



CHAPTER VI: STANDARD FORMS & DETAILS



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F. LEED CHECKLIST

The University of North Carolina at Chapel Hill recognizes the USGBC's LEED standard as the state of the art in "green building" or sustainable design. The standard LEED checklist and guidance are available at the U.S. Green Building Council website: <http://www.usgbc.org/> Suggested design approaches and referenced standards are contained in the LEED Reference Guide for New Construction & Major Renovations Version 2.1 Other guidance that may be applicable include LEED for Existing Buildings and LEED for Multiple Buildings.

The University has developed many performance standards that apply to all capital improvement projects. Standards for soil erosion and sediment control, site selection, public transportation, parking, stormwater management, outdoor lighting (?), water and energy efficiency, ozone depletion, and construction and demolition waste management satisfy USGBC performance criteria. Designers are expected to achieve the standard for each credit identified as "required" or "almost certain" on the following UNC checklist. Cumulatively, each project is expected to achieve the LEED silver performance standard at a minimum. Where project budget or other constraints preclude this outcome, the designer is to provide a written request for exemption and explain why the goal is not achievable.

Designers are to complete and project managers distribute the following LEED checklist, customized for use at UNC, at each stage of design submittals

[UNC LEED Checklist](#) (click on the link to go to Excel version)



Credit	UNC -- Project name LEED 2.2	Total points available	Required	Almost Certain	Maybe	Unlikely	No	Projected actual points	Remarks	Cost	Responsible for documentation
	Sustainable Sites										
SS PRE 1	Prerequisite- Construction Activity Pollution Prevention	REQ						Y	All campus projects meet these criteria.		Design Team
SS 1	Site Selection	1	1					1	All campus projects meet these criteria.		UNC
SS 2	Development Density & Community Connectivity	1	1					1	All main campus projects should meet Option 1 criteria. Carolina North projects may meet Option 2 criteria.		UNC
SS 3	Brownfield Redevelopment	1					1		Main campus projects are not eligible for this credit. Carolina North projects may be eligible.		UNC
SS 4.1	Alternative Transportation - Transit	1	1					1	Chapel Hill Transit service should qualify. Work with DPS to identify routes.		UNC
SS 4.2	Alternative Transportation - Bicycle Storage & Changing Rooms	1			1				LEED Campus Guidelines require secure bicycle storage with convenient changing/shower facilities within 500 yards of the building for at least 5% of regular building occupants. LEED 2.2 calculations refer to "peak building users". Future CIRs anticipated.		UNC
SS 4.3	Alternative Transportation - Low Emitting and Fuel Efficient Vehicles	1				1			Would require DPS to provide preferred and designated parking for low-emitting and fuel-efficient vehicles for 5% of the total vehicle parking capacity of the site.		UNC
SS 4.4	Alternative Transportation - Parking Capacity	1		1				1	Two compliance paths: 1. Provide no new parking. Or 2. Would require DPS to provide preferred and designated parking for carpools or vanpools for 5% of the total parking spaces provided.		UNC
SS 5.1	Site Development - Protect or Restore Habitat	1			1				Developed or graded sites: Restore a minimum of 50% of the site area (excluding building footprint) with native or adapted vegetation. If earn SS Credit 2 and use a vegetated roof with native/adapted plants, the requirement is 20% of the total site area, including the building footprint. Work with landscape architect and Grounds.		Design Team
SS 5.2	Site Development - Maximize Open Space	1		1				1	Provide vegetated open space equal to 20% of the project's site area. If earn SS Credit 2, vegetated roof areas can contribute to credit compliance, as can pedestrian oriented hardscape as long as a minimum of 25% of the open space counted is vegetated.		Design Team



SS 6.1	Stormwater Design - Quantity Control	1	1						1	If existing imperviousness is $\leq 50\%$, implement stormwater management plan that prevents the post-development peak discharge rate and quantity from exceeding the pre-development peak discharge reate and quantity for the one- and two-year, 24-hour design storms. If existing imperviousness is $>50\%$, implement a stormwater management plan that results in a 25% decrease in the volume of stormwater runoff from the 2-year, 24-hour design storm. Campus stormwater standards should achieve.		UNC/Design Team
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Credit	UNC -- Project name LEED 2.2	Total points available	Required	Almost Certain	Maybe	Unlikely	No	Projected actual points	Remarks	Cost	Responsible for documentation
SS 6.2	Stormwater Design - Quality Control	1	1					1	BMPs used to treat runoff from 90% of the average annual rainfall must be capable of removing 80% of the average annual post development total suspended solids load. Campus stormwater standards should achieve.		UNC/Design Team
SS 7.1	Heat Island Effect - Non Roof	1	1					1	Provide any combination of the following for 50% of the site hardscape: Shade within 5 years of occupancy; Use paving materials with a Solar Reflectance Index (SRI) of at least 29; Use open grid pavement system. OR Place 50% of parking spaces under cover. Any roof used to shade or cover parking must have an SRI of at least 29.		Design Team/UNC
SS 7.2	Heat Island Effect - Roof	1			1				Use roofing materials having a Solar Reflectance Index \geq values shown in table on p.95 for a minimum of 75% of the roof surface. OR Install a vegetated roof for at least 50% of the roof area. OR Install combination of high albedo and vegetated roof surfaces such that $(\text{Area of SRI Roof}/0.75) + (\text{Area of Vegetated Roof}/0.5) \geq \text{Total Roof Area}$. (See Lawrence Berkeley National Laboratory's Heat Island Group http://eetd.lbl.gov/HeatIsland/CoolRoofs and http://www.energystar.gov/index.cfm?c=roof_prods.pr_roof_pro ducts)		Design Team
SS 8	Light Pollution Reduction	1			1				Interior Lighting: Angle of maximum candela from each interior luminaire as located in the building shall intersect opaque building interior surfaces and not exit out through the windows. OR All non-emergency interior lighting shall be automatically controlled to turn off during non-business hours. Provide manual override capability for after hours use. AND Exterior Lighting: Do not exceed 80% of the lighting power densities for exterior areas and 50% for building facades and landscape features as defined in ASHRAE/IESNA Standard 90.1-2004, Exterior Lighting Section, without amendments. LZ3 Zones Design exterior lighting so that all site and building mounted luminaires produce a maximum initial illuminance value no greater than 0.20 horizontal and vertical footcandles at the site boundary and no greater than 0.01 horizontal foot candles 15 feet beyond the site (or walking path). Document that no more than 5% of the total initial designed fixture lumens are emitted at an angle of 90 degrees or higher from nadir (straight down). (See p. 104 for tradable and non-tradable surfaces.)		Design Team/UNC



Credit	UNC -- Project name LEED 2.2	Total points available	Required	Almost Certain	Maybe	Unlikely	No	Projected actual points	Remarks	Cost	Responsible for documentation
	Water Efficiency										
WE 1.1	Water Efficient Landscaping - Potable Water Reduced by 50%	1	1					1	Reductions shall be attributed to any combination of: Plant species factor, Irrigation efficiency, Use of captured rainwater, Use of treated wastewater. Work with Grounds and landscape architect to achieve.		UNC/Design Team
WE 1.2	Water Efficient Landscaping - No Potable Water Use or No Irrigation	1			1				Depends on location, species selection, and stormwater management approach. Consider rainwater capture and native/adapted plants.		UNC/Design Team
WE 2	Innovative Wastewater Technologies	1			1				Reduce potable water use for building sewage conveyance by 50% through the use of water-conserving fixtures (water closets, urinals) or non-potable water OR Treat 50% of wastewater on-site to tertiary standards. Treated water must be infiltrated or used on site. Waterfree urinals alone are not sufficient. Consider a rainwater capture system for flushing toilets. Include Submittal Documentation, p. 133, in design submittals.		Design Team
WE 3.1	Water Use Reduction - 20% Reduction	1	1					1	Employ strategies that in aggregate use 20% less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements. Calculations are based on estimated occupant usage and shall include only the following fixtures: water closets, urinals, lavatory faucets, showers, and kitchen sinks. Waterfree and ultra low-flow urinals, dual flush toilets, and low-flow and/or metered fixtures required in most UNC buildings. Additional process water savings are project-dependent and encouraged by UNC. Specify closed-loop cooling for process heat loads, such as water distillation, vacuum aspirators, and electron microscopes. Include Tables 4 and 5, p.142, in design submittals.		Design Team
WE 3.2	Water Use Reduction - 30% Reduction	1			1				Employ strategies that in aggregate use 30% less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements. Calculations are based on estimated occupant usage and shall include only the following fixtures: water closets, urinals, lavatory faucets, showers, and kitchen sinks. Consider ultra low-flow fixtures, controls, and rainwater harvesting.		Design Team



Credit	UNC -- Project name LEED 2.2	Total points available	Required	Almost Certain	Maybe	Unlikely	No	Projected actual points	Remarks	Cost	Responsible for documentation
	Energy & Atmosphere										
EA PRE 1	Fundamental Commissioning of Building Energy Systems	REQ						Y	Verify the bldg's energy related systems are installed, calibrated and perform according to owner's project requirements, basis of design, and construction documents. Requirements: 1. Designate individual Commissioning Authority (CxA) to lead, review and oversee the completion of the Cx process activities. (Experience as CxA in at least 2 bldg projects; independent of design and construction mgmt team for bldgs >50,000 ft ² (may be an employee of the design or construction mgmt firm); report findings directly to Owner) 2. Owner shall document Owner's Project Requirements. Design team shall develop Basis of Design. CxA shall review both. 3. Develop and incorporate Cx requirements into CDs. 4. Develop and implement a Cx plan. 5. Verify the installation and performance of the systems to be commissioned. 6. Complete a summary Cx report. (pp. 154-158) Commissioned Systems: Minimum includes: HVAC&R systems and associated controls; Lighting and daylighting controls; Domestic hot water systems; Renewable energy systems. Recommended: Building envelope and water-using systems.		Designer/CxA/Contractor/UNC
EA PRE 2	Minimum Energy Performance	REQ						Y	Design the building to comply with both the mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4, and 10.4) of ASHRAE/IESNA Standard 90.1-2004 (without amendments) and the prescriptive requirements (Sections 5.5, 6.5, 7.5, and 9.5) or performance requirements (Section 11) of ASHRAE/IESNA Standard 90.1-2004 (without amendments). Design the building envelope, HVAC, lighting, and other systems to maximize energy performance. The ASHRAE 90.1-2004 User's Manual contains worksheets that can be used to document compliance with this prerequisite. For projects pursuing points under EA Credit 1, the computer simulation model may be used to confirm satisfaction of this prerequisite.		Design Team
EA PRE 3	Fundamental Refrigerant Management	REQ						Y	Zero use of CFC-based refrigerants in new base building HVAC&R systems. For renovations reusing existing base building HVAC equipment, complete a comprehensive CFC phaseout conversion. (Subject to UNC's district cooling system's CFC phaseout schedule.) (See Ozone Depletion Potential and Global Warming Potential of refrigerants p.171)		Design Team



Credit	UNC -- Project name LEED 2.2	Total points available	Required	Almost Certain	Maybe	Unlikely	No	Projected actual points	Remarks	Cost	Responsible for documentation
EA 1	Optimize Energy Performance	10	5		5			5	Demonstrate % improvement in proposed bldg performance compared to baseline bldg performance per ASHRAE/IESNA Std 90.1-2004 (w/o amendments) by a whole bldg project simulation using the Bldg Performance Rating Method in Appendix G. (See p. 173 for min energy cost savings % per point.) Appendix G requires that the energy analysis include ALL energy costs within and associated with the bldg project. To achieve points, the proposed design: Must comply with the mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4). AND Must be compared against a baseline bldg that complies with Appendix G. The default process energy cost is 25% of the total energy cost for the baseline bldg. Process loads shall be identical for both the baseline and the proposed bldg performance ratings. However, project teams may follow the Exceptional Calculation method (ASHRAE 90.1-2004 G2.5) to document measures that reduce process loads. See pp 177-192 for a description of the Performance Rating Method and required modeling calculations. (Use projected UNC electricity, steam and chilled water rates.) (See Bu		Design Team
EA 2.1	On-Site Renewable Energy - 2.5%	1			1				Use on-site renewable energy systems to offset 2.5% of the building's annual energy cost (as calculated in EA Credit 1.) Eligible systems will produce either electric power and/or thermal energy for use on-site. Photovoltaic and bio-fuel based electrical production (excluding combustion of municipal solid waste), geothermal energy systems using deep-earth water (and not using vapor compression systems for heat transfer), and active solar thermal systems are all eligible for this credit.		Design Team
EA2.2	Renewable Energy - 7.5%	1				1			Use on-site renewable energy systems to offset 7.5% of the building's annual energy cost.		Design Team
EA 2.3	Renewable Energy - 12.5%	1				1			Use on-site renewable energy systems to offset 12.5% of the building's annual energy cost.		Design Team



Credit	UNC -- Project name LEED 2.2	Total points available	Required	Almost Certain	Maybe	Unlikely	No	Projected actual points	Remarks	Cost	Responsible for documentation
EA 3	Enhanced Commissioning	1	1					1	Implement add'l Cx activities: 1. Designate Independent Cx Authority (CxA), prior to CDs for all projects. 2. CxA reviews Owner's Project Requirements (OPR), Basis of Design (BOD), and design docs pre 50% CDs. Back-checks review comments in next design submission. 3. CxA reviews contractor submittals for compliance with OPR and BOD, concurrent with A/E reviews. Submitted to design team and Owner. 4. Develops systems manual for understanding and optimal operation of Cx'd systems. 5. Verifies training requirements for staff and occupants met. 6. Reviews bldg operation w/in 10 months of substantial completion with O&M staff & occupants. Plan for resolution of outstanding Cx issues. Systems Manual includes: Final BOD; Single line diagrams; As-built sequences of operations, Control drawings & original setpoints; Operating instructions for integrated bldg systems; Recommended maintenance schedule if not in O&M manuals; Recommended retesting schedule of Cx'd systems with blank test forms from the orig'l Cx Plan; Recommended schedule for calibrating sensors and actuators.		Designer/Contractor/UNC
EA 4	Enhanced Refrigerant Management	1	1					1	Select refrigerants and HVAC&R systems that minimize or eliminate the emission of compounds that contribute to ozone depletion and global warming. The base building HVAC&R equipment shall comply with the following formula, which sets a maximum threshold for the combined contributions to ozone depletion and global warming potential: LCGWP + LCODP x 10 ≤ 100 (See formula and requirements on p. 211-219.) (Small HVAC units containing less than 0.5 lbs of refrigerant are not subject to the requirements.) AND Do not install fire suppression systems that contain ozone-depleting substances (CFCs, HCFCs or Halons).		Design Team/UNC
EA 5	Measurement and Verification	1	1					1	Develop and implement a Measurement & Verification (M&V) Plan consistent with Option D: Calibrated Simulation (Savings Estimation Method 2), or Option B: Energy Conservation Measure Isolation, as specified in the <i>International Performance Measurement & Verification Protocol (IPMVP) Volume III: Concepts and Options for Determining Energy Savings in New Construction, April, 2003</i> . The M&V period shall cover a period of no less than one year of post-construction occupancy. http://www.ipmvp.org		Design Team/UNC
EA 6	Green Power	1				1			Provide at least 35% of the building's electricity from renewable sources by engaging in at least a two-year renewable energy contract. (NC GreenPower or other Green-e products as defined by the Center for Resource Solutions)		UNC



Credit	UNC -- Project name LEED 2.2	Total points available	Required	Almost Certain	Maybe	Unlikely	No	Projected actual points	Remarks	Cost	Responsible for documentation
Materials & Resources											
MR PRE 1	Storage & Collection of Recyclables	REQ						Y	See Office of Waste Reduction and Recycling Standards http://www.fac.unc.edu/OWRRGuidelines/		UNC/Design Team
MR 1.1	Building Reuse - Maintain 75%	1			1				Maintain 75% of structure and envelope, excluding window assemblies, non-structural roofing material, and hazardous materials.		Design Team
MR 1.2	Building Reuse - Maintain 95%	1			1				Maintain 95% of structure and envelope, excluding window assemblies, non-structural roofing material, and hazardous materials.		Design Team
MR 1.3	Building Reuse - Maintain 50% of Interior Non-Structural Elements	1			1				Use existing interior non-structural elements in at least 50% of the completed building.		Design Team
MR 2.1	Construction Waste Management -Divert 50% from Disposal	1	1					1	See Office of Waste Reduction and Recycling Requirements. http://www.fac.unc.edu/OWRRGuidelines/		Designer/Contractor/UNC
MR 2.2	Construction Waste Management -Divert 75% from Disposal	1		1				1	See Office of Waste Reduction and Recycling Requirements. http://www.fac.unc.edu/OWRRGuidelines/		Designer/Contractor/UNC
MR 3.1	Materials Reuse- 5%	1				1			Use salvaged, refurbished or reused materials such that the sum of these materials constitutes at least 5%, based on cost, of the total value of materials on the project. MEP components and specialty items such as elevators and equipment shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3-7.		Designer/Contractor/UNC
MR 3.2	Materials Reuse- 10%	1				1			Use salvaged, refurbished or reused materials such that the sum of these materials constitutes at least 10%, based on cost, of the total value of materials on the project. MEP components and specialty items such as elevators and equipment shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3-7.		Designer/Contractor/UNC
MR 4.1	Recycled Content - 10% (Postconsumer + 1/2 Pre-consumer)	1	1					1	Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer recycled content constitutes at least 10% of the total value of the materials in the project (by weight). (Excludes MEP)		Designer/Contractor/UNC
MR 4.2	Recycled Content - 20% (Postconsumer + 1/2 Pre-Consumer)	1		1				1	Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer recycled content constitutes at least 20% of the total value of the materials in the project (by weight). (Excludes MEP)		Designer/Contractor/UNC



MR 5.1	Regional Materials - 10% Extracted, Processed, and Manufactured Regionally	1	1						1	Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% (based on cost) of the total materials value. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value. Exclude MEP and specialty items. (Range is approximately New York City to Pittsburgh to Columbus to Birmingham to Jacksonville)		Designer/Contractor/UNC
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Credit	UNC -- Project name LEED 2.2	Total points available	Required	Almost Certain	Maybe	Unlikely	No	Projected actual points	Remarks	Cost	Responsible for documentation
MR 5.2	Regional Materials - 20% Extracted Regionally	1	1					1	Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 20% (based on cost) of the total materials value. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value. Exclude MEP and specialty items. (Range is approximately New York City to Pittsburgh to Columbus to Birmingham to Jacksonville)		Designer/Contractor/UNC
MR 6	Rapidly Renewable Materials 2.5%	1			1				Use rapidly renewable building materials and products (made from plants that are typically harvested within a ten-year cycle or shorter) for 2.5% of the total value of all building materials and products used on the project, based on cost. (Examples: wheatboard cabinetry, linoleum and bamboo flooring)		Designer/Contractor/UNC
MR 7	Certified Wood	1			1				50% of permanently installed wood products are certified in accordance with the Forest Stewardship Council's Principles and Criteria. (Identify source early in project.)		Designer/Contractor/UNC



Credit	UNC -- Project name LEED 2.2	Total points available	Required	Almost Certain	Maybe	Unlikely	No	Projected actual points	Remarks	Cost	Responsible for documentation
	Indoor Environmental Quality										
EQ PRE 1	Minimum IAQ Performance	REQ						Y	Meet the minimum requirements of Sections 4 through 7 of ASHRAE 62.1-2004, Ventilation for Acceptable Indoor Air Quality. Mechanical ventilation systems shall be designed using the Ventilation Rate Procedure or the applicable local code, whichever is more stringent. See sample calculation p. 291.		Designer
EQ PRE 2	Environmental Tobacco Smoke (ETS) Control	REQ						Y	Prohibit smoking in the building. Locate any exterior designated smoking areas at least 25 feet away from entries, outdoor air intakes and operable windows. (Smoking is prohibited in all campus buildings.)		UNC
EQ 1	Outdoor Air Delivery Monitoring	1	1					1	Install permanent monitoring systems that provide feedback on ventilation system performance to ensure that ventilation systems maintain design minimum ventilation requirements. Configure all monitoring equipment to generate an alarm when the conditions vary by 10% or more from setpoint, via either a building automation system alarm to the building operator or via a visual or audible alert to the building occupants. Monitor carbon dioxide concentrations within all densely occupied spaces (those with a design occupant density greater than or equal to 25 people per 1000 sq.ft.). CO2 monitoring locations shall be between 3 feet and 6 feet above the floor. For each mechanical ventilation system serving non-densely occupied spaces, provide a direct outdoor airflow measurement device capable of measuring the minimum outdoor airflow rate with an accuracy of plus or minus 15% of the design minimum outdoor air rate, as defined by ASHRAE 62.1-2004.		Design Team(ME)/UNC
EQ 2	Increased Ventilation	1			1				Increase breathing zone outdoor air ventilation rates to all occupied spaces by at least 30% above the minimum rates required by ASHRAE Standard 62.1-2004 as determined by EQ Prerequisite 1. (Can accomplish with an underfloor air ventilation system.)		Design Team(ME)/UNC
EQ 3.1	Construction IAQ Management Plan -During Construction	1	1					1	Meet recommended Control Measures of SMACNA IAQ Guidelines for Occupied Buildings under Construction, 1995, Chapter 3. Protect stored on-site or installed absorptive materials from moisture damage. If permanently installed air handlers are used during construction, use MERV 8 filtration media at each return air grille, as determined by ASHRAE 52.2-1999. Replace all filtration media immediately prior to occupancy. See pp.318-319 for components of IAQ Management Plan.		Designer/Contractor/UNC



Credit	UNC -- Project name LEED 2.2	Total points available	Required	Almost Certain	Maybe	Unlikely	No	Projected actual points	Remarks	Cost	Responsible for documentation
EQ 3.2	Construction IAQ Management Plan -Before Occupancy	1	1					1	After construction and prior to occupancy, with all interior finishes installed, perform a bldg flush-out by supplying a total air volume of 14,000 cu.ft. of outdoor air per sq.ft. of floor area while maintaining an internal temperature of at least 60F and relative humidity no higher than 60%. OR Occupy, following delivery of ≥ 3,500 cu. ft. of outdoor air per sq.ft. of floor area to the space. Once a space is occupied, it shall be ventilated at a minimum rate of 0.30 cfm/sq.ft. of outside air or the design minimum outside air rate determined in EQ Prerequisite 1, whichever is greater. During each day of the flush-out period, ventilation shall begin a minimum of three hours prior to occupancy and continue during occupancy. These conditions shall be maintained until a total of 14,000 cu.ft./sq.ft. of outside air has been delivered to the space. OR Conduct baseline IAQ testing, using testing protocols consistent with the US EPA Compendium of Methods for the Determination of Air Pollutants in Indoor Air. Demonstrate that the contaminant maximum concentrations listed on pp. 323-324 are not exceeded.		Designer/Contractor/UNC
EQ 4.1	Low-emitting Materials - Adhesives & Sealants	1	1					1	Specify and install adhesives, sealants and sealant primers on the interior of the building whose VOC content complies with South Coast Air Quality Management District (SCAQMD) Rule 1168 limits (See p. 333 or http://www.aqmd.gov/rules/reg/reg11/r1168.pdf) AND Specify that all aerosol adhesives comply with Green Seal Standard GS-36 for Commercial Adhesives. (See p. 334 or http://www.greenseal.org/certification/standards/commercialadhesives.cfm)		Designer/Contractor/UNC
EQ 4.2	Low-emitting Materials - Paints & Coatings	1	1					1	Architectural paints, coatings and primers applied to interior walls and ceilings shall not exceed the VOC content limits established in Green Seal Standard GS-11 Requirements. Flats: 50 g/L; Non-Flats: 150 g/L) http://www.greenseal.org/certification/standards/paints.cfm Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates shall not exceed the VOC content limit of 250 g/L established in Green Seal Standard GC-03. Clear wood finishes, floor coatings, stains, sealers, and shellacs applied to interior elements shall not exceed the VOC content limits in SCAQMD Rule 1113. Clear wood finishes: Varnish 350 g/L; Lacquer 550 g/L; Floor coatings: 100 g/L; Sealers: Waterproofing Sealers 250 g/L; Sanding Sealers 275 g/L; all other sealers 200 g/L; Shellac: Clear 730 g/L; Pigmented 550 g/L; Stains: 250g/L.		Designer/Contractor/UNC



Credit	UNC -- Project name LEED 2.2	Total points available	Required	Almost Certain	Maybe	Unlikely	No	Projected actual points	Remarks	Cost	Responsible for documentation
EQ 4.3	Low-emitting Materials - Carpet Systems	1	1					1	Specify and install carpets that meet the Carpet and Rug Institute's Green Label Plus program. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program. All carpet adhesive shall meet the requirements of EQ Credit 4.1: VOC limit of 50 g/L. (http://www.carpet-rug.org)		Designer/Contractor/UNC
EQ 4.4	Low-emitting Materials - Composite Wood & Agrifiber Products	1			1				Specify and install composite wood and agrifiber products used on the interior of the building that contain no added urea-formaldehyde resins. Laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies shall contain no added urea-formaldehyde resins. Composite wood and agrifiber products are defined as: particleboard, medium density fiberboard (MDF), plywood, wheatboard, strawboard, panel substrates and door cores.		Designer/Contractor/UNC
EQ 5	Indoor Chemical & Pollutant Source Control	1	1					1	Design to minimize and control pollutant entry into bldgs. 1. Employ permanent entryway systems ≥ 6 ft in primary direction of travel to capture dirt and particulates at all entryways connected to the outdoors. Systems include permanently installed grates, grilles, or slotted systems for cleaning underneath. Roll-out mats require weekly maintenance contract. Where hazardous gases or chemicals may be present (including garages, housekeeping areas and copying/printing rooms), exhaust each space to create negative pressure with the doors to the room closed. For each of these spaces, provide self-closing doors and deck to deck partitions or a hard lid ceiling. The exhaust rate shall be at least 0.50 cfm/sq.ft, with no air re-circulation. The pressure differential with the surrounding spaces shall be at least 5 Pa on avg and 1 Pa at a minimum when doors are closed. 3. In mechanically ventilated bldgs, provide regularly occupied areas with MERV 13 filtration media prior to occupancy. Apply filtration to process both return and outside air delivered as supply air.		Design Team
EQ 6.1	Controllability of Systems - Lighting	1	1					1	Provide individual lighting controls for $\geq 90\%$ of the building occupants to enable adjustments to suit individual task needs and preferences. AND Provide lighting system controllability for all shared multi-occupant spaces to enable lighting adjustment that meets group needs and preferences.		Design Team



Credit	UNC -- Project name LEED 2.2	Total points available	Required	Almost Certain	Maybe	Unlikely	No	Projected actual points	Remarks	Cost	Responsible for documentation
EQ 6.2	Controllability of Systems - Thermal Comfort	1			1				Provide individual comfort controls for ≥ 50% of bldg occupants. Operable windows can be used in lieu of comfort controls for occupants of areas that are 20 ft inside of and 10 ft to either side of the operable part of the window. The areas of operable window must meet ASHRAE 62.1-2004, para 5.1, Natural Ventilation. (For the limits used in this credit, an area 20 ft by 20 ft per window, the opening size would need to be at least 16 sq.ft.) AND Provide comfort system controls for all shared multi-occupant spaces to enable adjustments to suit group needs and preferences. Conditions for thermal comfort are described in ASHRAE Standard 55-2004 to include the primary factors of air temperature, radiant temperature, air speed and humidity. Comfort system control, for the purposes of this credit, is defined as the provision of control over at least one of these primary factors in the occupant's local environment.		UNC Standard is 3 offices or 500 sq.ft. per zone in similar conditions
EQ 7.1	Thermal Comfort - Design	1		1				1	Design HVAC systems and the building envelope to meet the requirements of ASHRAE Standard 55-2004, Thermal Comfort Conditions for Human Occupancy. Demonstrate design compliance in accordance with the Section 6.1.1 Documentation. This standard specifies the combinations of indoor space environment and personal factors that will produce thermal environmental conditions acceptable to ≥ 80% of the occupants within a space. The environmental factors addressed are temperature, thermal radiation, humidity, and air speed; the personal factors are those of activity and clothing.		Design Team
EQ 7.2	Thermal Comfort - Verification	1		1				1	Agree to implement a thermal comfort survey of building occupants within a period of six to 18 months after occupancy. This survey should collect anonymous responses about thermal comfort in the building including an assessment of overall satisfaction with the thermal performance and identification of thermal comfort-related problems. Agree to develop a plan for corrective action if the survey results indicate that more than 20% of occupants are dissatisfied with thermal comfort in the building. This plan should include measurement of relevant environmental variables in problem areas in accordance with AHRAE Standard 55-2004.		Include as part of Commissioning Contract



Credit	UNC -- Project name LEED 2.2	Total points available	Required	Almost Certain	Maybe	Unlikely	No	Projected actual points	Remarks	Cost	Responsible for documentation
EQ 8.1	Daylight and Views - Daylight 75% of Spaces	1	1					1	Achieve a minimum glazing factor of 2% in $\geq 75\%$ of regularly occupied areas. (See formula p. 373) OR Demonstrate, through computer simulation, that a min daylight illumination level of 25 footcandles has been achieved in $\geq 75\%$ of all regularly occupied areas. Modeling must demonstrate 25 horizontal footcandles under clear sky conditions, at noon, on the equinox, at 30" above the floor. OR Demonstrate, through records of indoor light measurements, that a min daylight illumination level of 25 footcandles has been achieved in $\geq 75\%$ of all regularly occupied areas. Measurements taken on a 10-foot grid for all occupied spaces and recorded on bldg floor plans. Only the square footage in the portions of rooms or spaces meeting the min illumination requirements can be applied towards the 75% of total area calculation required to qualify for this credit. In all cases, provide daylight redirection +/- or glare control devices to avoid high-contrast situations that could impede visual tasks. Exceptional areas where daylight would hinder tasks will be considered on their merits. (See calcula		Design Team
EQ 8.2	Daylight and Views - Views for 90% of Spaces	1			1				Achieve direct line of sight to the outdoor environment via vision glazing between 2'6" and 7'6" above finish floor for building occupants in 90% of all regularly occupied areas. Determine the area with direct line of sight by totaling the regularly occupied square footage that meets the following criteria: In plan view, the area is within sight lines drawn from perimeter vision glazing. In section view, a direct sight line can be drawn from the area to perimeter vision glazing. Line of sight may be drawn through interior glazing. For private offices, the entire square footage of the office can be counted if 75% or more of the area has direct line of sight to perimeter vision glazing. For multi-occupant spaces, the actual square footage with direct line of sight to perimeter vision glazing is counted.		Design Team



Credit	UNC -- Project name LEED 2.2	Total points available	Required	Almost Certain	Maybe	Unlikely	No	Projected actual points	Remarks	Cost	Responsible for documentation
	Innovation & Design Process										
ID 1.1	Innovation Credit 1	1	1					1			Design Team/UNC
ID 1.2	Innovation Credit 2	1	1					1			Design Team/UNC
ID 1.3	Innovation Credit 3	1		1				1			Design Team/UNC
ID 1.4	Innovation Credit 4	1			1						Design Team/UNC
ID 2	LEED Certified Designer Points	1	1					1			Design Team
	Total Possible Points	69	30	9	23	6	1	39			
	Minimum Required Points							39			



THE UNIVERSITY
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DEPARTMENT OF FACILITIES PLANNING & CONSTRUCTION