

Learning is all about creating connections.

That's why this new school is designed to preserve and harness the environment as learning opportunity. Two-story classroom wings reach like fingers toward the woods and visually connect students with nature. Between, courtyards landscaped with native plants serve as outdoor classrooms and feature an intermittent stream fed by roof runoff.

Inside, small learning communities are formed by clusters of four classrooms around a multi-purpose activity area that faces the forest and reinforces connection between lessons and environment. Shared resources link the communities, and sustainable design features make science tangible. Natural ventilation in classrooms utilizes "chimneys" for a natural stack effect. Windows are oriented to maximize daylighting and shading devices control glare. Non-toxic, recycled and low-impact materials are integrated throughout.

benjamin franklin elementary school



AERIAL VIEW



LIBRARY VIEW



ACTIVITY AREA VIEW

Owner:
Lake Washington School District

Architect:
Mahlum Architects

Landscape Architect:
Cascade Design Collaborative

Civil / Structural Engineers:
Coughlin Porter Lundeen

Mechanical Engineer:
Keen Engineering

Electrical Engineer:
Huntley Pascoe

Cost Consultant:
Rider Hunt Levett & Bailey

Artist:
John Hoge

THE MAJOR SUSTAINABLE PRACTICES IMPLEMENTED:

Rainwater sheets off roof and paved areas and collects through **point-source bio-retention systems**. The planted collection cells for on-site storm water management maximize infiltration and ground water recharge, water quality filtration and evapo-transpiration while minimizing discharge rates. This project is one of the first sites in this region to utilize this innovative system.

The two central courtyards provide structured **outdoor learning environments**, exposing students to art, elements of our region's unique hydrologic process and direct connections to the site's native forested ecosystem. One features a water-fed art piece and intermittent stream fed by roof runoff. Site specific, native and drought tolerant plantings will require no permanent irrigation.

Energy analysis of building envelope & HVAC confirms 35% better performance than WA State energy code.

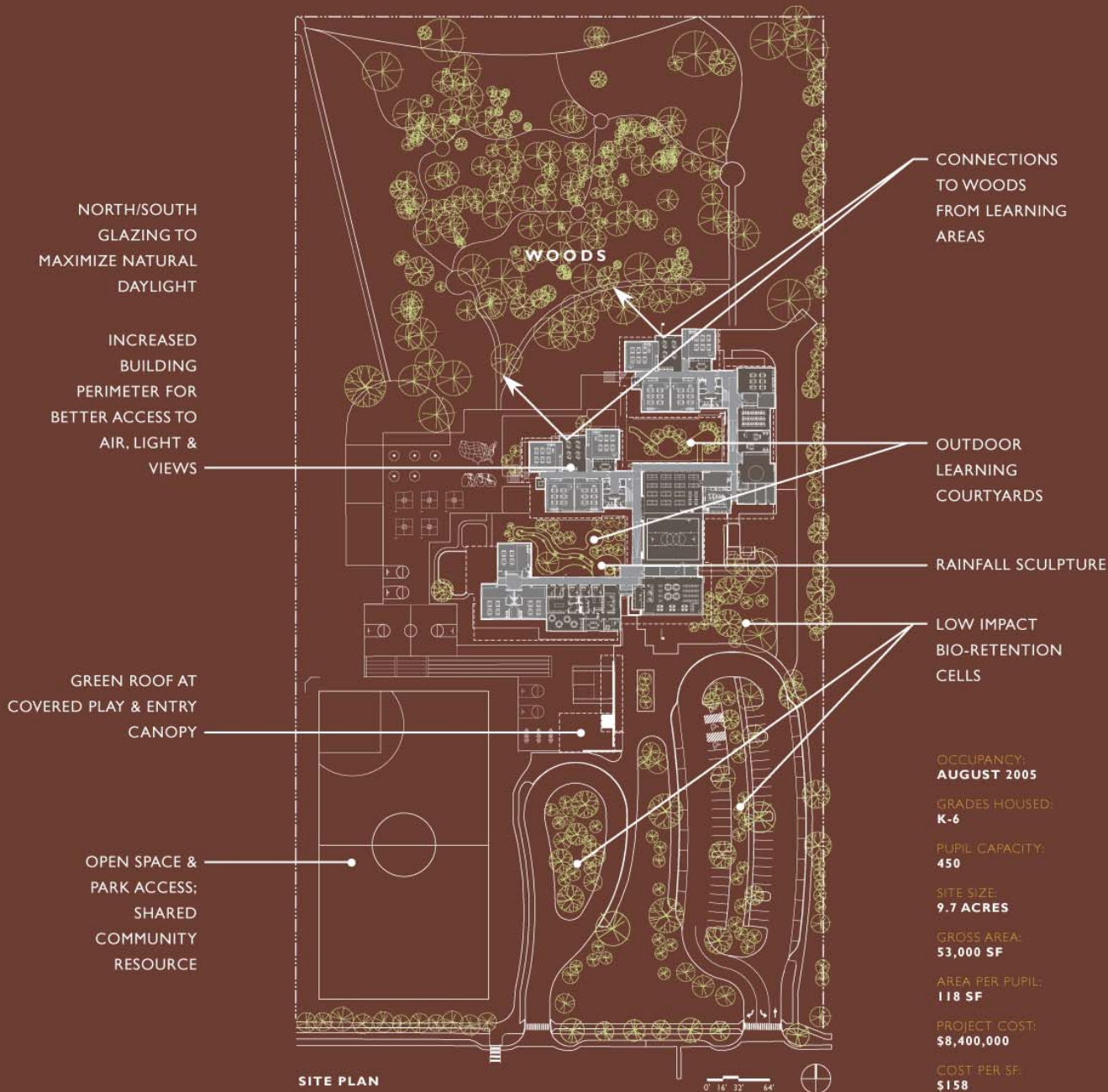
All learning areas **naturally ventilated** without use of air handling equipment or supplemental fans. Classrooms contain operable windows and ventilation chimneys to utilize a natural stack effect. In 80% of the building, required minimum ventilation will be achieved through a system of DDC controlled perimeter louvers located behind the heating units.

Operable windows and automatic controls guarantee optimum **indoor air quality**. CO2 sensors and occupancy sensors automatically adjust louvers located below the windows and at the upper levels of the ventilation stacks to provide ventilation and conserve energy.

The spaces are oriented east-west with major glazing on the north and south elevations to maximize the **natural daylight** within the building. Automatic dimming lighting controls will adjust light levels in the classrooms to maximize the energy efficiency benefit of the natural light. Daylight harvesting is expected to reduce lighting energy usage by 25% in the effected areas.

Durable, non-toxic, low-impact finish materials have been implemented throughout the project, including: low VOC paint; rubber-cork resilient flooring; wool tackable wall coverings; and retro-plated concrete floors.

The **educational program** of this environmentally engaging site celebrates current sustainable building practices, and focuses on educating generations of student consumers toward more sustainable patterns.



OCCUPANCY:
AUGUST 2005

GRADES HOUSED:
K-6

PUPIL CAPACITY:
450

SITE SIZE:
9.7 ACRES

GROSS AREA:
53,000 SF

AREA PER PUPIL:
118 SF

PROJECT COST:
\$8,400,000

COST PER SF:
\$158

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