2016 Exhibition of School Planning and Architecture

Tesla STEM High School

Category: New Construction

Lake Washington School District

Redmond, Washington

Tesla STEM High School

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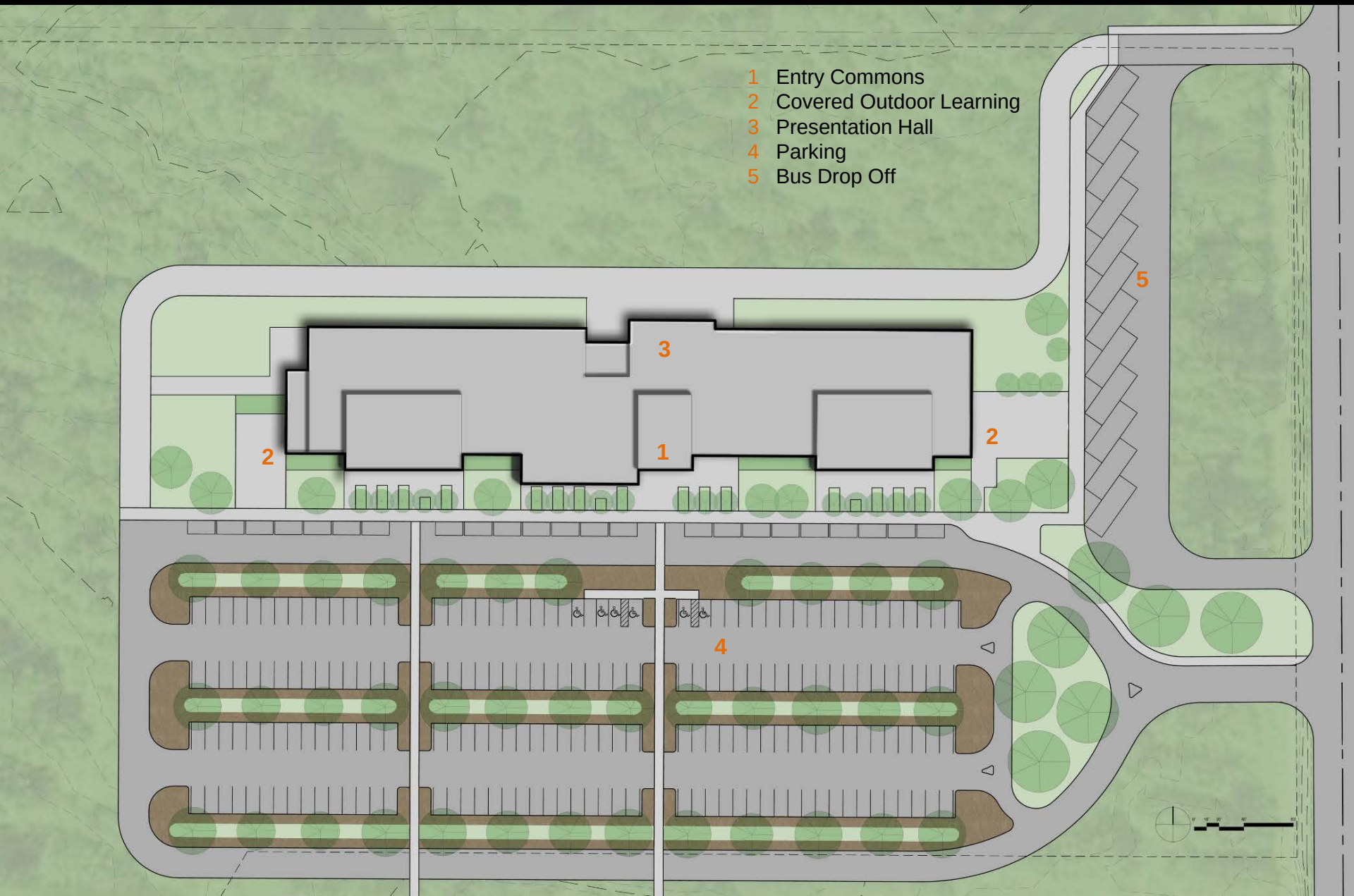
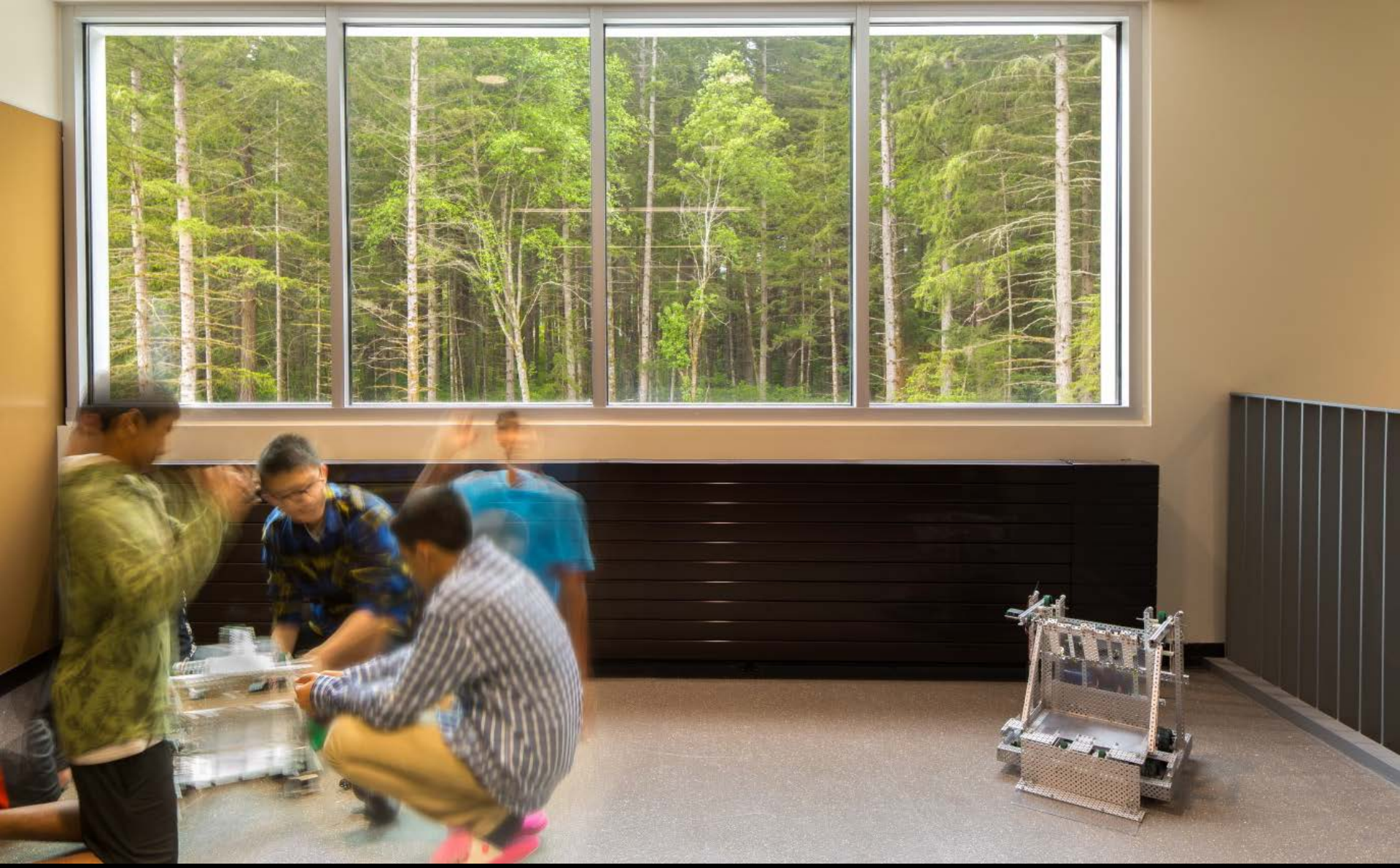


Community Environment: Telsa STEM High School is a Choice School open to all students in the Lake Washington School District. It was built in response to simultaneous needs to increase capacity and to create a more academically innovative, technology-focused learning environment. Since many families in the District have ties to technology and aerospace industry, a STEM - focused high school was a natural fit to capitalize on existing community resources.

Community Environment: Curriculum is based on a Problem Based Learning (PBL) model in which students engage in hands-on, inquiry-based projects with guidance from community-based mentors, such as Microsoft, Boeing, and University of Washington. Meeting spaces are integrated into public areas to foster adult-student relationships and encourage an open culture of collaboration.

Community Environment: A central design goal was to make learning visible – everywhere, at all times. Enlarged stair landings offer impromptu practice space for presentations while strategic perimeter furnishings support both study and socialization. Not only are the products of learning made visible with custom display casework and full height interior glazing, the process of learning is celebrated throughout the school.

Community Environment: The Presentation Hall is strategically located in the heart of the school to support a wide range of school and community activities. Lectures, demonstrations, meetings and other special events are held here both during and after school hours. The room can be rapidly reconfigured to support a variety of seating options while the adjacent outdoor learning plaza hosts dynamic fabrication and prototyping demonstrations.



Learning Environment: No space left unused! Students are immersed in an integrated STEM curriculum focused on developing multiple skills; including conducting authentic research, developing scientific investigations, and engaging in hands-on project work. Edges of circulation paths and corners of public spaces form niches to support informal, small group areas where students can work throughout the day. Resources, such as tools, materials and technology, are distributed so fabrication and prototyping can occur anywhere.

Learning Environment: Large-volume public spaces are flexible, adaptable and multi-functional. The idea of a centralized Library and separate Dining Commons has been eliminated in favor of two Studio Commons. Information resources typically housed in the Library are now distributed and one-to-one technology helps ensure all students have equal digital access. Walls are rich with writable surfaces and furniture is modular and on wheels to support rapid reconfiguration. Full height glazing and overhead skylights flood public areas with natural light and create a warm, stimulating environment.

Learning Environment: Each of the Studio Commons connect directly to an exterior fabrication plaza located at the front of the school. This prominent location communicates the mission of the school and establishes a climate of active, creative, student-lead inquiry that visitors feel from the moment they arrive on campus. Deep overhangs allow garage doors to be open in a wide range of weather conditions so students and mentors can work on larger, more involved outdoor projects throughout the year.

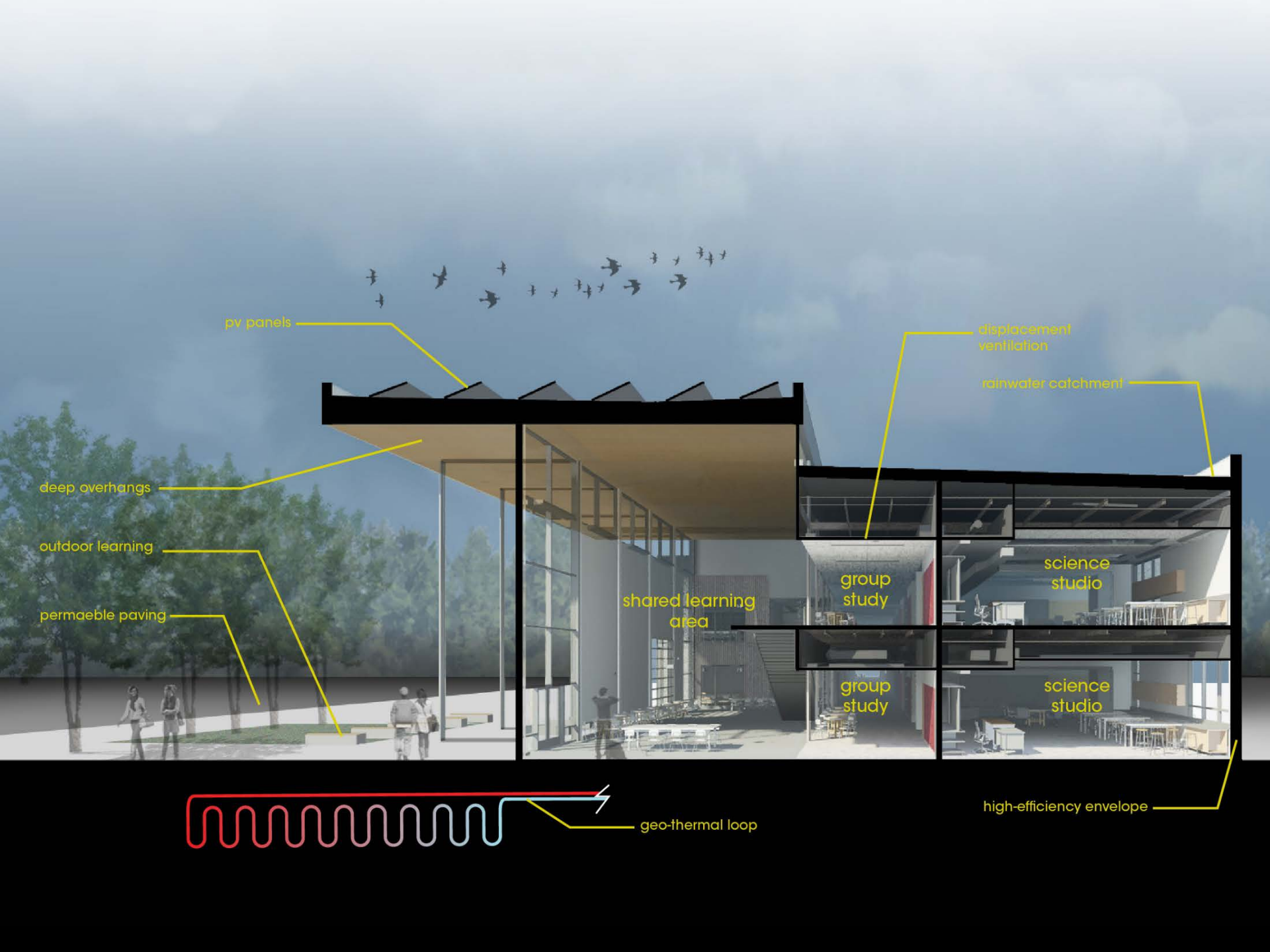
Learning Environment: The diverse program requirements of the Presentation Hall are realized through a number of strategies: the use of flexible, telescoping seating supports a wide-range of capacities while the configuration in two opposite banks encourages audience interaction and provides ample floor space for demonstrations. Oversize barn doors can be modulated to provide enclosure or school-wide connection with additional viewing areas from the first and second floor corridors.

Physical Environment: A prefabrication delivery model began as a response to accelerated schedule requirements. However, the process resulted in many innovative design solutions, with a final building that broadened preconceptions about modular construction.

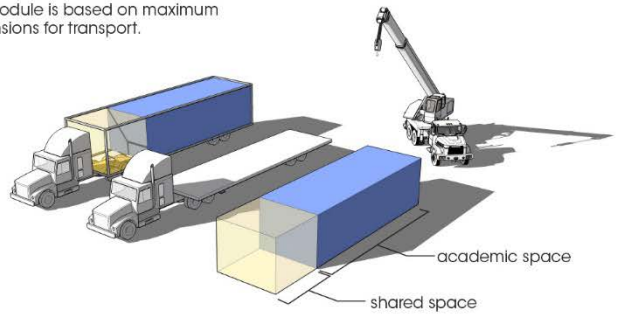
Physical Environment: By site finishing the exterior envelope, the facade becomes an integrated, unified composition while still expressing the underlying modular components. Metal siding on single-story volumes are offset with cementitious panels of the module above. Multi-story volumes are finished with a continuous material treatment from top to bottom as well as full height glazing and deep overhangs.

Physical Environment: Learning Clusters, rather than individual classrooms, support dynamic learning by providing a range of spatial scales depending on the specific activity. Each cluster is composed on two learning settings and general studio. Enlarged interior corridors support breakout space for small group collaboration. Seamless connection details on floors and ceilings provide a unified interior experience.

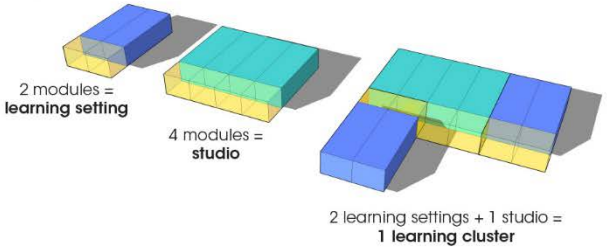
Physical Environment: A sophisticated finish palette and furnishings were selected to professionalize the learning environment and provide a learning continuum from high school to higher education and the workplace. These materials communicate the mission of the school: University Ready. Industry Ready. Future Ready. Much like today's creative work spaces, hoteling stations are strategically located throughout the learning areas to further support student collaboration with outside mentors.


pv panels
displacement ventilation
rainwater catchment
deep overhangs
outdoor learning
permaeble paving
shared learning area
group study
science studio
group study
science studio
geo-thermal loop
high-efficiency envelope

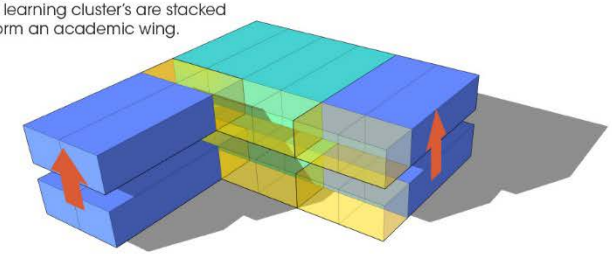
01/Module
The module is based on maximum dimensions for transport.



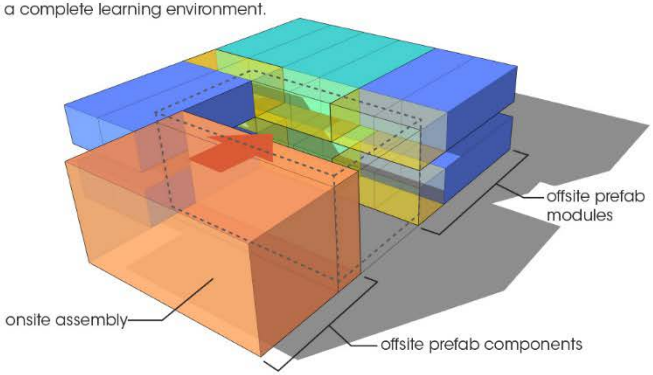
02/add
Modules are combined to create different spatial configurations based on program requirements.



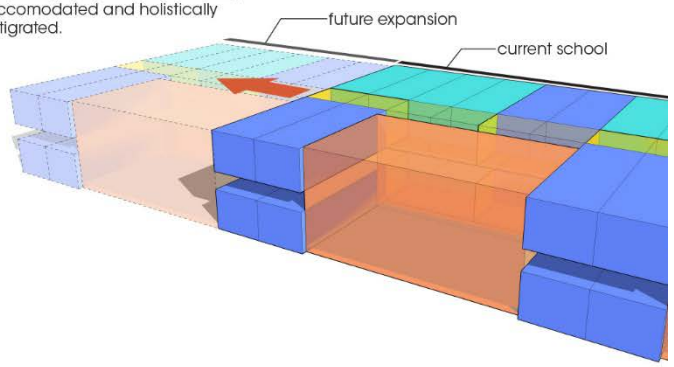
03/stack
Two learning cluster's are stacked to form an academic wing.



04/dock
Double height Studio Commons, made from pre-fabricated components, forms a complete learning environment.



05/Expand
Future program additions and capacity needs can be efficiently accomodated and holistically intigrated.



Planning Process: The organization rigor required for a prefabricated design ensured that future expansion can be accomplished with minimal impact to school operations. The linear arrangement of modules mirrored around centralized public areas allows new learning clusters to be added on either end. Additionally, the integrity of the façade composition and proportion will remain intact if expansion becomes necessary.

Floor plan


1 Science Studio/General Studio
2 Learning Settings
3 Presentation Hall
4 Studio Commons
5 Administration
6 Entry Commons
7 Small Group Work
8 Mentor Space
9 Covered Outdoor Learning
0' 10' 20' 40' 80'

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Exhibition of School Planning and Architecture Project Data

Submitting Firm:	Integrus Architecture
Project Role	Architecture, Structural Engineering
Project Contact	Rebecca Baibak
Title	Principal
Address	117 South Main St. Suite 100
City, State	Seattle, WA
Phone	206.628.3137
Construction Firm:	Absher Construction Company
Project Role	Contractor
Address	1001 Shaw Rd.
City, State	Puyallup, WA
Phone	253.845.9544
Other Firm:	LPD Engineering PLLC
Project Role	Civic
Address	944 Western Ave. Suite 420
City, State	Seattle, WA
Phone	206.725.1211

Exhibition of School Planning and Architecture Project Data

Other Firm:	Interface Engineering, Inc.
Project Role	Mechanical & Electrical
Address	100 SW Main St. Suite 1600
City, State	Portland, OR
Phone	206.382.0200

Other Firm:	Cascade Design Collaborative
Project Role	Landscape Architect
Address	911 Western Ave. Suite 210
City, State	Seattle, WA
Phone	206.628.9133

Other Firm:	SSA Acoustics, LLP
Project Role	Acoustical
Address	222 Etruria St. Suite 100
City, State	Seattle, WA
Phone	206.839.0819

Exhibition of School Planning and Architecture Project Data

Other Firm:	Bundy FS Associates
Project Role	Food Service
Address	2520 Colby Ave. #104
City, State	Everett, WA
Phone	206.523.9690

Other Firm:	Blazer Industries
Project Role	Modular Manufacturer
Address	945 Olney St.
City, State	Aumsville, OR
Phone	503.749.1900

Other Firm:	Rider Levett Bucknall
Project Role	Cost Estimating
Address	1924 First Ave. Second Floor
City, State	Seattle, WA
Phone	206.223.2055

Exhibition of School Planning and Architecture Project Details

Project Name	Tesla STEM High School
City	Redmond
State	Washington
District Name	Lake Washington School District
Supt/President	
Occupancy Date	January 2, 2013
Grades Housed	9 – 12
Capacity(Students)	675
Site Size (acres)	7.5 acres
Gross Area (sq. ft.)	66,000 sq. ft.
Per Occupant (pupil)	97 sq. ft.
gross/net please indicate	Gross
Design and Build?	Yes
If yes, Total Cost	$24,679,483
Includes	Site development costs, building costs, furnishing costs, technology costs, plus fees, services, taxes, admin costs, etc.
Total	$24,679,483