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OAKLAND UNIFIED  
SCHOOL DISTRICT

Community Schools, Thriving Students

## Memo

**To** Board of Education  
**From** Tony Smith, PH.D., Superintendent  
 Timothy White, Associate Superintendent, Facilities Planning and Management  
**Board Meeting Date** November 14, 2012  
**Subject** Interim Progress Report No. 9 - Oakland Unified School District - California High Performance School (CHPS) Program/Sustainability Initiatives and Energy and Water Plan Resolutions

**Action Requested** Approval by the Board of Education of the Ninth Interim Progress Report on Oakland Unified School District California High Performance School (CHPS) Program/Sustainability Initiatives and Energy and Water Plan Board Resolution.

**Background** Over the last three years, the Collaborative for High Performance Schools (CHPS) 2006 Criteria have been integrated into the design and construction of many Bond projects: Chabot Elementary, Cox Elementary, Jefferson Elementary, Oakland High School, Urban Promise Gym, Highland, Havenscourt, and the downtown Educational Complex (La Escuelita Phase 1), Montclair Elementary, and various Child Development Centers have utilized the CHPS 2009 Criteria as a basis. Most of these projects are currently in the Division of State Architect (DSA) review, bidding, or construction phase.

**Local Business Participation Percentage** 100.00%



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<b>Recommendation</b>	Approval of the Ninth Interim Progress Report on Oakland Unified School District California High Performance School (CHPS) Program/Sustainability Initiatives and Energy and Water Plan Board Resolution
<b>Attachments</b>	Interim Progress Report No. 9 - Oakland Unified School District - California High Performance School (CHPS) Program/Sustainability Initiatives and Energy and Water Plan Resolutions.

**Interim Progress Report #9 on OUSD CHPS Program / Sustainability Initiatives**

June 2012

**Executive Summary**

**CHPS District-wide Program**

- Our newest major project meeting Collaborative for High Performance Schools (CHPS) Criteria is the new addition for Rise Academy at Highland Elementary.
- The La Escuelita Educational Complex, Phase , is currently under construction, and on track for occupancy this Fall, 2012.
- Montclair Elementary, Havenscourt MS Cafeteria/Classroom building, and Washington Elementary are in various stages of early Construction phase progress.
- Master planning and programming work has recently begun on the new Fremont High School design, as our first 'Sustainable Campus Master Plan,' with zero net energy (ZNE) in mind, beginning with a new Gym/Classroom building.
- OUSD Facilities staff have been successful in garnering Unfunded Approvals for over \$2,369,750 in extra HPI Incentive Grant funding for our CHPS schools. A sale of Statewide Bond should allow funding for "Unfunded Approvals" to flow, in order of approval with estimate breakdowns in Table A. below
- We anticipate another \$250,000\* minimum Base Incentive Grant (BIG\*) for *each* eligible future project site, when submitted to OPSC. See Table B. below for details.

**Current anticipated High Performance School Incentive Grant funding is as follows:**

<b>Table A. Built</b>	<b>PROJECT</b>	<b>TYPE</b>	<b>PTS.</b>	<b>HPI \$</b>	<b>+BIG*\$250,000</b>
Projects with Apportionments:	Chabot ES (ORG	40.5		\$ 25,484	
Projects with Unfunded Approvals:	Oakland HS	(MOD)	43	\$455,762	
	Oakland HS	(ORG)	43	\$ 93,745	
	Highland ES	(MOD)	55	\$ 54,788	+\$250,000* = \$304,788
	Cox ES	(ORG)	42	\$234,859	
	Highland ES	(ORG)	55	\$466,989	
	La Escuelita PH1	(MOD)	54	\$331,632	
	La Escuelita	(ORG)	54	\$206,491	+\$250,000* = \$456,491
<b>CURRENT HPI SUBTOTAL FUNDED + UNFUNDED APPROVALS:</b>				<b>\$2,369,750</b>	

<b>Table B. Unbuilt</b>	<b>PROJECT</b>	<b>TYPE</b>	<b>PTS.</b>	<b>HPI \$</b>	<b>+BIG*\$250,000</b>
	La Escuelita Ph. 2	(ORG/MOD)	54/55	pending review	
	Montclair ES	ORG/MOD	48	+BIG pending review	
	Havenscourt	MOD	37	+BIG pending review	
	Washington ES	MOD	34	+BIG pending review	

**Future HPI Funding Estimated :** **>\$500,000 + \$750,000\* = + \$1.25 M.+/-**

**Featured Sustainability/HPI-CHPS Verified Projects: La Escuelita Educational Complex, Phase 1, and Rise Academy at Highland Elementary**

- Phase 1 of the La Escuelita Educational Complex, our downtown site, will be completed for Fall 2012 occupancy. It houses: the new La Escuelita Elementary School, the Great Room (shared multi-purpose/gymnasium,) District IT/technology center, KDOL community TV studio, a health clinic, and new playground areas. It will be the District's/State's first comprehensive Grid Neutral (zero net energy) school, with enough solar panels to produce as much electricity as the school uses, annually. It is amongst our highest scoring HPI-CHPS Verified schools, at 54/55 points. **Please see attached special handout, highlighting its high performance 'green' features.**
- The **La Escuelita Educational Complex** will be featured as one of three 'green educational buildings' serving Bay Area youth in one of the all-day green building tours, Saturday, Nov. 17, 2012, as part of the upcoming 'Greenbuild ' conference and Expo, held in San Francisco, Nov. 14-17.
- The Greenbuild Conference is the world's largest gathering (35,000 attendees, expected) of all stakeholders in the national/international green building industry, convened by the United States Green Building Council (USGBC), to share educational sessions over a broad spectrum of sustainable design topics, a 'green' products tradeshow, green building tours and other events. To learn more see [www.greenbuildingexpo.org](http://www.greenbuildingexpo.org)
- The new Rise Academy at **Highland Elementary** project includes replacement of old portables with a new two-story building that will house nine classrooms, a 3,000 square foot multipurpose room, flex/office spaces, student & staff restrooms, and an elevator. Site improvements will also be included in this scope, which will include new landscaping, irrigation, play structures, and site drainage improvements. It was planned as a 'CHPS Verified' project, targeting 55 points (one of the highest scoring HPI projects) over all six categories: sustainable site, water efficiency, energy efficiency, materials efficiency, indoor environmental quality, and CHPS Policies and Operations.

Notable sustainable design features at Highland Elementary include:

- natural daylighting of the classrooms,
- low energy strategies : cool roof, and energy efficient lighting with photosensor controls
- thermal displacement ventilation for quiet, thermal comfort & better indoor air quality
- introduction to the use of 'green screens," planted with vines on the exteriors for low maintenance, and to emphasize a planted soft surface, contributing to lower heat island effect and reduction of greenhouse gases.
- low VOC paints, sealants, and finish materials
- In addition to operational cost savings, the combination of natural daylighting in the classrooms and improved indoor environmental quality from low emitting materials, leads to higher academic performance, greater attendance by both students and staff due to healthier indoor air, and improved school culture.



Highland ES New Classroom/MP Building w/ 'Green Screens' and light monitors at rooftop



Typical 2nd story classroom @ Highland (Construction Photos)



Roof monitors, shades open



Roof monitors, shades closed



Interior corridor window shares daylight with classroom @ Highland Elementary

## **Highlights of District and Other Sustainability Initiatives:**

### **Waste Reduction and Nutrition Services**

- Under the supervision of Director of Custodial Services, Roland Broach, efforts have continued to improve our Waste Reduction Initiative, which includes 32 sites that have composting programs. In addition to supporting the Division's Green Gloves Waste Reduction Program at the site levels, and coordinating other resources, this Custodial Services program includes support for the OUSD Cafeteria Food Scrap Programs, currently focused at elementary schools, middle schools, and school cafeterias, the Prescott central kitchen, and other school cooking kitchens, coordinated with OUSD Nutrition Services. Targeted schools this year include Skyline High, Greenleaf, Laurel, Lazear, and many others.
- Our district wide waste reduction program aims to achieve 75% diversion from landfills by 2015 and a 90% reduction by 2020. The Green Gloves Waste Reduction Program creates a framework for comprehensive waste reduction efforts across OUSD schools. With partners Waste Management and StopWaste.org, OUSD hosted its third annual, successful Green Gloves Symposium, expanding to include the Nutrition Services Division staff in its environmental sustainability initiatives.
- Nutrition Services has also made many advancements in its sustainability initiatives such as the elimination of Styrofoam trays, piloting of re-useable and/or compostable dining utensils, Meatless Mondays, and fresh, healthy food programs. The Central Kitchen Feasibility study was also recently completed, under Jennifer Le Barre's Nutrition Services partnership with the Center for Ecoliteracy and other healthy food advocates.
- Improvements to recycling and compost programs that were implemented by custodians, kitchen staff, and students currently save the district approximately \$50,000 per month. The District is presently diverting more than 41% of its solid waste and projecting additional savings of \$20,000 per month once a 50 percent benchmark is reached.

### **ACOE LEEP Program Coordination**

- Work has begun by the Alameda County Office of Education's new Leadership in Energy Efficiency Program (ACOE LEEP) through their regional energy efficiency managers, Yvonne Tom and Puck Ananta. They have collected the OUSD 2011-2012 energy and water bills and are beginning to analyze utility fees, double check rate schedules, and other items to identify anomalies and potential cost savings in the tens of thousands of dollars from PG&E and EBMUD bills.
- The LEEP program has also completed two of the five energy audits at our largest high school sites, coordinated with high school Green Academy students and college student interns for hands-on learning experience at Castlemont, and Oakland High. Skyline, Oakland Tech, and Fremont High energy audits will be performed in the Fall, when students return. When the energy audit reports are finalized, implementable energy efficiency projects will be completed, measured, and verified for calculated energy cost savings. The ACOE LEEP Program has applied for extension through 2013 of its PG&E Innovator's Pilot Grant program beyond December 2012.

## **Other Grants and Funding**

### **A. Bay Area Climate Corps**

- The Facilities Division has applied for a 'Bay Area Climate Corps' intern/member to serve as an in-house Energy Specialist, working for ten months to reduce energy use and thus, greenhouse gas emissions.
- One main task might be to verify and actively utilize our Portfolio Manager energy benchmarking database to identify, analyze, and track our usage. It is hoped this Energy

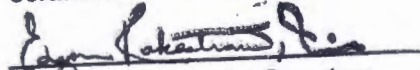
Specialist will be qualified to also assist the Facilities Division in managing and/or implementing small energy or water audit /conservation projects and address immediate energy inefficiencies, be it through systematically installing occupancy sensors, re-programming automated controls/time clocks, or developing behavior change programs at individual school sites.

- This is a matching grant program that would provide \$17,500 plus benefits for this temporary grant-funded position.

B. PG&E Zero Net Energy Innovator Pilot Project – Commercial category, for Fremont H.S.

- The Scope of Work has been developed for Phase 2 of the \$200,000-300,000 of Technical Assistance from PG&E's Zero Net Energy (ZNE) Technical Teams to work in collaboration with OUSD's design team for a Sustainable/ZNE Campus Master Plan and Design of a new ZNE Gym and Classroom Building with football field for Fremont HS.
- Phase 1 analysis of existing zero net energy potential was recently completed by the Technical Assistance Team of Loisos + Ubbelohde, demonstrating that zero net energy was possible, pending exact program.
- The design team has nearly completed programming and begun some initial energy use analysis with facilities evaluation and workshops.

Certified:

  
Edgar Rakestraw, Jr., Secretary  
Board of Education

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By: ER

# La Escuelita Education Center Project

JULY 2012

## Project Overview

The La Escuelita Education Center (LEEC), will contain the new state-of-the-art La Escuelita Elementary School, MetWest High School, combined Child Development Centers and a community health clinic. The LEEC is designed to be a CHPS (Collaborative for High Performance Schools) Certified project with the goal of being grid neutral. The design vision is for an integrated campus that fosters an enhanced teaching and learning environment for students and demonstrates the District's Full Service Community School Model on just 5.7 acres.

**Phase One**, La Escuelita Elementary School will be complete in August 2012 including , a Great Room will serve as a cafeteria, gymnasium and a multi-use space with a stage that will be shared by all schools. This phase also includes a Health Clinic, KDOL TV studio and the District IT Data Center.

**Phase Two**, schedule for August 2014 will include MetWest High School built for 180 high school students, and a Child Development Center accommodating 168 students. The final project also contains a kindergarten play area, shared playing field, community produce garden and on-grade parking.

## Project Location

The La Escuelita Educational Center (LEEC) is located in Oakland, CA directly across from the District's primary Administration building. The site is located on 5.70 acres and is 0.5 miles from the Lake Merritt Bart Station and is served by AC Transit on East 10th Street and East 12th Street.

## Location Map





# La Escuelita Education Center Project

## Sustainable Design Initiatives

Among the priorities for the new LEEC are to promote sustainability and minimal impact on the environment. The center itself will be used as a tool to educate its users about green construction/design and the self-sustainability. Design strategies will include:

- ☀ Site Orientation
- ☀ Reduction in Heat Islands
- ☀ Provided thermal displacement ventilation in classrooms and school areas.
- ☀ Demand control ventilation using CO2 sensors
- ☀ Oversized ceiling fans
- ☀ Roof mounted photovoltaic systems.
- ☀ Solar Panels for domestic hot water in kitchen and adult restrooms.
- ☀ Occupancy sensors in all occupied spaces.
- ☀ Cool towers
- ☀ Natural ventilation / Operable windows
- ☀ Natural daylighting—clerestory windows
- ☀ Thermal mass wall system
- ☀ Provided photosensor controls and automated electric lighting controls in response to daylight.
- ☀ Open corridors and hallways to minimize conditioned spaces.

## Construction Schedule

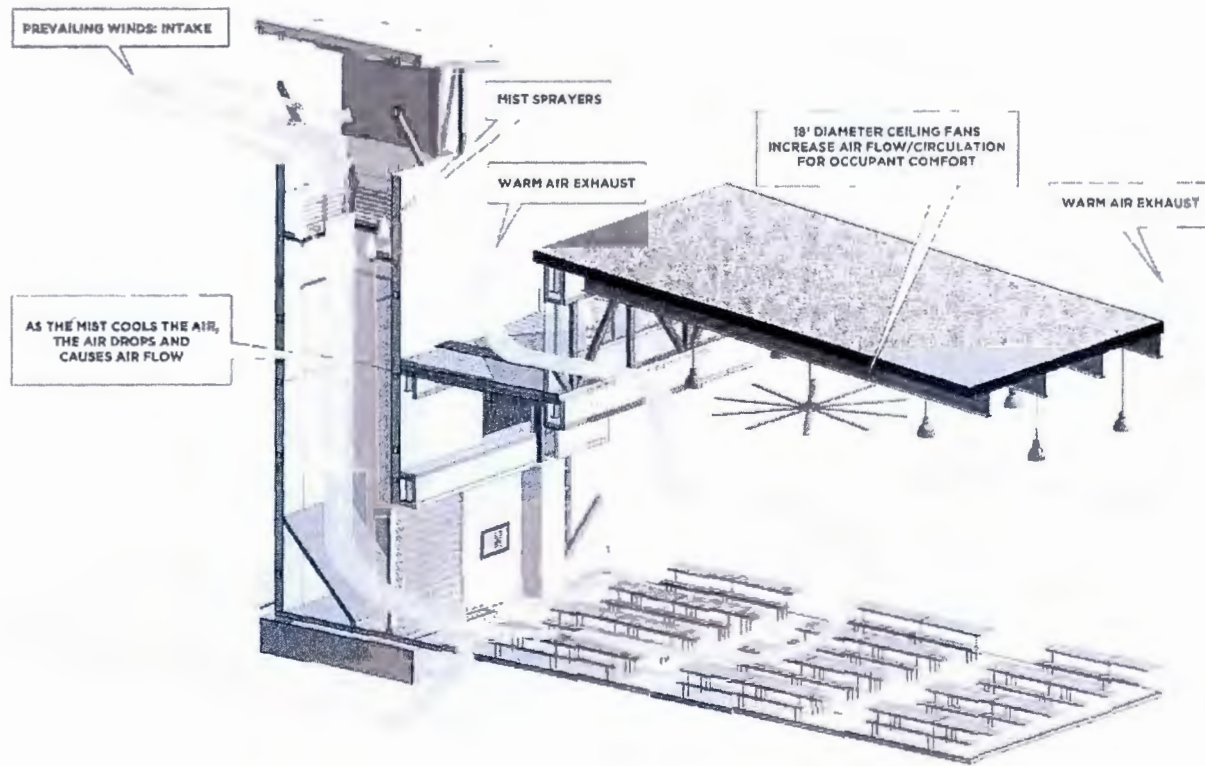
Phase 1  
2011 August

Phase 2  
Sept to August

## Funding

The project budget \$81.5 million and is funded through a combination of funding sources, Measure and the Public School funding.





## Evaporative Cooling System

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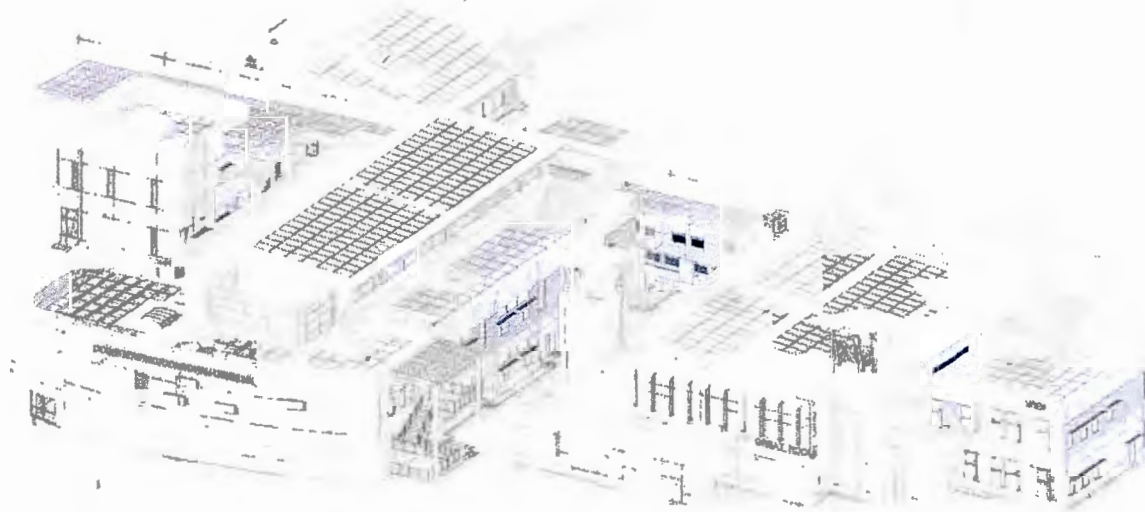
TOTAL ESTIMATED ANNUAL  
ELECTRICAL DEMAND: 500,000 kWh\*

TOTAL ESTIMATED ANNUAL  
ELECTRICAL PRODUCTION: 673,000 kWh\*\*

\* EXCLUDES DISTRICT IT AND KDOL FUNCTIONS  
\*\* IT IS ESTIMATED THAT THE SURPLUS CAN  
OFFSET THE DISTRICT FUNCTION DEMANDS

GRID NEUTRAL: PRODUCING AT LEAST  
AS MUCH ENERGY AS IS USED,  
ANNUALLY, BY A FACILITY

575 KW OF ROOFTOP AND PARKING  
CANOPY MOUNTED PV PANELS PROVIDE  
AN ESTIMATED 673,000 kWh OF ENERGY PER YEAR



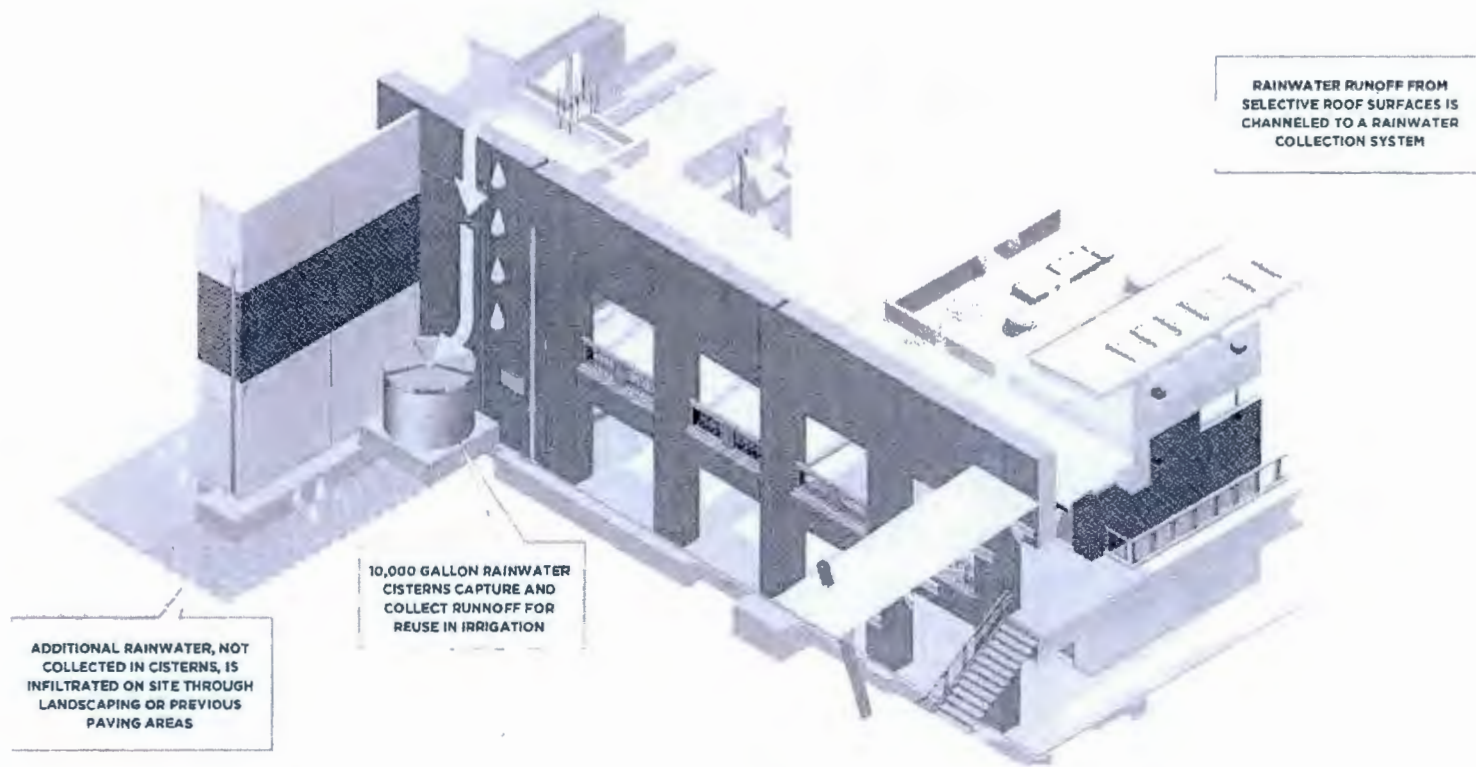
LA ESCUELITA ELEMENTARY SCHOOL

THE GREAT ROOM

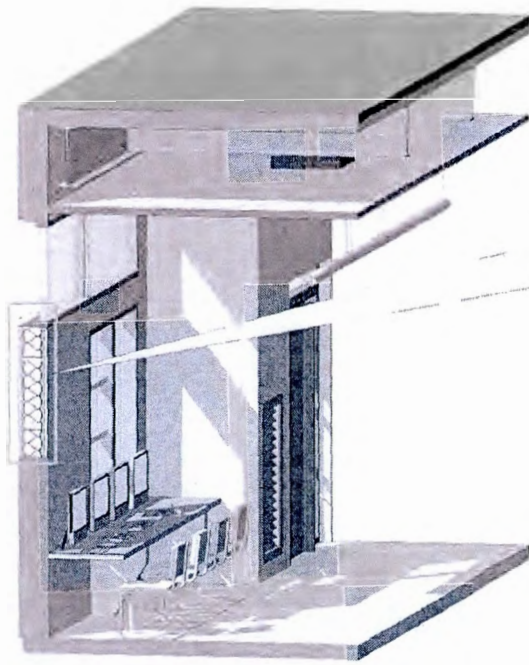
METWEST



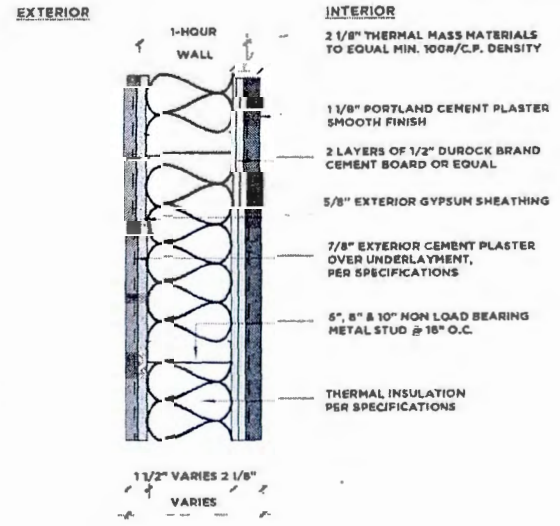
# Photovoltaic Energy



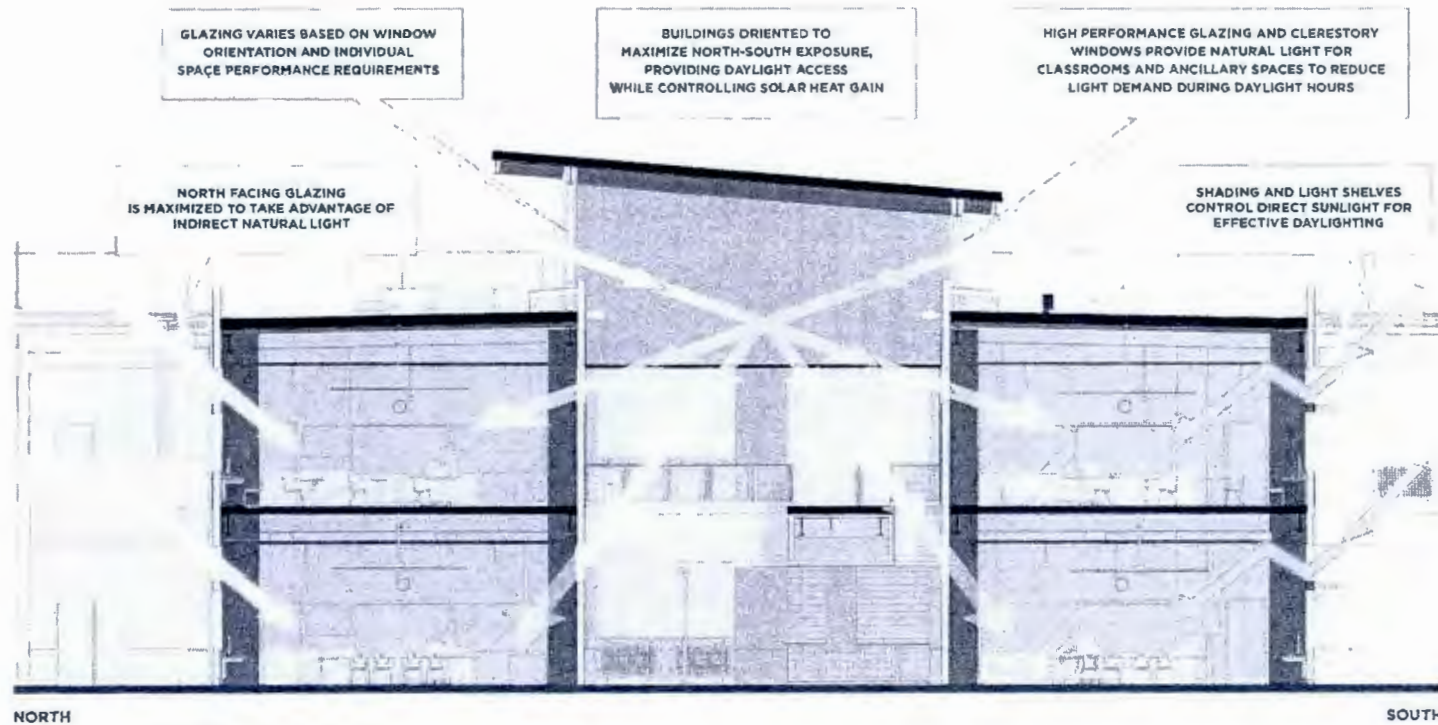
# Rainwater Aqueduct System



MASS WALL SYSTEMS HELP INSULATE INTERIORS AND ARE USED TO PASSIVELY COOL SPACES USING NIGHT TIME FLUSHING TECHNIQUES



# Thermal Mass Construction



## Daylighting Orientation

**HEATING MODE**

**HEATED SUPPLY AIR ENTERS THE ROOM AT LOW VELOCITY AND RISES TOWARD THE CEILING**



**CEILING FAN PUSHES WARM AIR DOWN TO OCCUPIED ZONES**

**ROOM AIR IS RECIRCULATED WITH WARMER SUPPLY AIR TO MAINTAIN COMFORT**

**COOLING MODE**

**COOL AIR ENTERS THE ROOM AT LOW VELOCITY AND CASCADES ALONG FLOOR**



**CEILING FAN SPEEDS UP AS ROOM TEMPERATURE RISES TO DRAW COOL AIR ACROSS AND UP FOR COMFORT**

**ROOM AIR IS RECIRCULATED WITH COOLER OUTSIDE AIR TO MAINTAIN COMFORT**



# Displacement Ventilation