



Opinion of Cost for:

Los Angeles Trade Technical College

Los Angeles Community College District
Los Angeles, Ca

7x7x7 Design / Energy / Water

8-Sep-16

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PRICES FACTORED TO:

- 1** Geographic location specific to school
- 2** Conceptual pricing at a unit price level / sf level
- 3** Escalations should consider 5% / yr
- 4** Feasibility / Practicality not considered
- 5** Some concepts are too vague to price
- 6** Life cycle costs not considered
- 7** Pricing includes individual component and the overall project cost
- 8** Soft Costs are calculated at 30% - typical each school
- 9** Costs for Similar modern-day elements are used where historical costs not found

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Cat.	Description	Qty	Units	Unit Cost	Subtotal	Cat. Subtotal	
Energy	<u>Window addition/replacement with high efficiency dual-pane windows/glazing</u>						
	Assume 4'x x16' windows at classrooms = 64 sf x 16 units x 4 flrs = 4,096 sf existing						
	Assume: same for replacement as additional windows						
	Assume: replacement with aluminum windows						
	Assume: no asbestos or haz materials						
	Assume: no provisions made for logistics & scheduling issues						
	Demo existing windows (selective demo)		4096	sf	20.00	81,920.00	
	Replace (E) windows with new aluminum windows		4096	sf	90.00	368,640.00	
	New aluminum windows to increase natural light		5000	sf	90.00	450,000.00	
	Cut/Demo metal stud framing for new windows		42	ea	5,000.00	210,000.00	
	Frame new window openings		42	ea	5,000.00	210,000.00	
	Patch plaster, drywall, paint		42	ea	10,000.00	420,000.00	
	Lifts/chutes/rolling scaffold/		1	ls	75,000.00	75,000.00	
	Incidentals, caulking, etc		1	ls	50,000.00	50,000.00	
Total					1,865,560.00		
Soft Costs @ 30%				30%	559,668.00		
Grand Total						2,425,228.00	
Energy	<u>Change (E) chiller system to VRF System for 100% water savings on HVAC</u>						
	Demo existing system		1	ls	200,000.00	200,000.00	
	New VRF system with cassettes and external condensing units		92000	sf	45.00	4,140,000.00	
	Paint/Patch/Trim Finishes		92000	sf	5.00	460,000.00	
	Yard for condensing units		1	ls	75,000.00	75,000.00	
	Total					4,875,000.00	
	Soft Costs				30%	1,462,500.00	
Grand Total						6,337,500.00	
Note: Replacing chillers with either high efficiency units or closed system has negligible energy savings and is not priced.							

Cat.	Description	Qty	Units	Unit Cost	Subtotal	Cat. Subtotal
Energy	<u>Photo Voltaic Panels on Roof Optimized Configuration with 3,000 panels</u>					
	Assume: 3000 panels x 300 watts each = 900,000 watts total system					
	Assume: 1,000 panels 300,000 watts on bldg roof - retrofit	300000	watts	7.00	2,100,000.00	
	Assume 20 sf /panel of roof x 1000 = 20,000 sf roof req'd					
	Assume 2,000 panels - 600,000 watts on car port roofs	600000	watts	6.50	3,900,000.00	
	Assume 40,000 sf car ports for supporting panels	40000	sf	45.00	1,800,000.00	
	Total				7,800,000.00	
	Soft Costs			30%	2,340,000.00	
	Grand Total					10,140,000.00
Water	<u>Rain Water Storage System</u>					
	Assume: Rainwater is collected from roof through storm piping to collection pipes located below landscape					
	Assume: Rainwater collection chambers similar to ADS storm pipe, buried chambers					
	Assume: 14.9" Rainfall annually in Los Angeles					
	Assume: 3.8" max rainfall / month with system designed for (1) month storage					
	Assume 36" buried storage piping @ 7 cf/lf storage when full					
	23,000 sf roof x .31' (3.8") = 7,130 cf rain/mo/max					
	7,130 cf ÷ 7 cf/lf = 1,018 lf pipe					
	3' diam ADS Pipe	1018	lf	135.00	137,430.00	
	Incidental pipe, connections, fittings, etc	1	ls	30,000.00	30,000.00	
	Pump & Electrical	1	ls	45,000.00	45,000.00	
	Rock / Export / Grade	1	ls	30,000.00	30,000.00	
	Total				242,430.00	
	Soft Costs			30%	72,729.00	
	Grand Total					315,159.00
Water	<u>Landscaping conversion to Drought Tolerant (D.T.)</u>					
	Assume: 12,000 sf area adjacent to building					
	Assume: Irrigation meter, time clocks / controller valves are existing					
	Assume: Existing laterals, spray heads are modified for drought tolerant drip system					
	Demo 12,000 sf turf/existing shrubs	12000	sf	1.00	12,000.00	
	Replace turf with DG, rock, D.T. shrubs	12000	sf	9.00	108,000.00	
	New D.T. Trees	10	ea	500.00	5,000.00	
	Replace All Shrub / Tree Spray Irrigation with Drip	12000	sf	3.00	36,000.00	
	Misc piping, incidentals,	1	ls	15,000.00	15,000.00	
	Total				176,000.00	
	Soft Costs			30%	52,800.00	
	Grand Total					228,800.00