

CAMBRIDGE, MASSACHUSETTS: CITY HALL ANNEX, 344 BROADWAY

“THE OLDEST GREEN BUILDING WORLDWIDE”



**LEED GOLD
MUNICIPAL BUILDING
CONSTRUCTED 1871
REGISTERED HISTORIC DISTRICT
RENOVATED 2004
COST: \$11.76 MILLION
ARCHITECT: HKT ARCHITECTS INC.
FOUR FLOORS: 33,216 SQUARE FEET**



Photos by Blind Dog Photo



THE ORIGINAL HARVARD GRAMMAR SCHOOL HELD 900 STUDENTS. IT WAS TOPPED BY A MANSARD ROOF UNTIL AN 1899 FIRE DESTROYED IT. IN HIS RESTORATION, ARCHITECT GEORGE FOGERTY ADDED SKYLIGHTS OVER THE STAIRWAYS, A NEW TOP FLOOR, AND BRICK PARAPETS IN PLACE OF THE MANSARD ROOF. THE 2004 RENOVATION RESTORED THE EXTERIOR OF THE BUILDING TO FOGERTY'S 1899 DESIGN. USING FOGERTY'S ORIGINAL ARCHITECTURAL RENDERING, THE PARAPETS, WHICH HAD BEEN REMOVED IN THE 1950s, WERE COMPLETELY RECONSTRUCTED.

RENOVATION WAS NECESSARY DUE TO A GAS LEAK THAT CAUSED MOLD SPORES TO SPREAD THROUGHOUT THE BUILDING IN 2000. THE CAMBRIDGE CITY COUNCIL WANTED ALL NEW CAPITAL PROJECTS TO BE “GREEN” SO THE BUILDING WAS RENOVATED TO LEED GOLD STANDARDS WITH THE HELP OF A \$337,500 GRANT FROM THE MASSACHUSETTS RENEWABLE ENERGY TRUST. ACCORDING TO PRINCIPAL ARCHITECT, WILLIAM HAMMER, THE EXTERIOR IS NEARLY IDENTICAL TO THE 1899 DESIGN, BUT ALMOST NONE OF THE FABRIC FROM THE INTERIOR WAS SAVED.

THE CAMBRIDGE CITY HALL ANNEX ACHIEVED A LEED GOLD RATING IN 2005, EARNING 39 OF A POSSIBLE 69 POINTS. THE BUILDING'S MANY GREEN UPGRADES INCLUDE:

- WATER EFFICIENT LANDSCAPING: REDUCES WATER USAGE BY 50%
- ENERGY STAR ROOF REDUCES HEAT ABSORPTION
- BIKE STORAGE, SHOWERS, SUBSIDIZED MASS TRANSIT PASSES
- CONSTRUCTION CREW RECYCLED 80% OF CONSTRUCTION WASTE
- STEEL FRAMING, CARPET AND CEILING MATERIALS INCLUDE RECYCLED CONTENT
- MORE THAN 50% SUSTAINABLY HARVESTED WOOD
- CARBON DIOXIDE SENSORS TO ENSURE FRESH AIR
- PAINTS, ADHESIVES AND CARPETS WERE LOW IN VOCs
- ROOF-MOUNTED SOLAR PANELS PRODUCE 10% OF THE BUILDING'S ELECTRICITY
- GROUND SOURCE HEAT PUMP SYSTEM (NO BOILER OR FURNACE)
- MAXIMIZED DAYLIGHTING
- DOUBLE GLAZED PANES IN OPERABLE WINDOWS
- DAYLIGHT AND OCCUPANCY SENSORS MINIMIZE ELECTRICAL DEMAND

Cambridge City Hall Annex										LEED™ Scorecard										
39		29		Total Project Score						Possible Points 69										
Certified 26 to 32 points Silver 33 to 38 points Gold 39 to 51 points Platinum 52 or more points																				
6		8		Sustainable Sites				Possible Points 14		7		6		Materials & Resources				Possible Points 13		
Y	?	N								Y	?	N								
Y				Prereq 1	Erosion & Sedimentation Control					Y			Prereq 1	Storage & Collection of Recyclables						
1				Credit 1	Site Selection				1	1			Credit 1.1	Building Reuse, Maintain 75% of Existing Shell				1		
1				Credit 2	Urban Redevelopment				1			1	Credit 1.2	Building Reuse, Maintain 100% of Existing Shell				1		
			1	Credit 3	Brownfield Redevelopment				1			1	Credit 1.3	Building Reuse, Maintain 100% Shell & 50% Non-Shell				1		
1				Credit 4.1	Alternative Transportation, Public Transportation Access				1	1			Credit 2.1	Construction Waste Management, Divert 50%				1		
1				Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms				1	1			Credit 2.2	Construction Waste Management, Divert 75%				1		
			1	Credit 4.3	Alternative Transportation, Alternative Fuel Refueling Stations				1			1	Credit 3.1	Resource Reuse, Specify 5%				1		
1				Credit 4.4	Alternative Transportation, Parking Capacity				1			1	Credit 3.2	Resource Reuse, Specify 10%				1		
			1	Credit 5.1	Reduced Site Disturbance, Protect or Restore Open Space				1	1			Credit 4.1	Recycled Content, Specify 25%				1		
			1	Credit 5.2	Reduced Site Disturbance, Development Footprint				1			1	Credit 4.2	Recycled Content, Specify 50%				1		
			1	Credit 6.1	Stormwater Management, Rate and Quantity				1	1			Credit 5.1	Local/Regional Materials, 20% Manufactured Locally				1		
			1	Credit 6.2	Stormwater Management, Treatment				1	1			Credit 5.2	Local/Regional Materials, of 20% Above, 50% Harvested Locally				1		
			1	Credit 7.1	Landscape & Exterior Design to Reduce Heat Islands Non-Roof				1			1	Credit 6	Rapidly Renewable Materials				1		
1				Credit 7.2	Landscape & Exterior Design to Reduce Heat Islands Roof				1	1			Credit 7	Certified Wood				1		
			1	Credit 8	Light Pollution Reduction				1											
1		4		Water Efficiency				Possible Points 5		8		7		Indoor Environmental Quality				Possible Points 15		
Y	?	N								Y	?	N								
1				Credit 1.1	Water Efficient Landscaping, Reduce by 50%				1	Y			Prereq 1	Minimum IAQ Performance						
			1	Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation				1	Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control						
			1	Credit 2	Innovative Wastewater Technologies				1			1	Credit 1	Carbon Dioxide (CO ₂) Monitoring				1		
			1	Credit 3.1	Water Use Reduction, 20% Reduction				1	1			Credit 2	Increase Ventilation Effectiveness				1		
			1	Credit 3.2	Water Use Reduction, 30% Reduction				1	1			Credit 3.1	Construction IAQ Management Plan, During Construction				1		
										1			Credit 3.2	Construction IAQ Management Plan, Before Occupancy				1		
										1			Credit 4.1	Low-Emitting Materials, Adhesives & Sealants				1		
										1			Credit 4.2	Low-Emitting Materials, Paints				1		
										1			Credit 4.3	Low-Emitting Materials, Carpet				1		
										1			Credit 4.4	Low-Emitting Materials, Composite Wood				1		
										1			Credit 5	Indoor Chemical & Pollutant Source Control				1		
										1			Credit 6.1	Controllability of Systems, Perimeter				1		
										1			Credit 6.2	Controllability of Systems, Non-Perimeter				1		
										1			Credit 7.1	Thermal Comfort, Comply with ASHRAE 55-1992				1		
										1			Credit 7.2	Thermal Comfort, Permanent Monitoring System				1		
										1			Credit 8.1	Daylight & Views, Daylight 75% of Spaces				1		
										1			Credit 8.2	Daylight & Views, Views for 50% of Spaces				1		
13		4		Energy & Atmosphere				Possible Points 17		4				Innovation & Design Process				Possible Points 5		
Y	?	N								Y	?	N								
Y				Prereq 1	Fundamental Building Systems Commissioning					1				Credit 1.1	Innovation in Design, Educational Component				1	
Y				Prereq 2	Minimum Energy Performance					1				Credit 1.2	Innovation in Design, Construction Waste Management Program				1	
				Prereq 3	CFC Reduction in HVAC&R Equipment					1				Credit 1.3	Innovation in Design, Zip Car				1	
2				Credit 1.1	Optimize Energy Performance, 20% New / 10% Existing				2	1				Credit 1.4	Innovation in Design				1	
2				Credit 1.2	Optimize Energy Performance, 30% New / 20% Existing				2				1		Credit 2	LEED™ Accredited Professional				1
2				Credit 1.3	Optimize Energy Performance, 40% New / 30% Existing				2											
2				Credit 1.4	Optimize Energy Performance, 50% New / 40% Existing				2											
2				Credit 1.5	Optimize Energy Performance, 60% New / 50% Existing				2											
1				Credit 2.1	Renewable Energy, 5%				1											
1				Credit 2.2	Renewable Energy, 10%				1											
			1	Credit 2.3	Renewable Energy, 20%				1											
			1	Credit 3	Additional Commissioning				1											
			1	Credit 4	Ozone Depletion				1											
			1	Credit 5	Measurement & Verification				1											
1				Credit 6	Green Power				1											

Scorecard

LEED™ Calculator 2.0

PRESERVATION AND SUSTAINABILITY GOALS CLASHED TWICE: DESIGNERS WANTED TO TILT THE SOLAR PANELS TO 40% TO CAPTURE MORE SUNLIGHT, WHICH WOULD HAVE MADE THEM VISIBLE FROM THE STREET. THE PANELS WERE INSTALLED FLAT. ALSO, HISTORIC WINDOWS HAD TO BE REPLACED WITH ALUMINUM CLAD DOUBLE GLAZED WINDOWS.

THE PROJECT WAS FEATURED IN *PRESERVATION*, JAN/FEB 2008.