

Duke Sustainability

Kilgo Residence Hall (Phase II)



Building Information

Tenant: Housing, Dining & Residence Life

Architect: [RGG](#)

Construction: LeChase

Purpose: Residential

PM: Dudley Willis

Footprint: 98,115 sq ft

Kilgo Quad was the first LEED™ certified residential renovation at an American university. Kilgo, along with the adjacent residence halls are known on campus as "The Gothics" for their architectural style, and collectively house 68% of Duke's undergraduate students. Renovations on Houses I & J (Phase II) were carried out over the summer of 2002 while Houses N, O & P (Phase III) were renovated over the summer of 2003.

[View the Kilgo Residence Hall \(Phase II\) LEED™ Scorecard](#)

Sustainable Site Features

Kilgo has the capacity to house 390 full-time occupants who, unlike in academic buildings, require energy and resources 24 hours a day. Thus, efficiency improvements in Kilgo and the other "Gothics" have a significant effect on Duke's carbon footprint. The 1920's gothic construction and mature landscaping constrained sustainable site features in some aspects of design.

Water Efficiency

Low-flow faucets and showerheads were installed in all bathrooms. Kilgo observed an initial 35% reduction in water consumption.

Energy Efficiency

A Siemens Direct Digital Control (DDC) System allows the Facilities Energy Manager to control the allowable range of individual room thermostats (currently 66° – 78°F). HVAC systems and duct work were upgraded with heat recovery ventilation to eliminate the need for opening weatherproofed windows.

Indoor Air Quality

Use of low-VOC paints and carpeting improves indoor air quality. As part of the renovation, student common areas and alcove areas were added, increasing to 90% the portion of indoor space that receives direct sunlight. In addition to reducing the energy expended on artificial indoor lighting, natural daylighting is shown to increase the comfort of buildings, particularly residential spaces.

Resource Management

94% of all the new wood in the building is Forest Stewardship Council certified. More than 50% of construction debris was recycled.



Kilgo Quad Renovations Phase 2
LEED® Project # 2054
LEED Version 2 Certification Level: CERTIFIED
June 21, 2004

30 Points Achieved

Certified 26 to 32 points Silver 33 to 38 points Gold 39 to 51 points Platinum 52 or more points

Possible Points: 69

4 Sustainable Sites		Possible Points: 14	9 Materials & Resources		Possible Points: 13
Y	Prereq 1		Y	Prereq 1	
1	Credit 1	Erosion & Sedimentation Control	1	Credit 1.1	Storage & Collection of Recyclables
	Credit 2	Site Selection	1	Credit 1.2	Building Reuse, Maintain 75% of Existing Shell
	Credit 3	Urban Redevelopment	1	Credit 1.3	Building Reuse, Maintain 100% of Existing Shell
1	Credit 4.1	Brownfield Redevelopment	1	Credit 2.1	Building Reuse, Maintain 100% Shell & 50% Non-Shell
1	Credit 4.2	Alternative Transportation, Public Transportation Access	1	Credit 2.2	Construction Waste Management, Divert 50%
	Credit 4.3	Alternative Transportation, Bicycle Storage & Changing Rooms	1	Credit 3.1	Construction Waste Management, Divert 75%
	Credit 4.4	Alternative Transportation, Alternative Fuel Refueling Stations	1	Credit 3.2	Resource Reuse, Specify 5%
	Credit 4.4	Alternative Transportation, Parking Capacity	1	Credit 3.2	Resource Reuse, Specify 10%
1	Credit 5.1	Reduced Site Disturbance, Protect or Restore Open Space	1	Credit 4.1	Recycled Content
	Credit 5.2	Reduced Site Disturbance, Development Footprint	1	Credit 4.2	Recycled Content
	Credit 6.1	Stormwater Management, Rate and Quantity	1	Credit 5.1	Local/Regional Materials, 20% Manufactured Locally
	Credit 6.2	Stormwater Management, Treatment	1	Credit 5.2	Local/Regional Materials, of 20% Above, 50% Harvested Locally
	Credit 7.1	Landscape & Exterior Design to Reduce Heat Islands, Non-Roof	1	Credit 6	Rapidly Renewable Materials
	Credit 7.2	Landscape & Exterior Design to Reduce Heat Islands, Roof	1	Credit 7	Certified Wood
	Credit 8	Light Pollution Reduction	1		

3 Water Efficiency		Possible Points: 5
Y	Prereq 1	
1	Credit 1.1	Water Efficient Landscaping, Reduce by 50%
	Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation
	Credit 2	Innovative Wastewater Technologies
1	Credit 3.1	Water Use Reduction, 20% Reduction
1	Credit 3.2	Water Use Reduction, 30% Reduction

7 Energy & Atmosphere		Possible Points: 17
Y	Prereq 1	
Y	Prereq 2	Fundamental Building Systems Commissioning
Y	Prereq 3	Minimum Energy Performance
2	Credit 1.1	CFC Reduction in HVAC&R Equipment
2	Credit 1.2	Optimize Energy Performance, 20% New / 10% Existing
2	Credit 1.3	Optimize Energy Performance, 30% New / 20% Existing
	Credit 1.4	Optimize Energy Performance, 40% New / 30% Existing
	Credit 1.5	Optimize Energy Performance, 50% New / 40% Existing
	Credit 2.1	Optimize Energy Performance, 60% New / 50% Existing
	Credit 2.2	Renewable Energy, 5%
	Credit 2.3	Renewable Energy, 10%
	Credit 3	Renewable Energy, 20%
	Credit 4	Additional Commissioning
1	Credit 5	Ozone Depletion
	Credit 6	Measurement & Verification
		Green Power

6 Indoor Environmental Quality		Possible Points: 15
Y	Prereq 1	
Y	Prereq 2	Minimum IAQ Performance
	Credit 1	Environmental Tobacco Smoke (ETS) Control
	Credit 2	Carbon Dioxide (CO ₂) Monitoring
	Credit 3.1	Increase Ventilation Effectiveness
	Credit 3.2	Construction IAQ Management Plan, During Construction
	Credit 4.1	Construction IAQ Management Plan, Before Occupancy
	Credit 4.2	Low-Emitting Materials, Adhesives & Sealants
1	Credit 4.3	Low-Emitting Materials, Paints
1	Credit 4.4	Low-Emitting Materials, Carpet
1	Credit 5	Low-Emitting Materials, Composite Wood
1	Credit 6.1	Indoor Chemical & Pollutant Source Control
1	Credit 6.2	Controllability of Systems, Perimeter
1	Credit 7.1	Controllability of Systems, Non-Perimeter
1	Credit 7.2	Thermal Comfort, Comply with ASHRAE 55-1992
1	Credit 8.1	Thermal Comfort, Permanent Monitoring System
1	Credit 8.2	Daylight & Views, Daylight 75% of Spaces
1	Credit 8.2	Daylight & Views, Views for 90% of Spaces

1 Innovation & Design Process		Possible Points: 5
Y	Credit 1.1	Innovation in Design:
	Credit 1.2	Innovation in Design:
	Credit 1.3	Innovation in Design:
	Credit 1.4	Innovation in Design:
1	Credit 2	LEED® Accredited Professional