

sustainable strategies

Flad Architects



The Koury Oral Health Sciences Building was conceived, designed, and built with minimal environmental impact in mind.

The U.S. Green Building Council's LEED certification system provides third-party verification that a building was designed and built using strategies aimed at improving performance in areas that matter most to human and environmental health. This internationally recognized system tracks energy savings, water efficiency, CO2 emissions reduction, indoor air quality, and the environmental impacts of materials and resources.

The building has earned LEED Gold certification.

This booklet highlights sustainable strategies employed at the Koury Oral Health Sciences Building:

Site Planning

Green Roof System

Capturing Daylight

Condensate Water Collection

Regional Sourcing and use of Recycled Material

Our LEED Scorecard -

a breakdown of the LEED credit system, and a listing of the LEED points this building earned Is supplied on the last few pages.



The Koury Oral Health Sciences Building was designed according to sustainable practices from the start. This is no more apparent than in the site plan.

Sustainability starts with design





The building is sited adjacent to campus and city bus lines and provides showers and lockers for occupants who bike or run to work. No new parking was introduced as part of the project. All of this planning allowed the design to make the most of the green space around the building. The site is landscaped with native plantings, reducing irrigation needs and restoring habitat.



green roof

There is much more to a green roof than just grass.



- Provides native habitat for birds, plants and insects
- Provides added insulation for less heat gain and loss
- Provides ground-like heat absorption to reduce the heat island effect
- Provides water retention to reduce stormwater runoff



Newly planted seedlings on the atrium roof. These small plants will spread as they grow, blanketing the entire roof in vegetation.

Canturir

Savings from daylight

The skylights offer much more than just a dramatic interior space. They allow ample daylight to offset occupant use of artificial light. They also provide key views outside that contribute to the well-being of daily occupants. On top of this, the building accrues 34% annual energy savings through:

- Advanced light controls that monitor daylight and occupancy to reduce artificial light when it is not needed
- Automatic dimmers and timers to turn lights off during off-peak hours
- Energy efficient LED and compact fluorescent light bulbs
- Energy efficient mechanical systems





Samples of the insulated. high performance glazing and attachments. The ceramic frit pattern on vertical and west facing glass helps reduce radiant heat gain.





GLAZING

reduces heat gain to lower mechanical systems load

HEIGHT OF GLAZING

2

5

increases daylight penetration to reduce lighting load



OPEN EXTERIOR VIEWS improves quality of life for building occupants

INTERIOR BALCONIES

places walking paths directly in day lit areas as well as increase reflected light

VIEWS IN

windows at the ground levels allow for viewing into activities taking place in the building



condensate

The mechanical engineers on the project team designed a system that captures the clean condensate water resulting from the air conditioning process. As the air conditioning units draw water out of the humid air, condensate is captured and fed into a below-ground cistern. As that cistern fills up, the water can be used to irrigate the grass and plants on the site and other parts of the campus. This water reclamation strategy allows for open green space with minimal water impact. To save even more water, the design team implemented these strategies and components:

- 40% potable water reduction
- All low-flow bathroom fixtures
- Recaptured roof stormwater
- 50% of site planted with native vegetation
- On-site cistern for irrigation



Construction photo of the concrete cistern in the ground. The soil was later backfilled around the cistern, concealing it entirely underground.

500-mile radius



The project team made an

effort to source many of the

major building components

from within a 500 mile radius.



Keeping it regional

The use of local materials cuts down on shipping and fuel costs, while benefiting manufacturers in this area of the country.

CEILING TILE

CARPET

PRECAST

CONCRETE

STRUCTURAL

STEEL

In addition 31% of total materials are recycled. While the amount of recycled content in each product varies, the majority are over 50% recycled, with many products containing over 90% recycled materials.

The interior materials must meet high standards to ensure that they do not release harmful gases or vapors after they are installed. This means that only low VOC paints, glues and sealants, low VOC carpets, and wood products with no urea formaldehyde content were used.



LEED-NC Version 2.2 Registered Project Checklist UNC Dental Sciences Building, Chapel Hill, NC

Our Green Scorecard



This card shows all the points that the U.S. Green Building Council's LEED system can award, highlighting the points that the project will earn.

Yes	?	No			
8			Sustai	nable Sites	14 Points
Υ			Prereq 1	Construction Activity Pollution Prevention	Required
1			Credit 1	Site Selection	1
1			Credit 2	Development Density & Community Connectivity	1
			Credit 3	Brownfield Redevelopment	1
1			Credit 4.1	Alternative Transportation, Public Transportation Access	1
1			Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms	1
			Credit 4.3	Alternative Transportation, Low-Emitting and Fuel-Efficient Vehicles	1
1			Credit 4.4	Alternative Transportation, Parking Capacity	1
1			Credit 5.1	Site Development, Protect of Restore Habitat	1
1			Credit 5.2	Site Development, Maximize Open Space	1
1			Credit 6.1	Stormwater Design, Quantity Control	1
			Credit 6.2	Stormwater Design, Quality Control	1
			Credit 7.1	Heat Island Effect, Non-Roof	1
			Credit 7.2	Heat Island Effect, Roof	1
			Credit 8	Light Pollution Reduction	1
Yes	?	No	•		
4			Water	Efficiency	5 Points
1			Credit 1.1	Water Efficient Landscaping, Reduce by 50%	1
1			Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation	1
			Credit 2	Innovative Wastewater Technologies	1
1			Credit 3.1	Water Use Reduction, 20% Reduction	1
1			Credit 3.2	Water Use Reduction, 30% Reduction	1
Yes	?	No			
9			Energy	y & Atmosphere	17 Points
Υ			Prereq 1	Fundamental Commissioning of the Building Energy Systems	Required
Y			Prereq 2	Minimum Energy Performance	Required
Υ			Prereq 3	Fundamental Refrigerant Management	Required
8			Credit 1	Optimize Energy Performance	1 to 10
			Credit 2	On-Site Renewable Energy	1 to 3
1			Credit 3	Enhanced Commissioning	1
			Credit 4	Enhanced Refrigerant Management	1
			Credit 5	Measurement & Verification	1
		ł	Credit 6	Green Power	1



Yes	?	No			
5			Materia	Materials & Resources	
Y			Prereq 1	Storage & Collection of Recyclables	Required
			Credit 1.1	Building Reuse, Maintain 75% of Existing Walls, Floors & Roof	1
			Credit 1.2	Building Reuse, Maintain 100% of Existing Walls, Floors & Roof	1
			Credit 1.3	Building Reuse, Maintain 50% of Interior Non-Structural Elements	1
1			Credit 2.1	Construction Waste Management, Divert 50% from Disposal	1
1			Credit 2.2	Construction Waste Management, Divert 75% from Disposal	1
			Credit 3.1	Materials Reuse, 5%	1
			Credit 3.2	Materials Reuse, 10%	1
1			Credit 4.1	Recycled Content, 10% (post-consumer + 1/2 pre-consumer)	1
1			Credit 4.2	Recycled Content, 20% (post-consumer + 1/2 pre-consumer)	1
1			Credit 5.1	Regional Materials, 10% Extracted, Processed & Manufactured Regionally	1
			Credit 5.2	Regional Materials, 20% Extracted, Processed & Manufactured Regionally	1
			Credit 6	Rapidly Renewable Materials	1
			Credit 7	Certified Wood	1
Yes	?	No			
10			Indoor	Environmental Quality	15 Points

Indoor Environmental Quality

Y Y

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		Prereq 1	Minimum IAQ Performance	Required
		Prereq 2	Environmental Tobacco Smoke (ETS) Control	Required
		Credit 1	Outdoor Air Delivery Monitoring	1
		Credit 2	Increased Ventilation	1
		Credit 3.1	Construction IAQ Management Plan, During Construction	1
		Credit 3.2	Construction IAQ Management Plan, Before Occupancy	1
		Credit 4.1	Low-Emitting Materials, Adhesives & Sealants	1
		Credit 4.2	Low-Emitting Materials, Paints & Coatings	1
		Credit 4.3	Low-Emitting Materials, Carpet Systems	1
		Credit 4.4	Low-Emitting Materials, Composite Wood & Agrifiber Products	1
		Credit 5	Indoor Chemical & Pollutant Source Control	1
		Credit 6.1	Controllability of Systems, Lighting	1
		Credit 6.2	Controllability of Systems, Thermal Comfort	1
		Credit 7.1	Thermal Comfort, Design	1
		Credit 7.2	Thermal Comfort, Verification	1
		Credit 8.1	Daylight & Views, Daylight 75% of Spaces	1
		Credit 8.2	Daylight & Views, Views for 90% of Spaces	1
?	No			
		Innovat	ion & Design Process	5 Points

Innovation in Design: Fume Hood Testing Credit 1.1 Innovation in Design: Water Efficiency - Exemplary Performance Credit 1.2 Innovation in Design: Building Energy Education Area Credit 1.3 Innovation in Design: Recycled Content - Exemplary Performance Credit 1.4 1 Credit 2 LEED[®] Accredited Professional Yes ? No 41 Project Totals 69 Points

Certified 26-32 points Silver 33-38 points Gold 39-51 points Platinum 52-69 points

The building has earned LEED Gold certification.

41 points



1

1

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Flad Architects

Flad Architects has earned a reputation for outstanding client service, fiscal responsibility, and design excellence over its 85-year history. Specializing in the planning and design of innovative science facilities for academic, healthcare, government, and corporate science and technology clients, Flad is nationally known and honored for its planning and design expertise. In addition to traditional architectural services, Flad provides strategic facility planning and programming, laboratory planning, interior design, landscape architecture, and structural engineering.

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