Blue Jay Benches

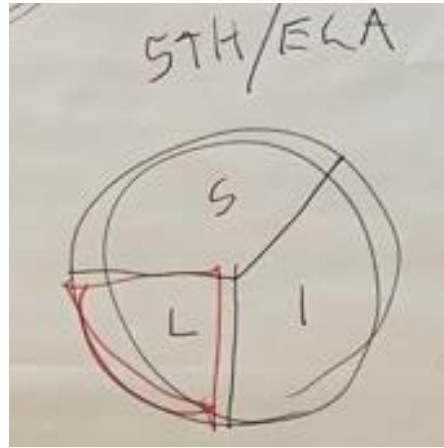
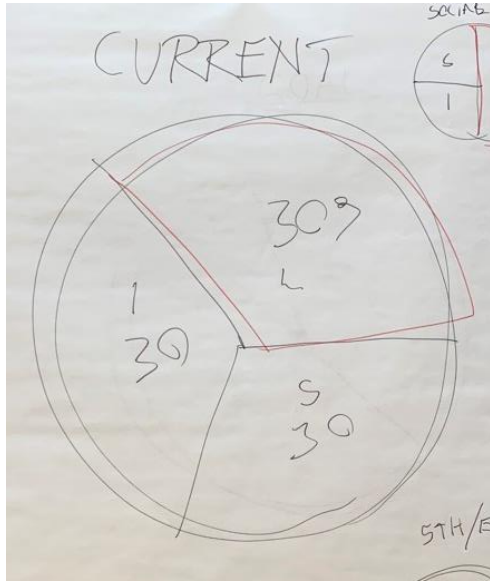
Disperse admin/pupil services, include student reflection stations

→ Better flow - traffic (Students) Able to raise/lower all basketball hoops w/ touch of one button.

CONTINUE

- Community Room
- Separate Small Group Spaces (back rooms)
- Grade level teams centrally located
- Fitness Center & Multi-purpose Gym
- Inclusion: co-teaching
- Team & Grade level collaboration time
- Building strong relationships between S & T to increase security measures
- Library that encourages literacy
- Seamless Transitions - Staff

WHAT PERCENT OF A STUDENT'S DAY IS SPENT ON? WHAT IS THE GOAL?



- Large Group (Entire Class) Instruction?

- Today | 33%

- **Future | 20%**

- Small Group Work/Instruction?

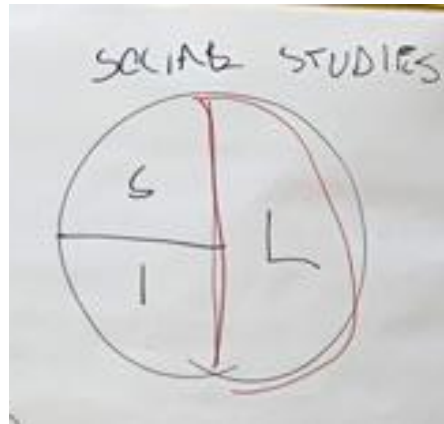
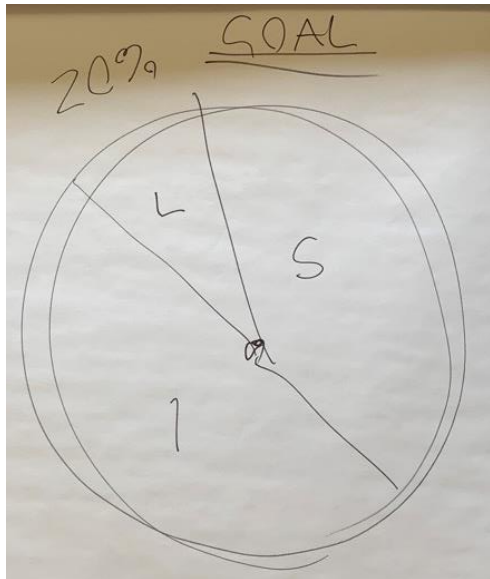
- Today | 33%

- **Future | 40%**

- Individual Work/Technology-based Instruction?

- Today | 33%

- **Future | 40%**



GUIDING PRINCIPLES FOR DESIGN

1. INSTRUCTIONAL PRACTICES

The school should be designed to support and encourage differentiated, student-centered learning that will meet the diverse needs of our student body

2. SCHOOL STRUCTURE

The school will be designed as two distinct schools within one building

3. STUDENT EXPERIENCE

MJSD is committed to creating a safe, secure, and nurturing environments for its students. This includes space for circulation and comfort as well as maximizing daylight and views.

4. EQUITY AND INCLUSION

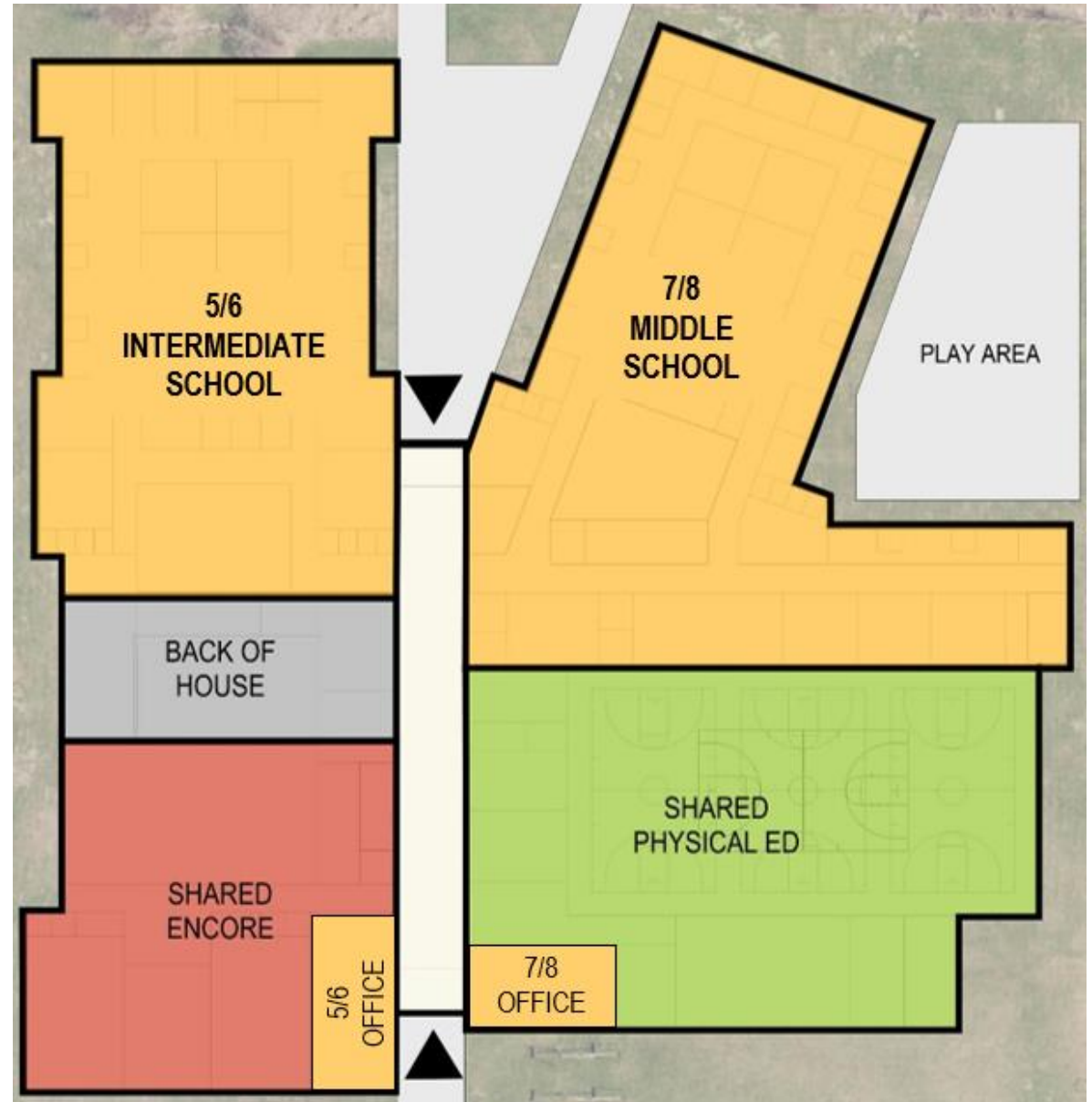
The school will strive to inclusively meet the needs of marginalized students. Voices and Contributions of our diverse community will be valued and uplifted.

5. SUSTAINABILITY

The new Maplewood School will be cost effective, energy efficient, and sustainable while maximizing existing resources

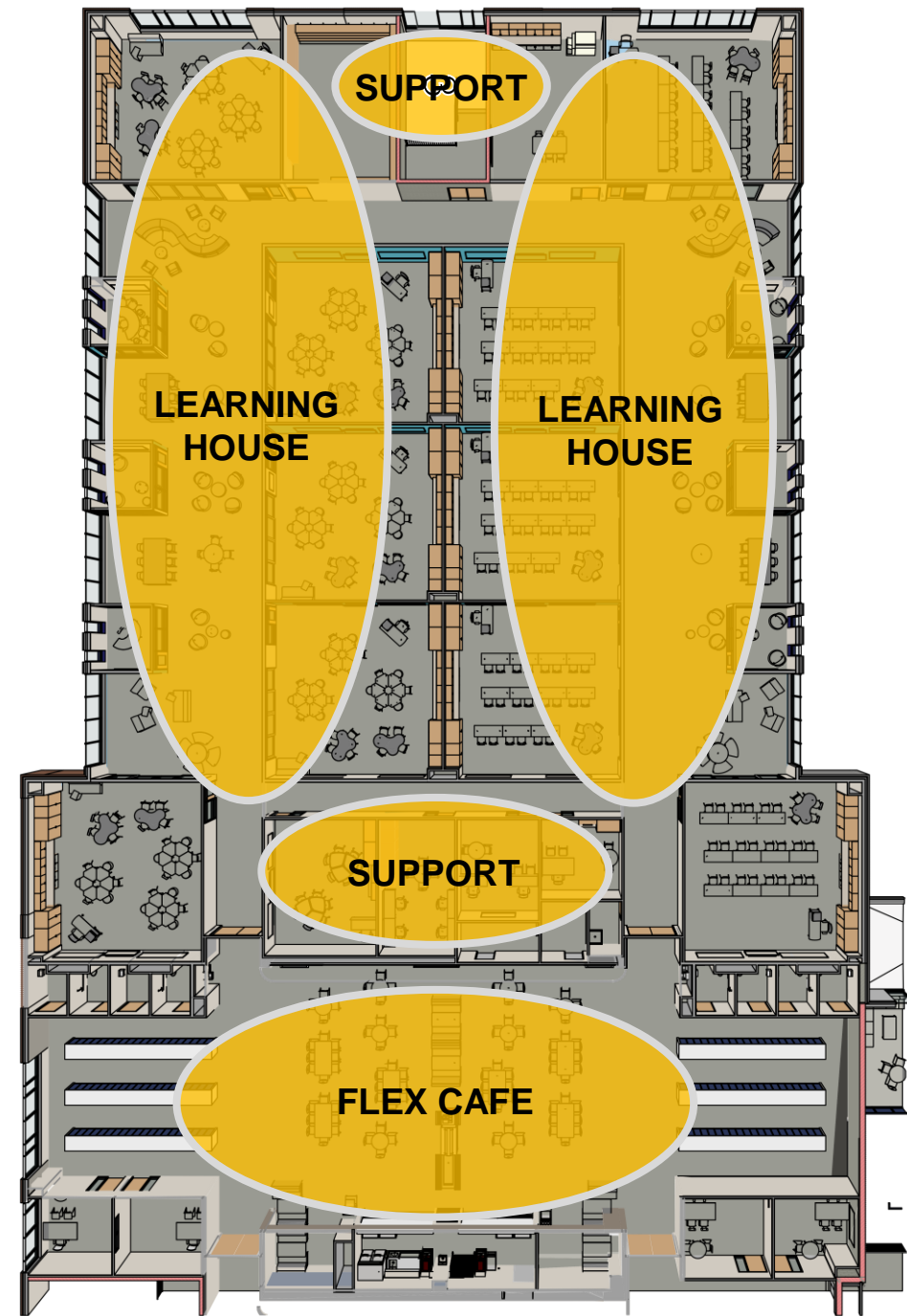
Overall Building Design

- 5/6 Intermediate School
- 7/8 Middle School
- Separate School Admin Areas
- Separate Dining/Multipurpose
- Shared Entrance/Spine
- Shared Student Services
- Shared Encore Spaces
- Shared Physical Ed Spaced



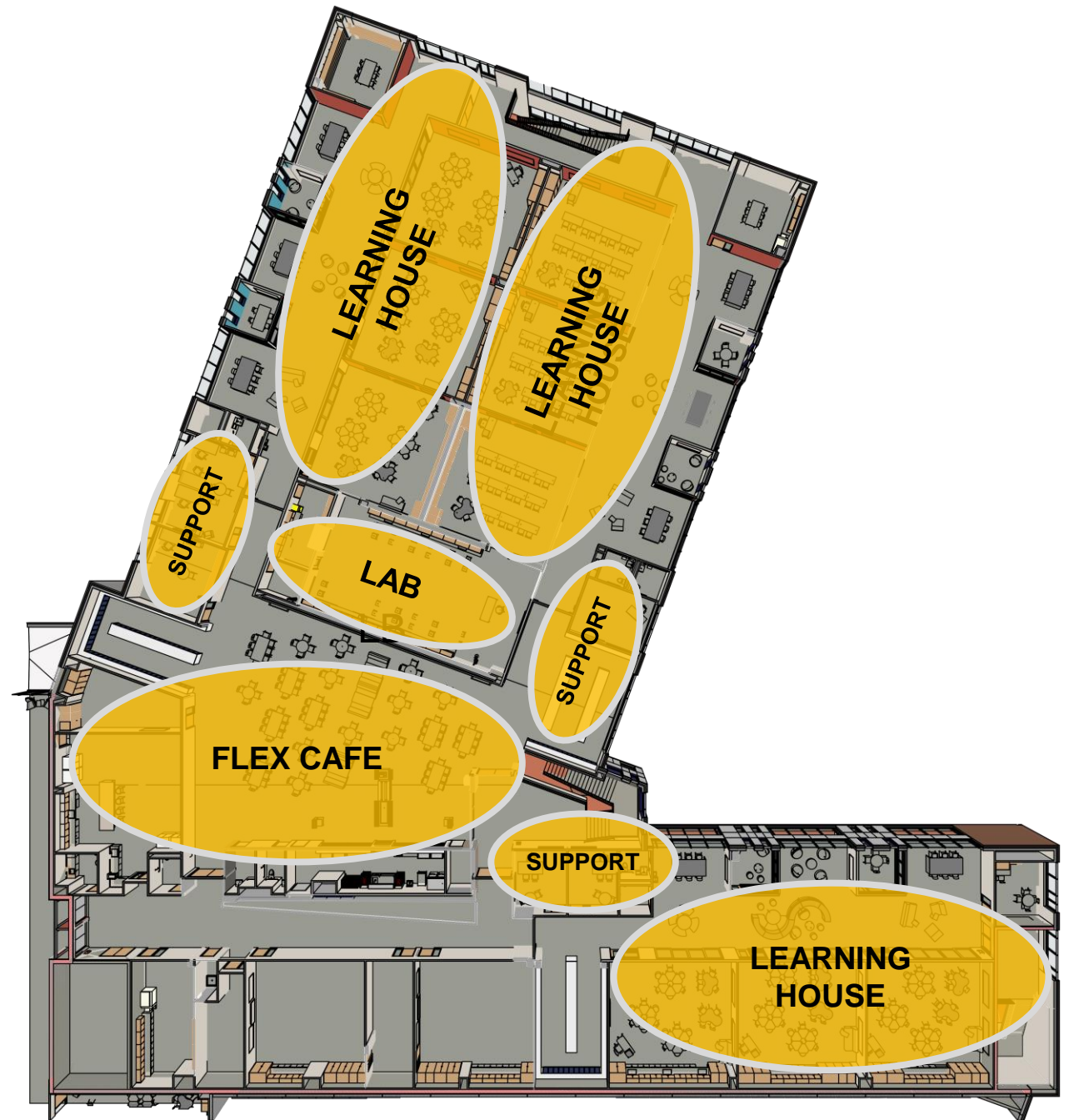
5th / 6th Neighborhood Organization

- Two Neighborhoods per Grade (4 Total)
- Each Neighborhood to include:
 - 5 Core Classrooms
 - Breakout Collaboration Areas
 - Small Group Instructional Areas
 - Interventionists Spaces
 - Student Locker Areas
 - Staff Work Room
 - Staff Storage Area
 - Access to a grade Level Multi/Purpose/Café Space



7th / 8th House Organization

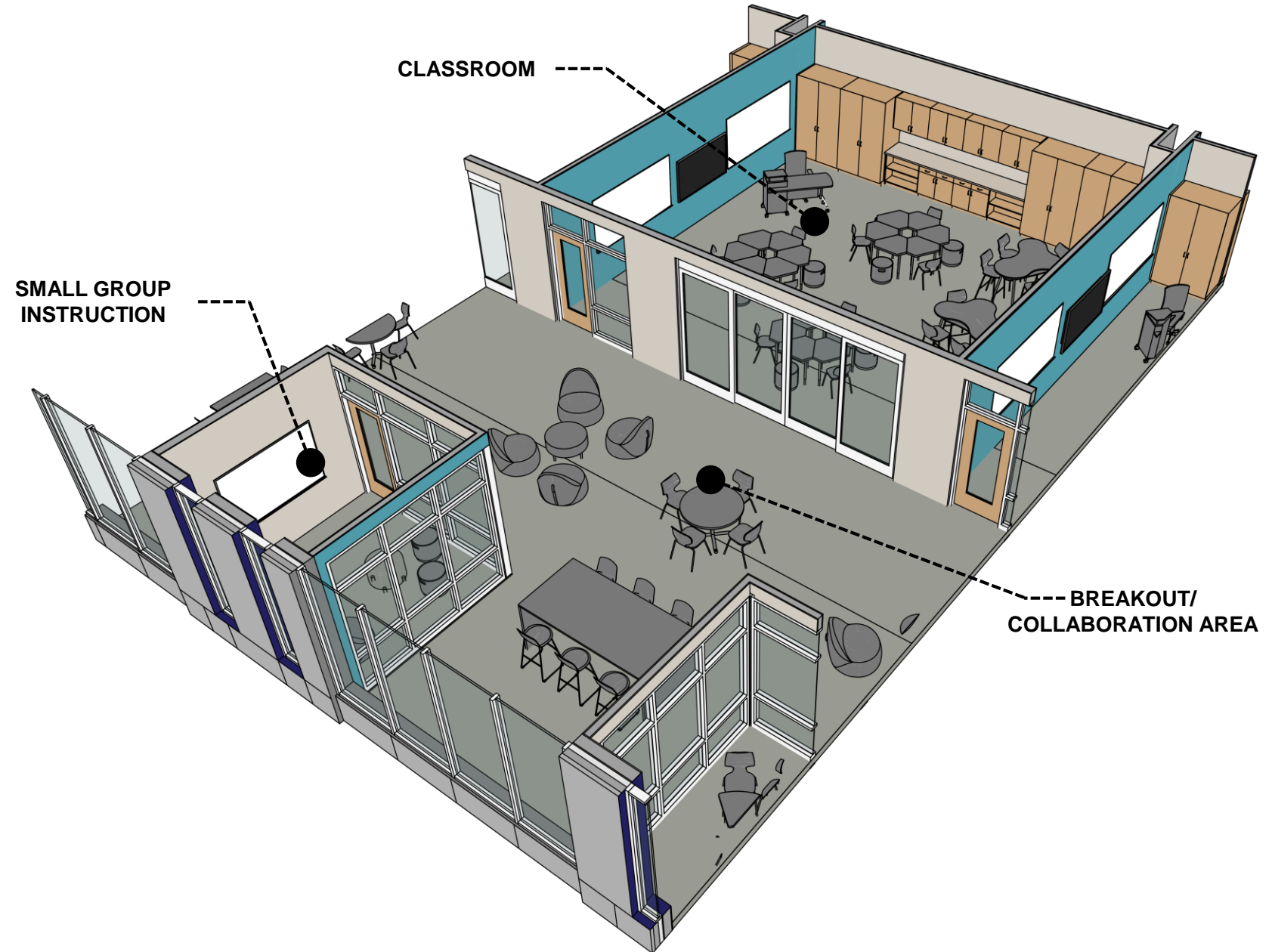
- Three Houses per Grade (6 Total)
- Each House to include:
 - 3 Core Classrooms
 - English Language Arts Room
 - Math Room
 - Social Studies/Science Room
 - Breakout Collaboration Areas
 - Small Group Instructional Areas
 - Interventionists Spaces
 - Student Locker Areas
 - Staff Work Room
 - Staff Storage Area
 - Access to grade level Science Lab
 - Access to a grade Level Multi/Purpose/Café Space



Classroom Design

Core Instruction Area:

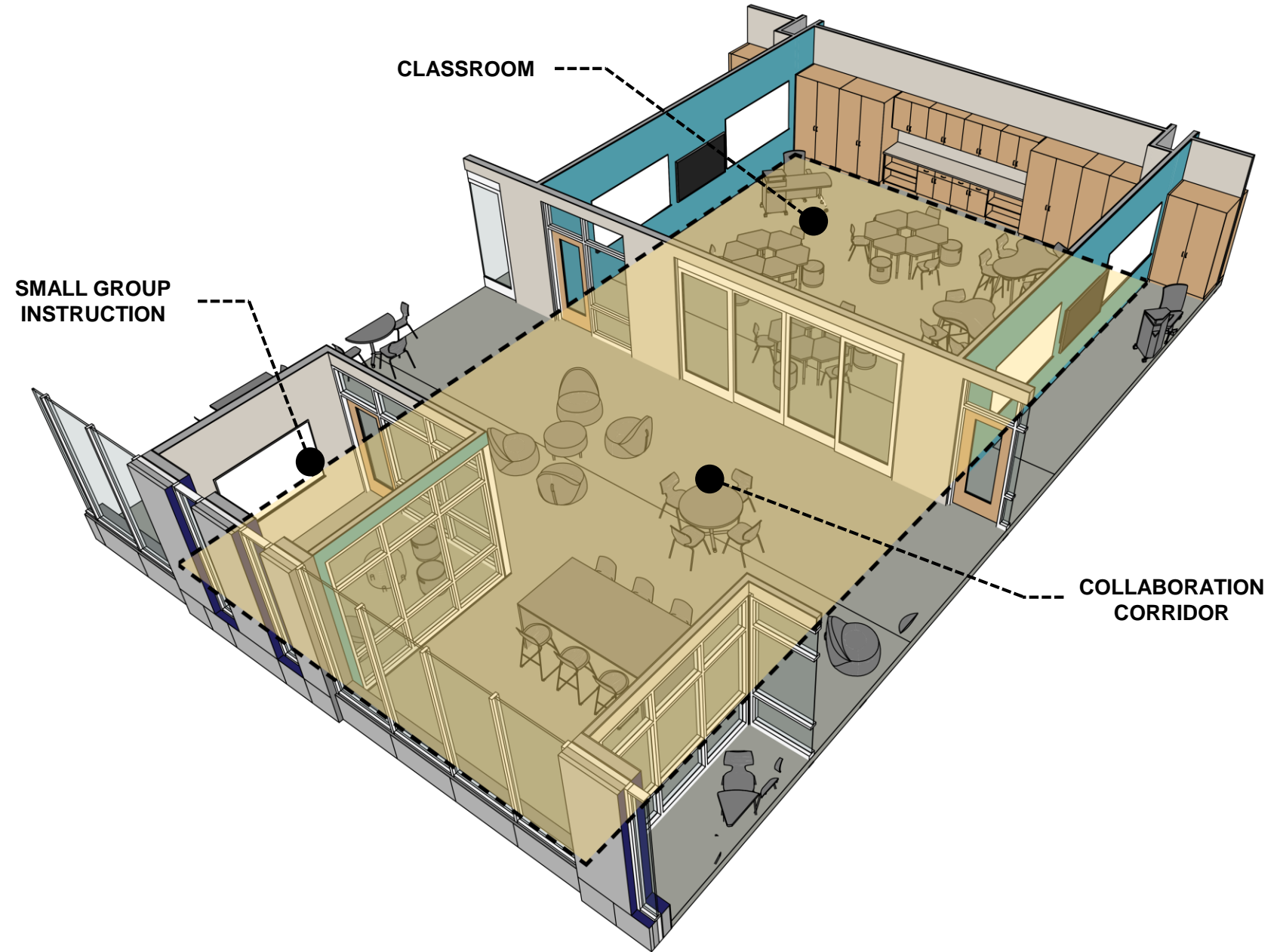
- Inboard Classrooms
- Transparent movable wall
- Small Group Instruction rooms located directly across from classroom



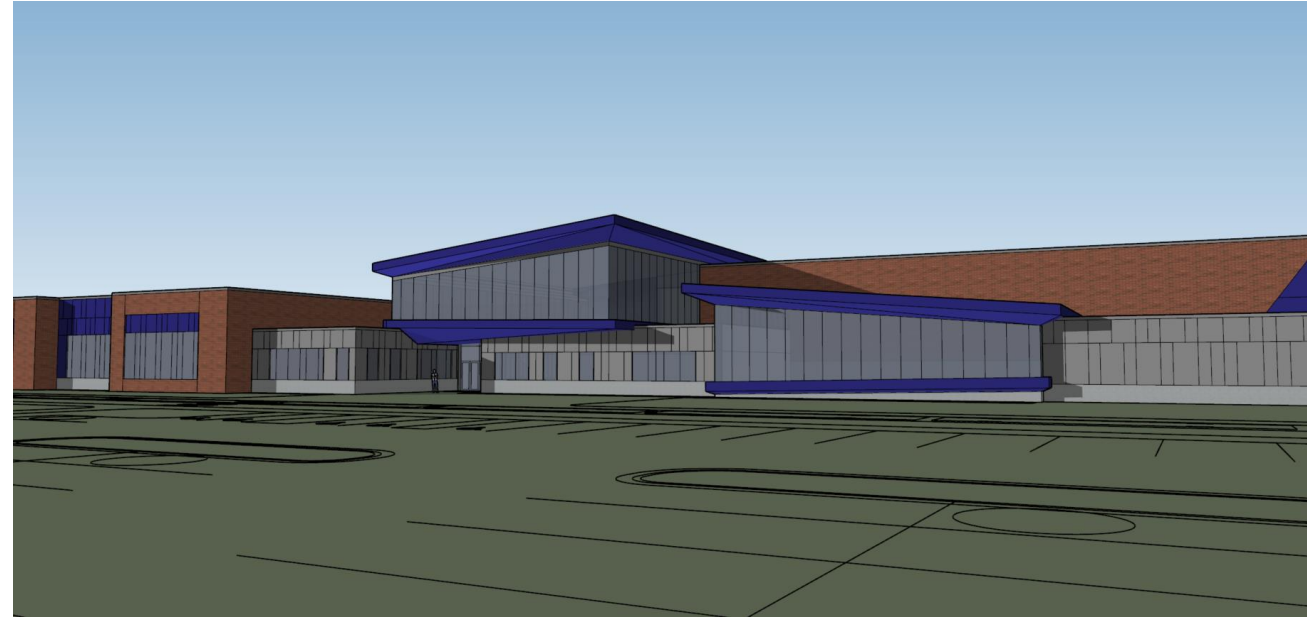
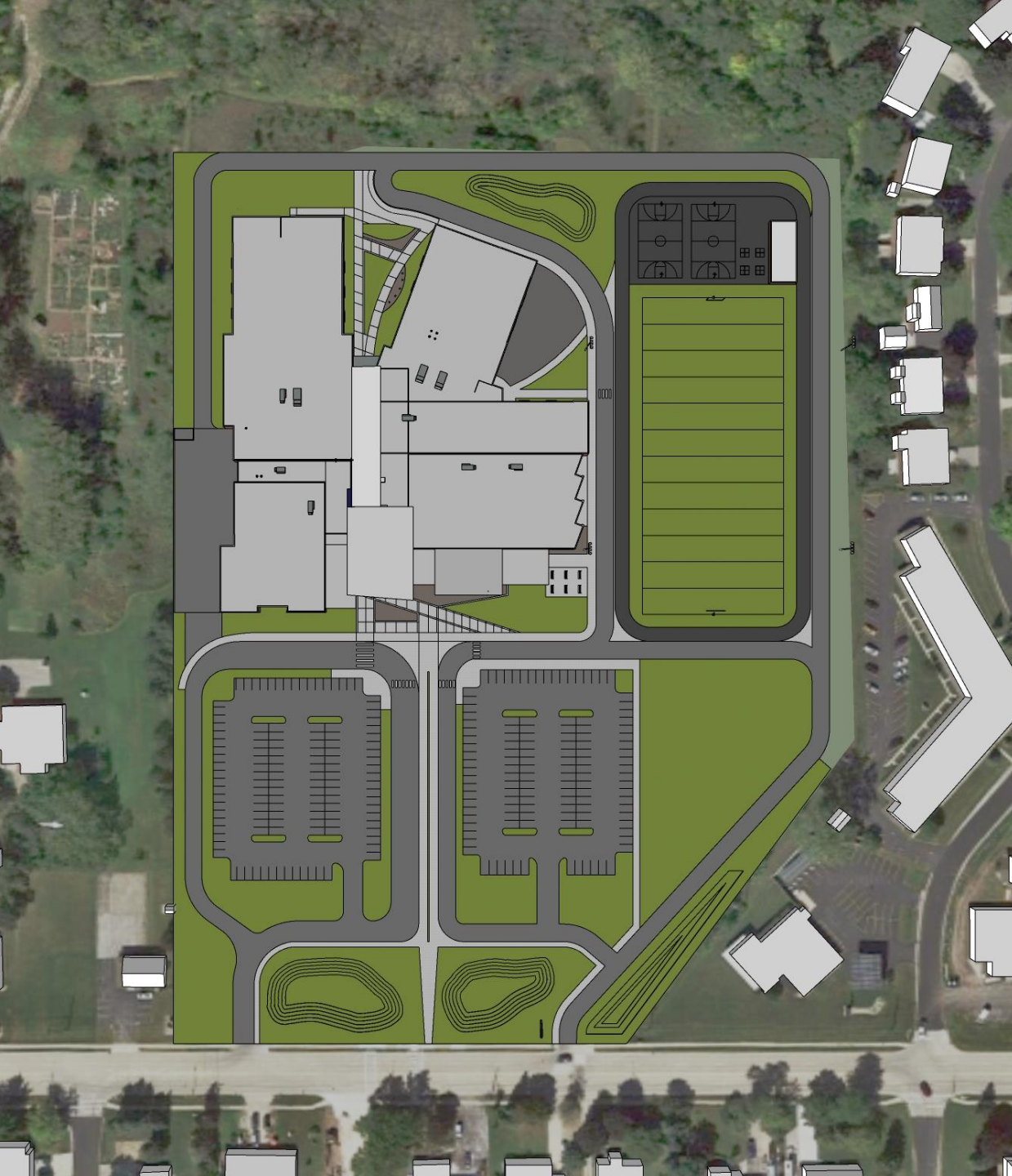
Classroom Design

Collaboration Area:

- “Classroom” area expands
- Glassy wall opens
- Individual and group learning can occur at same time



EXTERIOR DESIGN











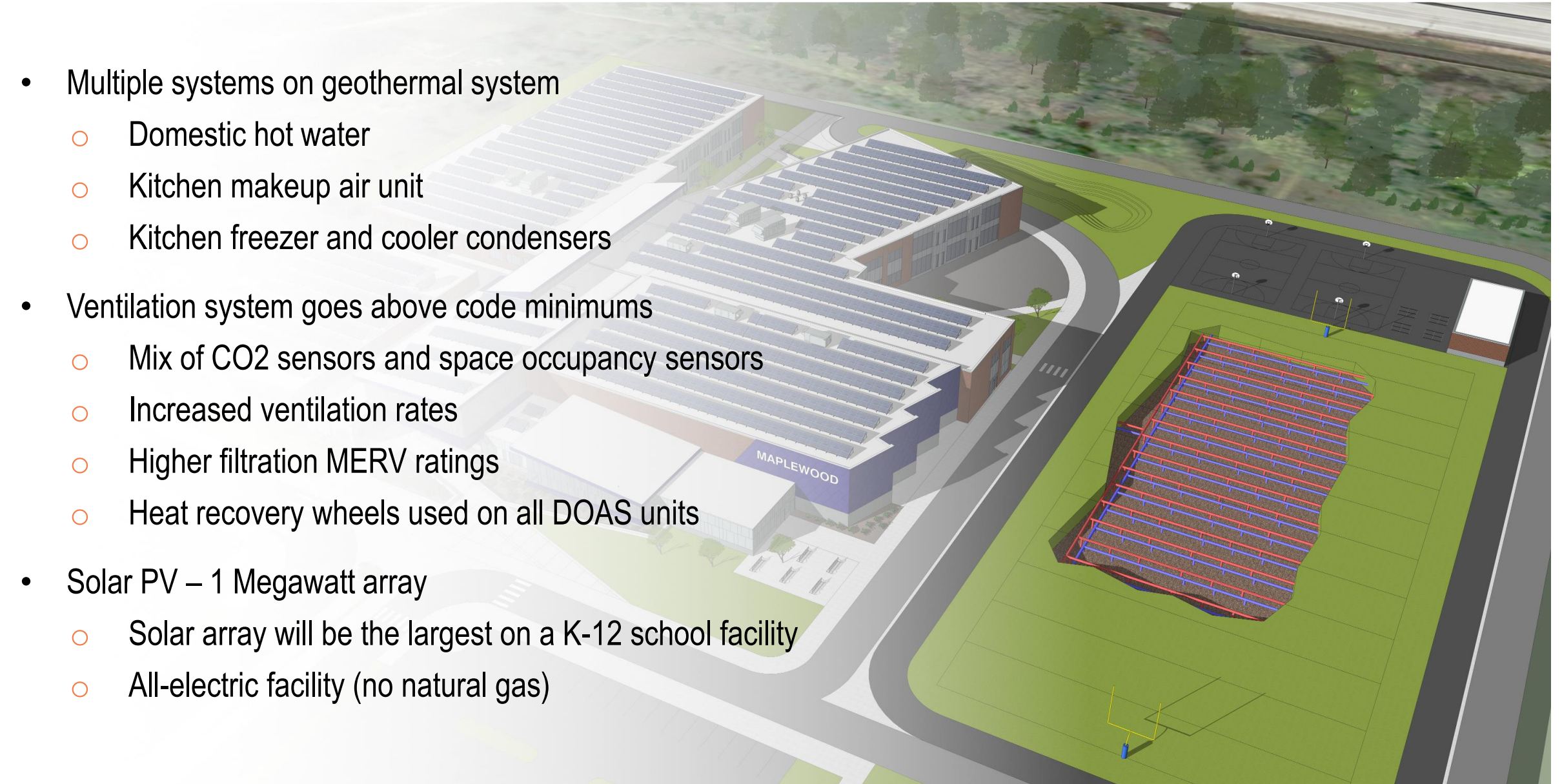


INNOVATIVE ENGINEERING AND SUSTAINABILITY



INNOVATIVE ENGINEERING AND SUSTAINABILITY

- Multiple systems on geothermal system
 - Domestic hot water
 - Kitchen makeup air unit
 - Kitchen freezer and cooler condensers
- Ventilation system goes above code minimums
 - Mix of CO2 sensors and space occupancy sensors
 - Increased ventilation rates
 - Higher filtration MERV ratings
 - Heat recovery wheels used on all DOAS units
- Solar PV – 1 Megawatt array
 - Solar array will be the largest on a K-12 school facility
 - All-electric facility (no natural gas)



INNOVATIVE ENGINEERING AND SUSTAINABILITY



- Pursuing net zero
- HGA third party commissioning
 - Envelope and systems
- Building and systems are on display for educational use
 - Pump Room glazing, graphic branding, non-function panels outside of LMC

Per New Buildings Institute Wisconsin has:

- 4 emerging net zero buildings
 - (1 school/educational)
- 2 verified net zero buildings
 - (1 school/educational)

BASIC BUILDING INFORMATION

Size of building: 222,430 SqFt

Built to handle how many students/grades: approximately 1000 students in grades 5-8 in a house configuration

66% approval rating of a \$99.7M Referendum

150 trades people onsite at the height of the project

Inflation Reduction Act direct payment approximately \$3M

Interest Earned \$4.5M allowing full solar array/battery/microgrid

What is unique about our new school: Incorporates solar and geothermal systems which brings the building to a net-zero energy design. Built in a house model with a flex café serving each house. Classrooms utilize a sliding door system to incorporate large group and small group instruction areas for learning. All new flexible furniture meeting the needs of the most current learning styles.

SOLAR PV COOL FACTS

Maplewood's solar photovoltaic (PV) system array is designed to 1.15 MW made up of over 2700 solar panels and includes a 1,000 kWh battery energy storage system. This array will generate approximately 1,433,000 kWh annually. This is enough energy to power approximately 159 average homes for a year. You are also saving 803 metric tons of CO₂ from entering the atmosphere by generating this much clean energy. Approximately \$150,000 dollars in energy offset per year.

This array is designed to meet net zero energy design criteria (based on current EUI information). This means that the solar system is designed to produce annually what the school is calculated to consume for electricity. Normally we would include BTUs from gas, but there is no natural gas being consumed in the building (outside of the generator in an emergency). It also incorporates a BESS (battery energy storage system) that can store 1,000 kWh of energy and supply 500 kW of power. This is essentially serving three main purposes:

1. To replace the natural gas generator's function of emergency backup power (no gas usage during an outage).
2. Help minimize the demand the building has on the grid by discharging stored energy into the building when loads are high. Storing excess daytime solar energy to be utilized in the building later in the day when utility peak demands are highest.
3. The last two purposes are beneficial not only to the school, but to the utility and community as well. Think of this as essentially removing load from the power grid during times when the load is high and the grid is stressed, mitigating costly utility infrastructure upgrades.

GEOHERMAL COOL FACTS

- 160 vertical bores drilled 500 feet deep spanning below the entire football field
- 3 Geothermal field pumps and 3 building pumps
- Each bore is no larger than 6" in diameter with (2) 1.25" pipes inserted into the bore hole; the bore holes filled with a cementitious grout that is enhanced with a graphite mix to increase thermal heat exchange performance and to seal the bore hole preventing groundwater cross-contamination.
- The internal water pressure inside the pipe at the bottom of the bore approaches 250 psi which exceeds the pressure rating of the pipe itself. However, the pressure of the grout, which is 280 psi, counters the internal water pressure to ensure safe operation of the pipe.
- ~20,000 gal+ of fluid will circulate through the geo system exchanging heat energy between the building and the ground
- 170,000 ft+ of buried pipe serves the geo system; ~32.4 miles of total pipe length
- Water temp is 55 degrees year round
- 158 Heat Pumps and 47 Electric Unit Heaters
- \$40,000 in offset from not having natural gas.

OTHER ENERGY SAVINGS MEASURES

- ❖ The school will have over 400 occupancy sensing lighting switches to reduce energy consumption in unoccupied spaces if lighting is left on. Every classroom has dimmable lights.
- ❖ The school will have daylight harvesting sensors to reduce energy consumption in rooms that have windows on exterior walls.
- ❖ In addition to occupancy sensors, corridor lighting will be controlled by building automation systems to reduce energy consumption during hours when school is closed.
- ❖ All interior and exterior lighting will be highly efficient LED lighting.
- ❖ Exterior lighting (with the exception of any sports field lighting) will be full cutoff fixtures that are “dark sky friendly”.
- ❖ Interior lighting design is 54% better than code requirements.
- ❖ Exterior lighting design is 77% better than code requirements.
- ❖ Demand metering will be installed to isolate energy usage by general lighting, kitchen equipment and HVAC systems.
- ❖ All classrooms are equipped with card reader access doors for added security – no more keys needed just badge.
- ❖ 4 Electric Vehicle Charging Stations



*Reaching Every Student
Every Day!*

GO BLUEJAYS