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BEN FRANKLIN ELEMENTARY SCHOOL, LAKE WASHINGTON SCHOOL DISTRICT
12434 NE 60th Street, Kirkland, Washington 98033 • Completed: August 2005

DESIGN TEAM

Cascade Design Collaborative, *Landscape Architect*

Coughlin Porter Lundeen, *Civil/Structural Engineer*

Stantec, *Mechanical Engineer*

Coffman Engineers, *Electrical Engineer*

Rider Hunt Levett & Bailey, *Cost Estimator*

The Greenbusch Group, *Acoustical Consultant*

Daylighting Lab, *Daylighting Consultant*

John Hoge, *Artist*

PHOTOGRAPHER
Benjamin Benschneider

CONTRACTOR
Spee West Construction

PROJECT DESCRIPTION

Land Use and Site Ecology: Creating connections with the rich natural environment became a primary goal in the design process. Two-story classroom wings reach like fingers toward the woods and visually connect students with nature. Between, courtyards landscaped with native plants and enhanced with integrated art work, serve as outdoor classrooms and feature an intermittent stream fed by roof runoff. Gathering areas for outdoor classes have been located within the landscaping.

Light and Air: Understanding the profound impact of daylight and indoor air quality on student performance, the design maximizes building performance in these areas. The goal of 100% natural ventilation and daylight in all teaching spaces resulted in exemplary energy performance by using only 16,405 BTU/sf.yr.
67% of the total building area is daylit and 79% of the total building area can be ventilated or cooled with operable windows.

Water Cycle: Low impact development (L.I.D.), or rain-garden, strategies were used to collect stormwater on-site rather than piping it away . The planted collection cells for on-site stormwater management maximize infiltration and ground water recharge, water quality filtration and evapo-transpiration while minimizing discharge rates.
Site specific, native, and drought tolerant plantings are used throughout and require no permanent irrigation.
Plumbing fixtures are low-flow, low-flush and waterfree, to conserve the use of treated potable water.

Energy: The school is projected to perform significantly better than the Washington State Energy Code requires. An energy analysis of building envelope and HVAC systems confirmed that the school design would perform 35% better than the state energy code by exceeding code requirements for insulation and lighting levels, deletion of mechanical comfort cooling, daylighting, year-round natural ventilation, lighting controls, and the use of high efficiency equipment.

Materials: Durable, non-toxic, low-impact materials have been used throughout the project including low VOC paint, rubber resilient flooring; wool tackable wall coverings; retro-plated concrete floors; ground-face concrete block; cement board siding; and recycled glass cullet. Where possible, the use of interior finish materials has been limited to the essential. Materials were chosen that could contribute to multiple factors like acoustic absorption, light reflectance, durability, and comfort.

Collective Wisdom and Feedback Loops: A proactive initiative by the School District that anticipated forthcoming legislation to mandate sustainable practices at the state's publicly funded schools, this high performance facility provides the district with an exemplary model for future development. The School District is committed to Post Occupancy Evaluations to understand the effects of high performance buildings on student test results, staff retention, absenteeism, energy savings and true total cost of ownership.