2014 Exhibition of School Planning and Architecture

Lake Washington High School

Lake Washington School District

Kirkland, Washington

Lake Washington High School

Renewing a High School

Community Environment

It is not every day a community's flagship high school embraces change. Yet in the service of students, the Lake Washington SD did just that by empowering community-based committees to rethink the ways their students are educated by involving them in Educational Specification development process.

Home to Microsoft's world headquarters, and renowned as one of the most respected school systems in Washington State, the Lake Washington School District determined in 2005 that its flagship high school, Lake Washington High School, had outlived its capacity to offer an excellent education in the facility it had inhabited for nearly 60 years.

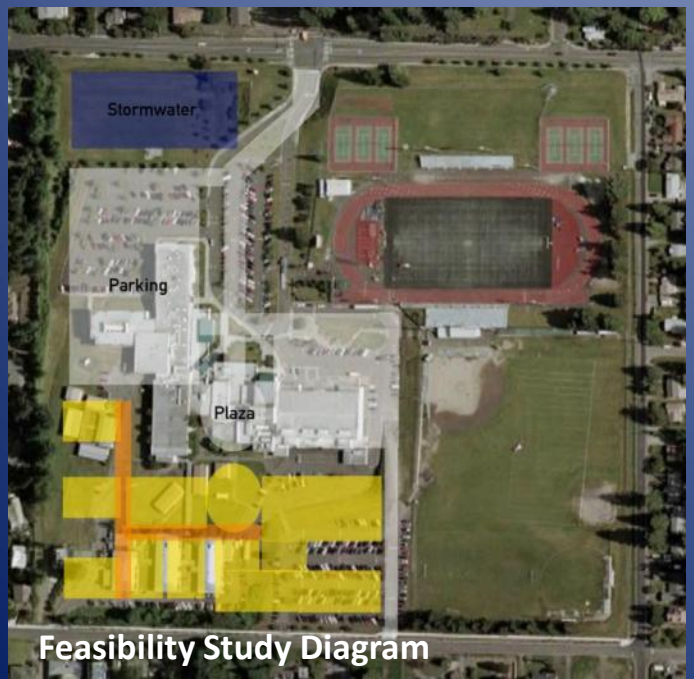
As part of an effort to engage the community and develop their sense of ownership, the District tested a variety of options with its community. The public overwhelmingly supported a total makeover that would accomplish "warm, safe, dry" building and system upgrades + funds for educational program enhancements. Replacement of the entire school on the same site was determined to be the most cost effective and feasible way to achieve these goals.

The project was funded by a bond measure approved by voters in 2006.

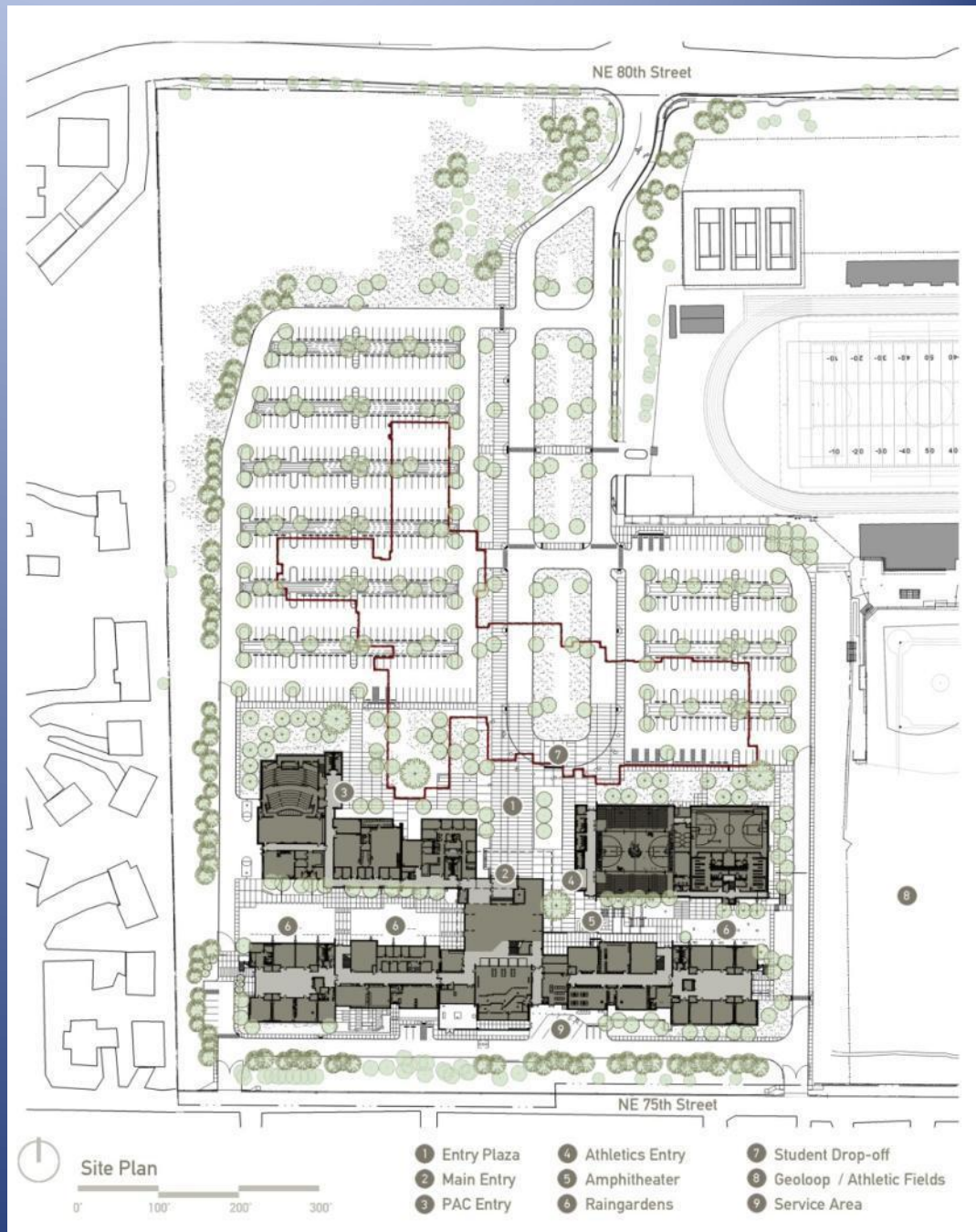
New Building, Existing Context

Community Environment

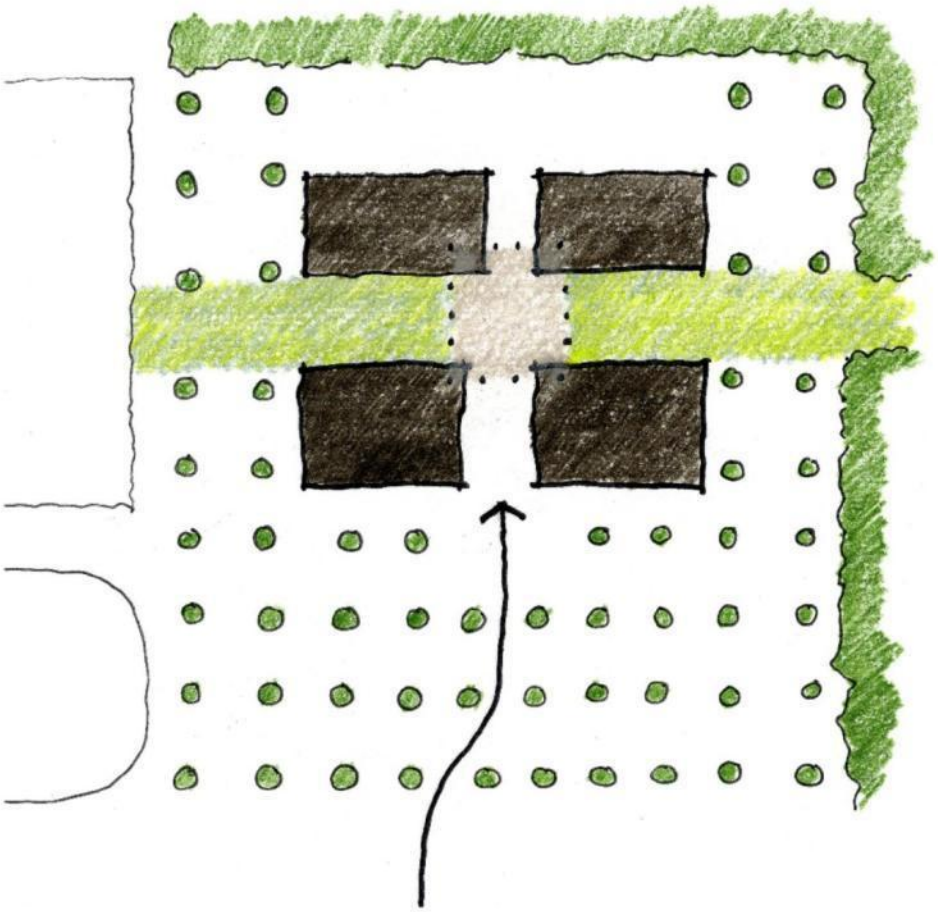
Built on the site of an apple orchard, Lake Washington High School grew in presence over six decades, beginning with the original building in 1950. The surrounding neighborhood was built around it as the school expanded on the site. Views of the Olympic Mountains and the scale of the new building were primary concerns of residents in the surrounding neighborhood. The new building integrates with the topography on the south end of the site to keep the building scale in context and build a new 3-story school while the existing school was in use.



Feasibility Study Diagram



Site/Building Concept



PARTI DIAGRAM

CONCEPTUAL QUALITIES AND FEATURES

Provide a **Warm, Friendly and Inviting** atmosphere

School Spirit – purple, White, Kangaroos, organizations and team photos

Provide a **feeling of openness**

Entry to school must be **clear and inspirational**

Address needs for **diversity** of language and cultures (signage, etc)

Balance reflection of **History and Progress** forward/future

Cherry Trees

Provide lots of places to sit, **engage and interact**

Use the **building parts as learning tools** Provide students an opportunity to physically improve the building in some way (murals, sayings, etc) to **encourage ownership and accountability**

Provide **high visibility** of learning/teaching activities and results/products

Support community partnerships - Programs, grants, spaces to meet, etc Provide balance between houses so that they have some **Individuality** as well as being rooted as a part of a whole within the entire school organism - **Synergy**

Guiding Principles for the Learning Environment

Head

Common Vision Supports Cooperative Autonomy

- Empowerment and Autonomy - student, teacher, teams, curricular area, small learning communities are all part of a cooperative network
- Orchestra analogy (individuals playing beautifully alone, but get better when they are all playing off the same sheet of music, together)
- Developing independent, creative and critical thinkers
- Visual identity and signage - quickly get a sense of what the school is about
- Strong sense of way-finding

Hands

Integrated Academics and Technical Achievement

- Hands-on, technical, project-based, book work
- Career and technical
- Integrating technical and academic work
- Applied learning
- Practical applications
- Radical curriculum change
- Including the arts, physical education
- Experiential opportunities and applications
- Technical is not limited to technology
- Community partnerships and internships as academics
- Timeframe is variable

Heart

Ownership and Engagement through a Network of Relationships

- Meaningful, targeted professional development
- Multi-faceted collaboration
- Student-student, teacher-student, teacher-teacher, student-community, teacher-community, family-school, student/teacher-curriculum, people-environment
- Healthier students, healthier school
- Social and emotional health

Development of the "House"

Through the course of the planning process, the District and the architectural team developed an approach of breaking the school into 4 Small Learning Communities – or "Houses" as a way to implement the Head, Hands & Heart Learning Environment.

Fostering Learning Communities

Learning Environment

Fostering Relationships, Rigor and Relevance

In addition to the Guiding Principles, the design of Lake Washington High School is a sophisticated response to specific directives in the Educational Specifications:

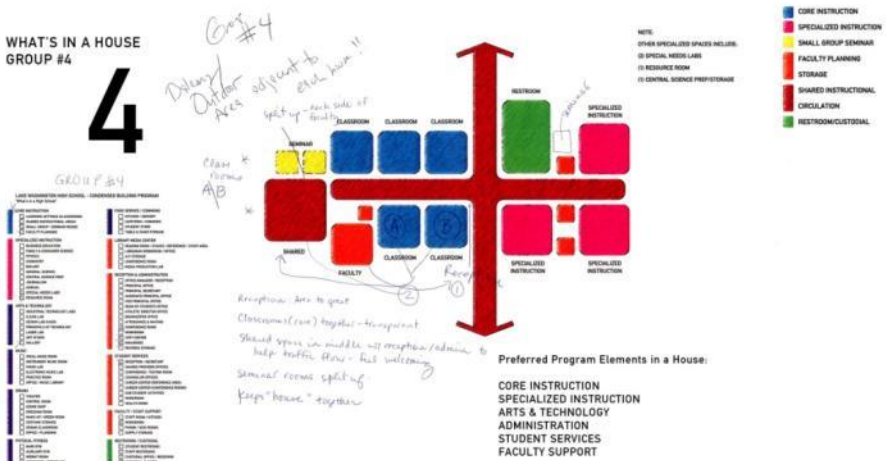
1. Create an interdisciplinary arrangement of classrooms

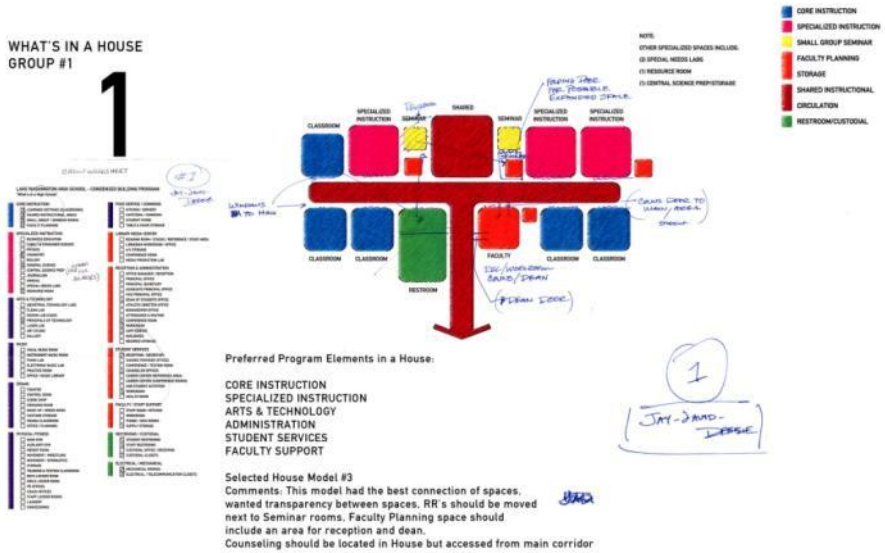
2. Design a building flexible enough to meet the needs of a small schools model, a comprehensive high school model, and/or other future educational models

3. Increase Relationships, Rigor and Relevance by transitioning LWHS into a system of four smaller learning communities that do not exceed 400 students.

It is in the design of the “houses” that the directives of the Educational Specifications are most uniquely implemented, and what makes Lake Washington High School an effective environment for 21st Century learning.

Each “house” is designed to support multi-grade learning communities, with a multi-disciplined team of teachers that follow students through their years in high school. Students form more lasting relationships and become “proficient” with a greater variety of personalities and aptitudes among those in their learning community. Forming closer bonds with their teachers fosters a love of learning.





Fostering Learning Communities

Collaborative Learning Environment: “The Heart of the House”

Learning Environment

The Shared Instructional Area is the heart of the “House”. It is easily accessible to the surrounding classrooms. There are three zones to the space. This image captures the presentation zone which can be used by instructors, students or visiting professionals from the community. Teachers can partner with each other or outside resources to augment curriculum delivery. Students have a new way to present their work and engage with community partners.

Collaborative Learning Environment: “The Heart of the House”

Learning Environment

The middle zone of the Shared Instructional Area is for group work. Teachers can roam among groups of students, acting as a guide to further their exploration.

There is a high degree of transparency with the adjacent classrooms, fostering a sense of a small learning community. Views to the outdoors from such an embedded place in the building is an added benefit.

Collaborative Learning Environment: “The Heart of the House”

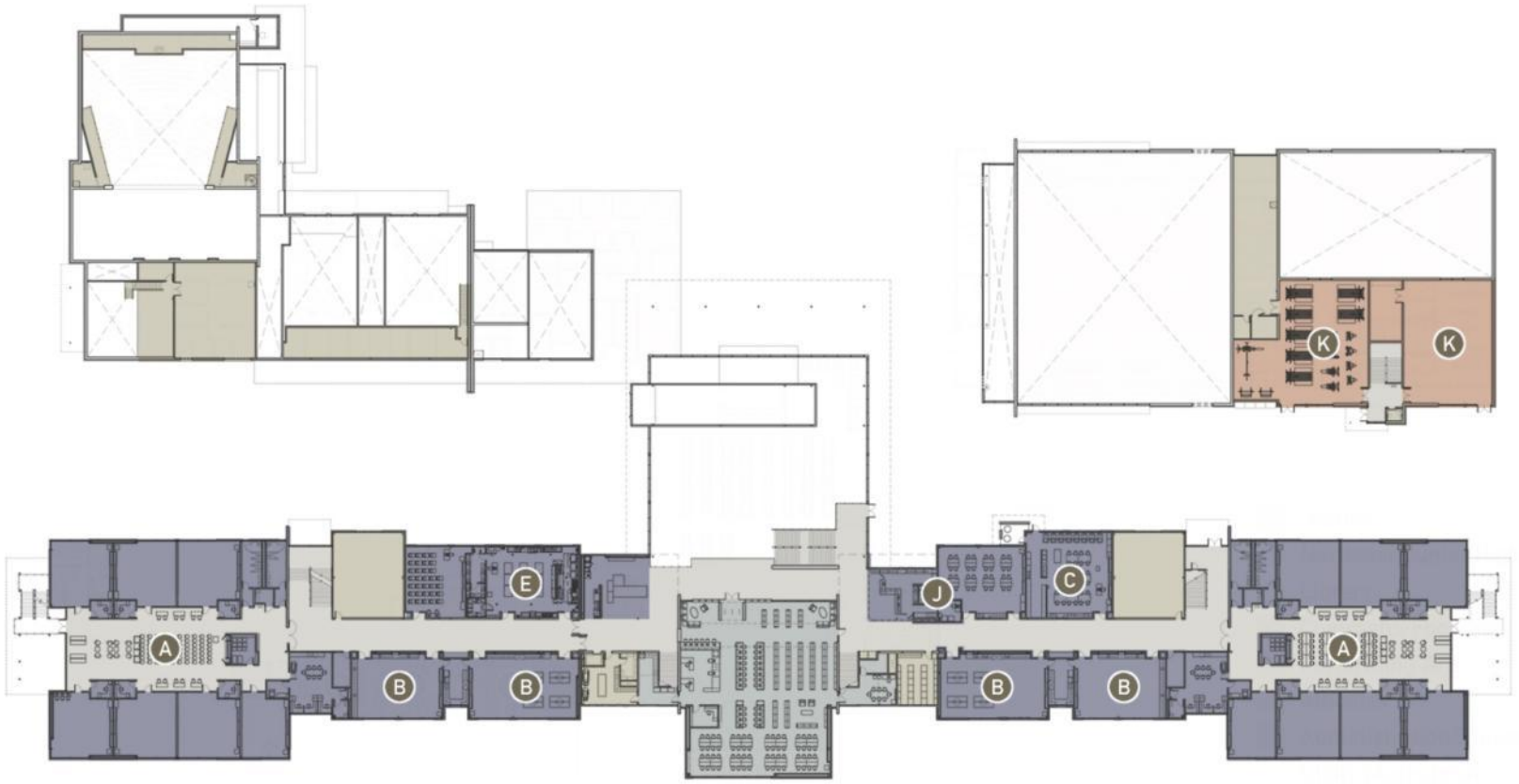
Learning Environment

The third zone of the Shared Instructional Area is for informal study. Students can work together in a more relaxed, social setting.

The district has invested to provide one mobile computing device for every student, making learning accessible any time, anywhere.

Fostering Learning Communities

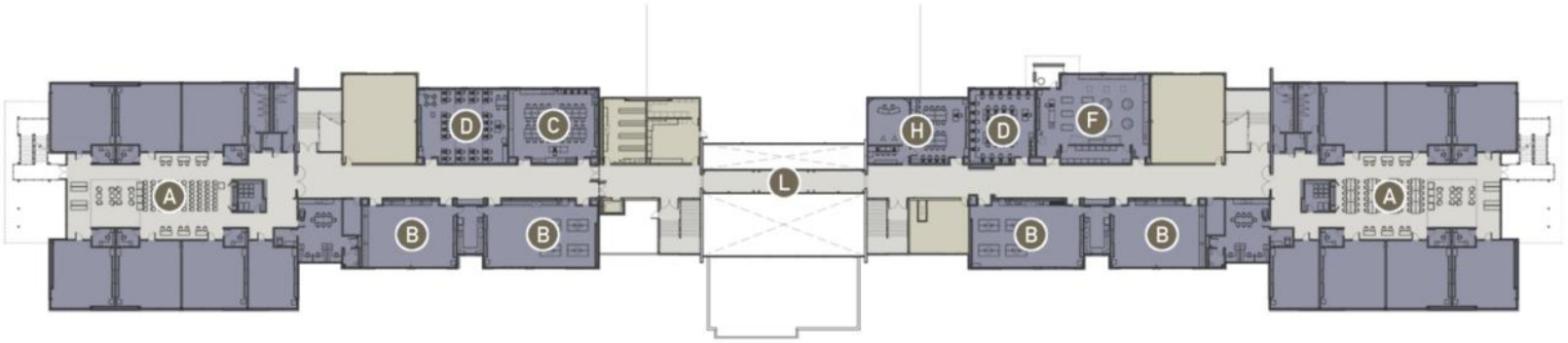
Fostering Learning Communities



Second Floor Plan

- A Shared Instructional Area
- B Science Lab
- C Art Studio
- D Computer/CAD
- E Culinary Arts
- F Material Science
- G Robotics
- H Media Production
- I Special Needs
- J Student Store/Business
- K Weights/Fitness
- L Library Skybridge

Fostering Learning Communities



Third Floor Plan

- A Shared Instructional Area
- B Science Lab
- C Art Studio
- D Computer/CAD
- E Culinary Arts
- F Material Science
- G Robotics
- H Media Production
- I Special Needs
- J Student Store/Business
- K Weights/Fitness
- L Library Skybridge

Maintaining the “Kang” Community

Physical Environment

While the formation of small learning communities were key to the future learning environment, the community didn’t want to lose the sense of the “whole” Lake Washington High School, the history it represents, and the prominence the school has had in the community at large. All students would still be “Kangs” (the school mascot is the kangaroo).

The Commons and Library were chosen as the architectural program elements that would be featured in the building design to bring the whole school together. The maple gym floor from the original school was relocated to be a major element in the new Commons.

Connection to the Outdoor Learning Environment

Physical Environment

The Commons opens to the outdoor learning environment with large amounts of glass and roll-up doors for those celebrated days in the Pacific Northwest when the weather is conducive.

School colors are incorporated in subtle ways, with duct socks and purple heart wood chosen for the display element that separates the Commons from the school entry vestibule.

Outdoor Learning Environment

Physical Environment

The Commons opens to the east and the west, to extend the social heart of the school and connect with the outdoor learning environment.

The design of the site utilizes sustainable storm water strategies such as rain gardens to enhance environmental awareness, create educational opportunities, and decrease infrastructure costs. Rain gardens collect rainwater from the building roofs and collect surface runoff from parking areas.

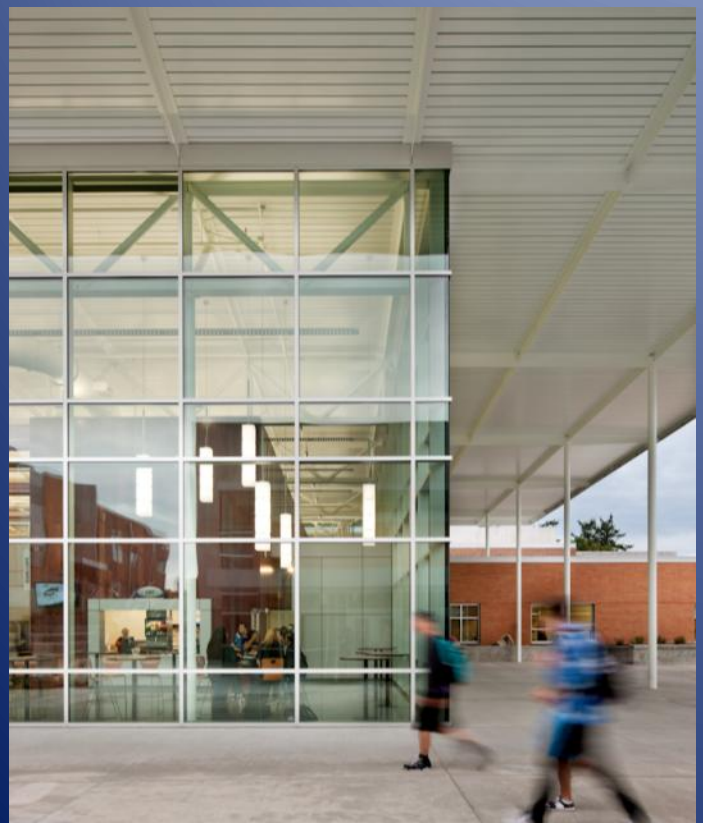
The Commons also extends outdoors into the hillside, creating a social forum connected to the Athletic Center. Access to the upper and lower levels gives access to the multi-story wings to the south.

In this way, the Commons extends the entire length of the school, bringing daylight to spaces and connecting the whole school together.

Architectural Craft

Physical Environment

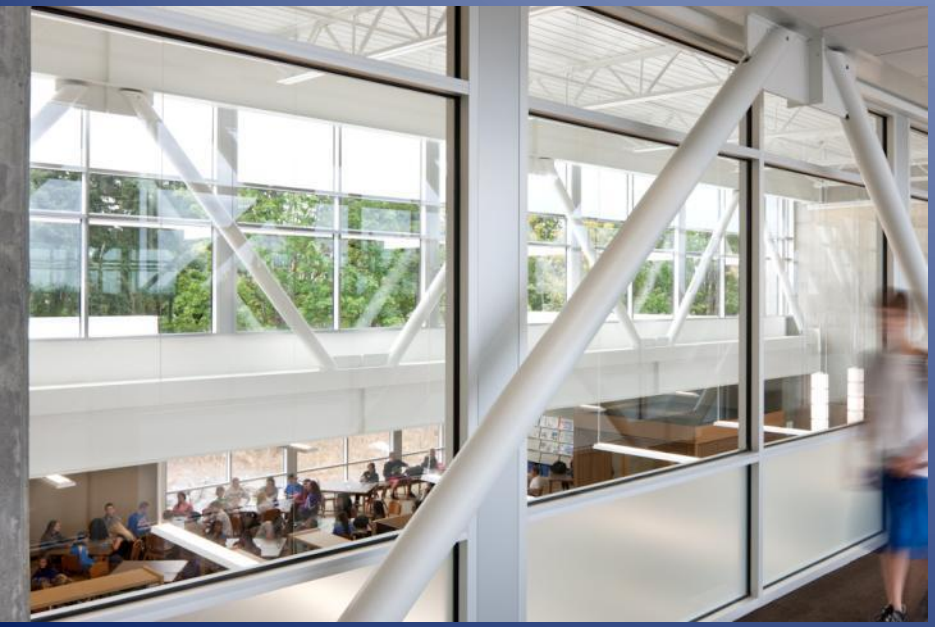
The design features a high degree of transparency and daylight to foster a sense of community throughout the school. Areas that are more contemplative and academically focused are surrounded with more solid forms made of brick or concrete. Transparency also aids in wayfinding and identity. The Library features book displays revealed through translucent glass to signify the place, rather than relying on signage.



Transparency and Daylight

Physical Environment

The Library is in the center of the school, easily accessible to all of the “houses”. Daylight is brought deep into the building with abundant windows. A glass bridge passes over and through the Library, creating a bridge between the “houses” on the third floor. This also provides an important wayfinding element, letting you know where you are in the school.



Sustainable Design

Physical Environment

The design includes these sustainable design strategies:

- The new building was located south of the existing building in order to minimize impact on the site, maintain the maximum amount of open space, and allow the existing school to remain operational during construction.
- The layout optimizes orientation to natural sunlight while fitting in with the natural slope of the site.
- The energy use modeled during design was 25.8 Kbtu/sf/yr
- Light controls in each classroom dim the lighting when sufficient daylight is available.
- Water use reduction strategies have been incorporated to minimize potable water usage from irrigation and plumbing fixtures.
- Abundant use of natural light has been provided throughout the building design to enhance the educational environment, with daylight and views to nearly all spaces.
- Materials and systems were selected for a balance of durability, maintainability, and sustainability. They cost less to maintain, are long-lasting, and result in a reduced total lifecycle cost of the building.
- To building systems and structure are designed to allow for future remodeling of the learning environment and accommodate expansion.
- 1,100 square feet of rooftop solar panels power four classrooms, with built in capacity to add more panels over time.
- A ground coupled heat pump system circulates water through 300-foot deep wells to save energy on heating and cooling.

Ground coupled heat pump system

Photovoltaic array visible from stairwell in adjacent wing
(the original building can be seen in the background, before demolition)

Establishing an Educational Vision

Planning Process

Lake Washington High School was accomplished during Phase 2 of a four-phase, 32 year program to modernize all of the schools in the District. Educational visioning began in 1997 and was renewed in 2005 for Phase 2. The process involved stakeholders from across the District and across the communities it serves. The District Educational Specifications were devised as a template upon which site based investigations and solutions were generated for each school project.

For Lake Washington High School a Research Team of teachers was formed to investigate the characteristics that needed to be in place for the formation of smaller learning communities within the whole school. The research team would also lead the conversion of the comprehensive model to small community model, influencing curriculum design and delivery as well as professional development.

Their work resulted in the Guiding Principles included earlier in this document. The extensive list of sites they visited are listed on the next page.

Salient Reflections

Much was learned as the team pursued their essential questions. Upon reflection, the Research Team had the following observations from school visitations.

- Only systemic change can allow teachers to reach all students, be more effective in their practice.
- Teachers and students need to be more empowered in their teaching and learning.
- Schedules can be more flexible, allowing for increased depth, relevancy, and rigor in learning.
- Professional development is key to making systemic change work; teachers need to know how to teach differently, e.g. longer blocks, team teaching, project-based.
- Powerful community partnerships will engage students and make learning more relevant.
- Reform can help LWHS better reach ALL students: Rigor + Relevance + Personalization will help high performing students as much as those that struggle.

Researching Best Practices

Planning Process

Study Tours Offer Powerful Learning

Cognizant that powerful ideas are generated through inquiry-based learning, the District supported a series of local and national school visitations for the LWHS Research Team. The visitations included:

- School of the Arts (SOTA) in the Tacoma Public Schools, located in renovated warehouse spaces in downtown Tacoma, collaborating with local community institutions.
- Todd Beamer Educational Complex (a MacConnell runner-up with four smaller thematic schools) in Federal Way
- High Tech High, High Tech International, High Tech High Media Arts, High Tech Middle Media Arts, High Tech Middle and Explorer Elementary, all part of an educational complex on a decommissioned military base in San Diego.
- Kearney High School, an educational complex of four small schools in the San Diego School District.
- San Diego High School, an educational complex of six small schools in the San Diego School District.
- Julia Richmond Education Complex, an educational complex of small schools, including Manhattan International High School, Vanguard High School, Talent Unlimited High School, Urban Academy Laboratory School, The Ella Baker Elementary School and P226M a Special Education Middle School in New York City.
- Eastside Community High School, a small 6-12 grade school in New York City.
- Millennium High School, a small school located on the 11, 12 and 13 floors of a high rise office building located close to the New York Stock Exchange.
- Tyee Educational Complex in the Highline School District, formerly a failing high school that was converted into three autonomous small schools.

Post-Occupancy Survey

Planning Process

To study the effectiveness of the new building on student learning, the District conducted a pre and post-occupancy survey of students, parents and teachers. Overall 473 responses were gathered. Here are most salient findings:

Students:

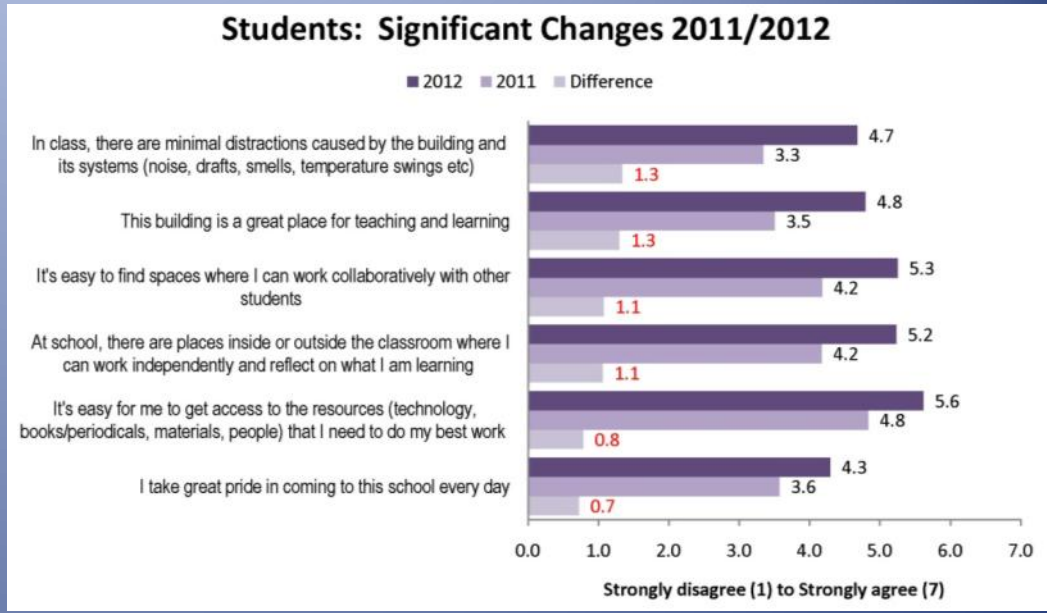
- Physical conditions improved (reduced noise, smells, temperature swings, etc.
- Easy to find spaces to collaborate with other students collaborate,
- Easy access to resources,
- The school is “a great place for teaching and learning.”

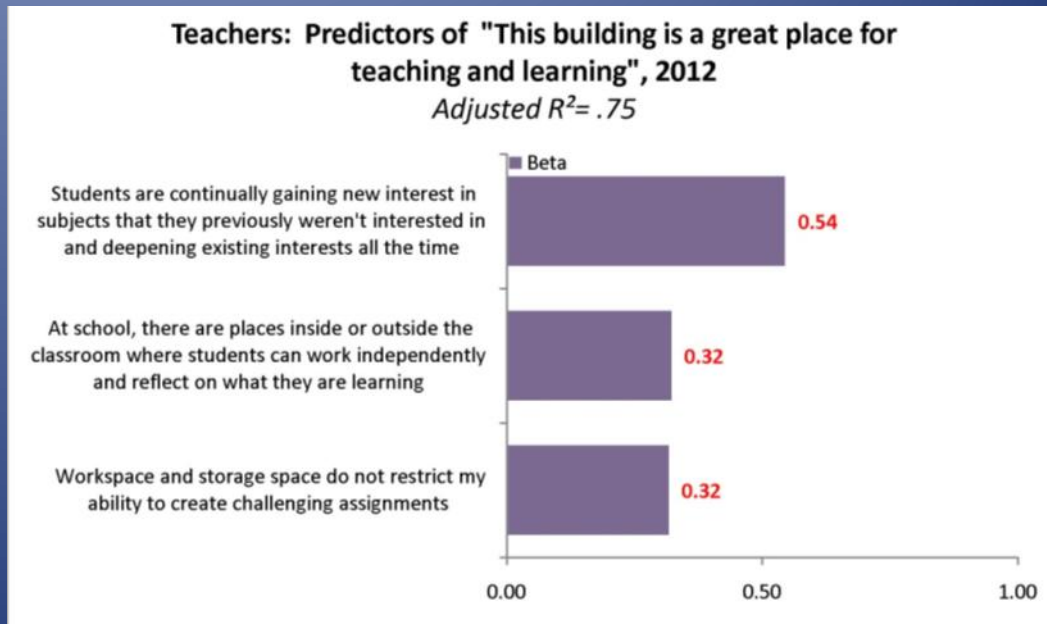
Teachers:

- Students are gaining new interest in subjects and deepening existing interests
- There are places inside or outside the classroom where students can work independently and reflect on their learning
- Workspace and storage do not restrict by ability to create challenging assignments

Parents:

- They considered “school culture” as the most important driver of the school as “a great place for teaching and learning.”





Exhibition of School Planning and Architecture Project Data

Submitting Firm :	McGranahan Architects
Project Role	Architect
Project Contact	Michael McGavock, AIA
Title	Principal
Address	2111 Pacific Avenue, Suite 100
City, State or Province, Country	Tacoma, Washington, United States
Phone	253-383-3084

Joint Partner Firm:	
Project Role	
Project Contact	
Title	
Address	
City, State or Province, Country	
Phone	

Other Firm:	Architects of Achievement
Project Role	Educational Planner/Design Strategist
Project Contact	Victoria Bergsagel
Title	Principal
Address	3036 69th Avenue SE
City, State or Province, Country	Mercer Island, Washington, United States
Phone	206-420-1400

Construction Firm:	Lydig Construction
Project Role	GC/CM
Project Contact	Bill Dobyns
Title	Vice President of Operations, Western Region
Address	3180 139th Ave SE, Ste 110
City, State or Province, Country	Bellevue, Washington, United States
Phone	425-885-3314

Exhibition of School Planning and Architecture Project Details

Project Name	Lake Washington High School
City	Kirkland
State	Washington
District Name	Lake Washington School District
Supt/President	Dr. Traci Pierce
Occupancy Date	August 2011
Grades Housed	9-12
Capacity(Students)	1500
Site Size (acres)	40
Gross Area (sq. ft.)	223,395 square feet
Per Occupant(pupil)	149 sf/pupil
gross/net please indicate	223,395/163,656 = 1.37
Design and Build?	GC/CM
If yes, Total Cost:	
Includes:	
If no,	
Site Development:	$3,603,316
Building Construction:	$62,314,426
Fixed Equipment:	
Other:	$2,500,000 (furnishings + technology)
Total:	$87,000,000 (total project cost)