

Sustainable Solutions for the Built Environment

DCP 3210, Section 401H, Summer B 2018

3 credits

Mondays – Wednesdays; Periods 1-2 (8:00am-10:45 am)

Rinker 230

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Office Hours: M, 12:30-1:30pm, or by appointment

The term **built environment** refers to the human-made surroundings that provide the setting for human activity, ranging in scale from buildings and parks or green space to neighborhoods and cities that can often include their supporting infrastructure, such as water supply, and energy networks. The built environment is a material, spatial and cultural product of human labor that combines physical elements and energy in forms for living, working and playing. It has been defined as “the human-made space in which people live, work, and recreate on a day-to-day basis”. The “built environment encompasses places and spaces created or modified by people including buildings, parks, and transportation systems”. In recent years, public health research has expanded the definition of "built environment" to include healthy food access, community gardens, “walkability”, and “bikability”, reason include sustainable development aimed at smart growth.
Wikipedia.



To provide sustainable solutions for the built environment, we must ensure:

Use all resources wisely, Consider the needs of future generations, Evaluate a wide range of risks, Protect and enhance the environment, Conserve energy and natural resources, Improve quality of life, and Encourage innovative approaches to the design, construction, operation and maintenance of facilities

Learning Objectives

This course is designed to produce the following outcomes:

- Understand the necessity of merging good business practices with common sense environmental concerns.
- Evaluate and communicate the effectiveness of current sustainability initiatives in the built environment and ability to assess whether they are operating in an effective sustainability framework.
- Create a focus on the execution of strategies to drive long term sustainability performance.
- Develop your own body of knowledge to improve your sustainability competency and learn the importance of communicating the built environment’s sustainability level.
- Understand how to reflect on the future of sustainability in the built environment.
- Identify the characteristics of best-practice in sustainable building initiatives and look beyond current initiatives.
- Communicate and justify sustainable building design principles, strategies, solutions and/or outcomes.

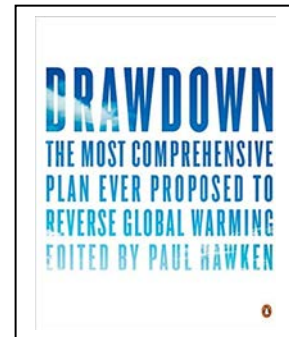
Course Format

Delivery Method: Lectures, discussions, guest speakers, case studies, work in teams, team presentations, quizzes, reports, and field trips locally and one nationally.

Course Website: <https://lss.at.ufl.edu/>: This course's e-learning on Canvas site will contain all course material including readings, lecture slides, assignment instructions, quizzes, announcements, and grades. All course material will be posted before class starts.

Communication: Outside of class, barmagh@ufl.edu email is the best and preferred method of communication.

Required Text: Drawdown, The most comprehensive plan ever to reverse global warming, by Paul Hawken. <http://www.drawdown.org/>



In Addition to the online articles provided (see schedule).

This is a reading-intensive course. Active student engagement with the reading material and associated class discussions will be an important component of your grade (see grading policy below).

Reading Assignments: Starting July 3rd required submission for each reading topic is a minimum 3 comments, statements or questions before every class. The team assigned the topic will lead the discussion.

Field Trips:

A multi-day field trip is required for this course as a complement to course material and topics.

This field trip has been scheduled for July 18th, 19th, and 20th. The destination of this field trip is Atlanta, Georgia. The cost for the trip May ranges from \$250.00 to \$350.00 per person depending on the number of students in the class. This includes transportation, hotel, breakfast and Wi-Fi. The final cost of the trip will be communicated to the students the 1st week of classes. The fee is collected on July 9th. Checks and money order only, make checks and money order payable to University of Florida.

Below is the link to UF catalog of courses for DCP 3210, and reference to this field trip as a requirement.

<https://catalog.ufl.edu/ugrad/current/design/Majors/sustainability-and-the-built-environment.aspx>

- In addition, on campus field trips will be scheduled.

Tools and Resources:

- www.buildinggreen.com; is an excellent resource in the latest in sustainable built environment, cases studies, articles, materials, and more. This is a membership based site, where University is a member of. That means you have full access to all the site content.
- To access this site while on campus, you will automatically be logged in the site and can use it.
- To access the site while you are off campus, you can remotely access the site using VPN.
- To access some campus resources when you are physically off campus, you may need to install UF's VPN. The [UF VPN Service](#) is designed to allow University Faculty, Staff, and Students to securely "tunnel" into campus over other networks, such as their home internet connection, and access services as if they were on campus. Basically, it lets your computer appear as if it were located physically on campus. To install, go to vpn.ufl.edu. To get more information about VPN, you can visit: <https://connect.ufl.edu/it/wiki/Pages/glvpn.aspx>.

Paperless Activities and Assignments: E-learning on Canvas will be the hub for the communication, discussion and announcement outside class, turn in assignments, papers, take quizzes, and presentation material.

- Check e-learning on Canvas for the material and presentations that will be covered weekly.
- Check your e-mail for e-learning announcements.
- All assignments/papers/presentations must be turned in electronically through e-learning on Canvas.

Participation, Attendance and other Policies:

- Students attend class prepared for active participation and discussion. A quality learning experience in this course rests heavily on interaction and exchange ideas related to sustainable built environment.
- Students should be willing to participate in field trips, exceptions only for documented and justified excuses.
- Reading material and discussion; each topic discussion will be assigned to a team of two students. See Schedule.
- Attendance is required. Arriving late to class (10-15 after start of the class, or falling asleep in the class) will be considered a ½ absence. Leaving early while the class is in session will be considered an unexcused absence.
- Weekly leading discussion, reports, final project and presentation can **only** be made up for **excused** absences. Excused absences include illness, religious holidays, a death in the family, or participation as an athlete in official UF athletic events; to be excused, absences must be properly documented, for example with a doctor's note or an obituary.
- Weekly assignments; each student to develop minimum three question about each reading topic and submit it before the class, the assigned team will lead the discussion, see weekly team assignment.
- All projects, presentations, quizzes, and assignments must be turned in on time; projects or assignments may be turned in early. If you will not be in class to turn the assignment in, even if it is an excused absence (e.g. studio field trip), you must turn the assignment in early. Any assignment turned in after it is due will be marked late, and your grade will be penalized.

Assignments and Grading

Assignment	Instruction	points	Due date
Quizzes	Quiz material covered	30	On Canvas
Reading assignments/discu.	Individual	25	In class, see schedule Weekly reading summery
Reflection paper	Write 2 pages double space, 12 point font on Atlanta field trip	5	7/25/2018
Final project: - report& presentation Or -report & video/skid(3-5) Or Presentation & video	Team, In 1500-2000 words describe the topic, the challenge, the solution and outcome, and your recommendations. This must be in a report format.	40	8/6, 7 & 8/2018

Final Project Topic: Each team's final topic must be related to an identified/known/anticipated challenge(s) in the built environment local or global, and propose a solution to address the challenge(s). Topics include:

- **Drawdown project top priority**
 - **Or**
 - **Energy/ Renewable**
 - **Water**
 - **WELL**
 - **Sustainability and Security**
 - **Living Building Challenge and Communities**
 - **Site and Transportation**
 - **Air Quality**
 - **Sustainable Development**
 - **Material use and Waste Management**
 - **Any other sustainability topic of your interest**
- See final project guidelines/instruction on Canvas

UNIVERSITY OF FLORIDA POLICIES**Grade Scale:**

Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
Numeric Grade	93-100	90-92	87-89	83-86	80-82	77-79	73-76	70-72	67-69	63-66	60-62	0-59
Quality Points	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	0.67	0.0

See the following link to UF's grade policy:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Online course evaluation

Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu>.

Accommodating Students with Disabilities

Students requesting accommodation for disabilities must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drc/>). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

Student Honor Code and Academic Honesty

Under the Student Honor Code see <http://www.dso.ufl.edu/students.php>, "on all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: 'On my honor, I have neither given nor received unauthorized aid in doing this assignment'" (6C1-4.040(a)).

Papers will be screened for plagiarism using the text-matching Tools Turnitin (<http://turnitin.com/static/index.html>).

Students must submit work that is original to this course, i.e., not the student's work from another course (unless it is used as a reference and properly cited).

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department, 392-1111 (or 9-1-1 for emergencies). <http://www.police.ufl.edu/>

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu

<https://lss.at.ufl.edu/help.shtml>

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <http://www.crc.ufl.edu/>
 Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <http://teachingcenter.ufl.edu/>
 Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.
<http://writing.ufl.edu/writing-studio/>

Student Complaints Campus: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf
 On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>

Need Help? Don't hesitate to ask

PROBLEMS WITH e-learning in Canvas

For issues with technical difficulties for E-learning in Canvas, contact the UF Help Desk at:

Learning-support@ufl.edu

(352) 392-HELP(4357) - select option 2

<https://lss.at.ufl.edu/help.shtml>

Disclaimer

This syllabus represents our current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning. Such changes, communicated clearly, are not unusual and should be expected.

Weekly Class Schedule

Module 1: Welcome and Introduction

<p>M, 7/2</p>	<ul style="list-style-type: none"> - Welcome & Introduction - Review syllabus - Review use of Canvas - Form groups - Show architecture 2030 - Video, PBS Architecture 2030 Ed Mazria – Design e2 - Video, Climate Change and the Built Environment - Where Are We Now? 2014 What is Architecture 2030 Progress on 2030 Goals, Ten Years Later Imperatives to create future green building UF sustainability Paris Climate Change Agreement On Track to Meet the Paris Agreement 	<p>Syllabus, e-learning course access and paperless approach</p> <p>Drawdown book</p> <p>http://www.pbs.org/e2/teachers/teacher_212.html</p> <p>http://architecture2030.org/category/videos/</p> <p>http://architecture2030.org/</p> <p>https://www.buildinggreen.com/feature-shorts/progress-2030-goals-ten-years-later</p> <p>https://www.buildinggreen.com/feature/three-imperatives-create-future-green-building</p> <p>http://sustainable.ufl.edu/ http://newsroom.unfccc.int/</p> <p>http://earthjustice.org/features/paris-agreement?gclid=EA1aIQobChMI7rvu5JK21AIVTySBCh0_XJQQuEAAYASAAEgL7E_D_BwE</p> <p>http://architecture2030.org/on-track-to-meet-the-paris-agreement/</p> <p>https://www.buildinggreen.com/op-ed/opting-out-paris-accord-fortifies-global-warming-battle</p>	
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	<p>Opting Out of Paris Accord Fortifies Global Warming Battle</p> <p>Do You Understand Sustainable Design? Nine Quick Ways to Find Out</p>	<p>https://www.buildinggreen.com/blog/do-you-understand-sustainable-design-nine-quick-ways-find-out</p>	
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Establish a USGBC student account in class

Looking Beyond the Built Environment

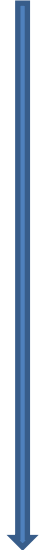
<p>T, 7/3</p>	<p>Introduction</p> <p>Living Building Challenge</p> <p>Pest Prevention: Steps Designers Can Take</p> <p>Analyze a Neighborhood with the Touch of a Button</p> <p>IgCC Opens Compliance Pathway Based on Actual Energy Use</p> <p>Rhode Island First to Adopt International Green Construction Code</p> <p>Green Roads (learn basics about why, how, who, when)</p> <p>Community-Scale Sustainability: Accelerating Change for People and Planet</p> <p>The Four Core Issues to Tackle for Resilient Design (And the Programs That Can Help)</p> <p>Farming in Cities Worth \$33 Billion a Year</p>	<p>http://living-future.org/lbc/about</p> <p>https://www.buildinggreen.com/feature/pest-prevention-steps-designers-can-take</p> <p>https://www.buildinggreen.com/newsbrief/analyze-neighborhood-touch-button</p> <p>https://www.buildinggreen.com/newsbrief/igcc-opens-compliance-pathway-based-actual-energy-use</p> <p>https://www.buildinggreen.com/newsbrief/rhode-island-first-adopt-international-green-construction-code-0</p> <p>https://www.greenroads.org/</p> <p>https://www.buildinggreen.com/feature/community-scale-sustainability-accelerating-change-people-and-planet</p> <p>https://www.buildinggreen.com/feature/four-core-issues-tackle-resilient-design-and-programs-can-help</p> <p>https://www.buildinggreen.com/news-analysis/farming-cities-worth-33-billion-year</p>	<p>Team 1</p> <p>↓</p> <p>Team 1</p> <p>↓</p> <p>Team 2</p> <p>↓</p>
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	<p>Drawdown, the most comprehensive plan ever proposed to reverse global warming</p>	<p>http://www.drawdown.org/</p> <p>Read page 216-224</p>	<p>All</p>
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Assignment 1: One page summary on the Drawdown project and methodology, double space, 12 point font


<p>W, 7/4</p>	<p>Holiday, Independence Day</p>	
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Module 2; Land Use Planning

<p>M, 7/9</p>	<p>Introduction</p> <p>New Urbanism, principles, benefits, & challenges</p> <p>Conservation subdivision</p> <p>See conservation subdivision design overview and case studies</p> <p>LEED for Neighborhood development (ND)</p> <p>Improving Resilience in Affordable Housing</p> <p>Mitigating Disasters: Invest Now, Spend Less Later</p> <p>D.C. Goes Platinum In First LEED for Cities Certification</p> <p>New Handbook Demystifies the Living Community Challenge</p> <p>Climate Justice Heats Up in NYC</p>	<p>http://www.newurbanism.org/newurbanism/principles.html</p> <p>http://www.landchoices.org/conservationsubs/4steps/con_subs_4steps_arendt_1.htm</p> <p>http://www.landchoices.org/toptenways.htm</p> <p>http://www2.buildinggreen.com/article/thinking-beyond-buildings-leed-neighborhood-development</p> <p>https://www.buildinggreen.com/feature-shorts/improving-resilience-affordable-housing</p> <p>https://www.buildinggreen.com/feature-shorts/mitigating-disasters-invest-now-spend-less-later</p> <p>https://leeduser.buildinggreen.com/blog/dc-goes-platinum-first-leed-cities-certification</p> <p>https://www.buildinggreen.com/news-analysis/new-handbook-demystifies-living-community-challenge</p> <p>https://www.buildinggreen.com/news-analysis/climate-justice-heats-nyc</p>	<p>Team 2</p>  <p>Team 3</p> 
	<p>Drawdown, the most comprehensive plan ever proposed to reverse global warming</p>	<p>Read Tropical Forest, Land Use sector</p>	<p>All</p>

Assignment 2: One page summary on **Tropical Forest**, double space, 12 point font


Site & Landscape

<p>T, 7/10</p>	<p>Introduction</p> <p>White Roofs in Cold Climates a Mistake, Says LCA Study</p> <p>Putting a “LID” on Harmful Stormwater Runoff</p> <p>Sustainable Sites Initiative</p> <p>Sustainable site aligned with LEED</p> <p>New EcoDistricts Protocol Aims for Green Building at Scale</p>	<p>https://www.buildinggreen.com/newsbrief/white-roofs-cold-climates-mistake-says-lca-study</p> <p>https://www.buildinggreen.com/primer/putting-%E2%80%9Clid%E2%80%9D-harmful-stormwater-runoff</p> <p>https://www.buildinggreen.com/news-analysis/sites-v2-sustainable-landscapes-aligns-leed</p> <p>https://www.buildinggreen.com/news-analysis/sites-v2-sustainable-landscapes-aligns-leed</p> <p>https://www.buildinggreen.com/news-analysis/new-ecodistricts-protocol-aims-green-building-scale</p>	<p>Team 4</p>  <p>Team 4</p>
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	<p>More Questions Than Answers in Report on Reflective Pavements</p> <p>The Consumer road to self-driving cars</p> <p>Solar Helps Power a Campus While Engaging Students</p> <p>Denver Votes Green Thumbs Up for Green Roofs</p>	<p>https://www.buildinggreen.com/newsbrief/more-questions-answers-report-reflective-pavements</p> <p>https://na.panasonic.com/us/trends/consumer-road-self-driving-cars</p> <p>https://www.buildinggreen.com/news-analysis/solar-helps-power-campus-while-engaging-students</p> <p>https://www.buildinggreen.com/news-analysis/denver-votes-green-thumbs-green-roofs</p>	<p>Team 5</p> 
	<p>Drawdown, the most comprehensive plan ever proposed to reverse global warming</p>	<p>Read Green Roof, Buildings & Cities sector</p>	<p>All</p>

Assignment 3: One page summary on Green Roof, double space, 12 point font





Stormwater Management & Water Conservation

<p>W, 7/11</p>	<p>Introduction</p> <p>Florida, Georgia water war continues</p> <p>Porous pavement</p> <p>Porous Pavement: A Win-Win Stormwater Strategy</p> <p>Water Scarcity Means Higher ROI for Water Retrofits</p> <p>What Makes Plumbing Green? BuildingGreen's Guide to Plumbing Products</p> <p>Net Zero Water</p> <p>The Embodied Energy of Tap Water</p> <p>Water Budget</p> <p>What Makes Plumbing Green?</p> <p>Watersense</p>	<p>http://www.pnj.com/story/opinion/2016/06/19/florida-georgia-water-war-continues/86112440/</p> <p>http://daily.sightline.org/2012/01/03/the-porous-road-less-traveled/</p> <p>https://www.buildinggreen.com/feature/porous-pavement-win-win-stormwater-strategy</p> <p>https://www.buildinggreen.com/newsbrief/water-scarcity-means-higher-roi-water-retrofits</p> <p>https://www.buildinggreen.com/feature/what-makes-plumbing-green-buildinggreen%E2%80%99s-guide-plumbing-products</p> <p>https://www.buildinggreen.com/feature/net-zero-water-and-more-moving-beyond-%E2%80%9Cflow%E2%80%9D</p> <p>https://www.buildinggreen.com/primer/embodied-energy-tap-water</p> <p>http://www2.buildinggreen.com/article/water-budgets-holistic-look-efficiency?</p> <p>https://www.buildinggreen.com/feature/what-makes-plumbing-green-buildinggreen%E2%80%99s-guide-plumbing-products</p> <p>https://www3.epa.gov/watersense/</p>	<p>Team 6</p>  <p>Team 7</p> <p>Team 7</p>
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Drawdown, the most comprehensive plan ever proposed to reverse global warming	Read Water Distribution & Water Saving, Buildings & Cities sector	All
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Assignment 4: One page summary on **Water Distribution & Water Saving**, double space, 12 point font

Module 3: Energy Conservation, Efficiency, and Renewable energy


M, 7/16	<p>Introduction</p> <p>Net Zero Energy Building</p> <p>What Makes the Building Envelope Green? BuildingGreen’s Guide to Thermal & Moisture</p> <p>Cladding: More Than Just a Pretty Façade</p> <p>Solar Farms Offer Renewable Power</p> <p>Source Energy Is Federally Endorsed Metric for Net-Zero Buildings</p> <p>Zero-Energy Buildings for All</p> <p>Ultimate Building Efficiency Requires Team Integration</p> <p>Thoughts on the Future of the Zero Energy Market</p>	<p>http://www.treehugger.com/green-architecture/net-zero-energy-building-certification-finally-defines-what-net-zero-really-means.html</p> <p>https://www.buildinggreen.com/feature/what-makes-building-envelope-green-buildinggreen%E2%80%99s-guide-thermal-moisture-protection</p> <p>http://www2.buildinggreen.com/article/cladding-more-just-pretty-facade?</p> <p>http://www2.buildinggreen.com/article/solar-farms-offer-renewable-power-rest-us?</p> <p>https://www.buildinggreen.com/news-analysis/source-energy-federally-endorsed-metric-net-zero-buildings</p> <p>https://www.buildinggreen.com/blog/zero-energy-buildings-all-0</p> <p>https://www.buildinggreen.com/newsbrief/ultimate-building-efficiency-requires-team-integration</p> <p>https://www.buildinggreen.com/news-analysis/thoughts-future-zero-energy-market</p>	 Team 8 
@9:30 am	Field trip to WWTP	Meet at WWTP main entrance	
T, 7/17	<p>The Best Indoor LED Luminaires of 2016</p> <p>Measuring Energy Use in Buildings</p> <p>Brock Environmental Center Vindicates Onsite Wind Generation</p> <p>Five Reasons to Be Optimistic About Solar Energy</p> <p>Ultimate Building Efficiency Requires Team Integration</p>	<p>https://www.buildinggreen.com/product-review/best-indoor-led-luminaires-2016</p> <p>http://www2.buildinggreen.com/article/measuring-energy-use-buildings-do-our-metrics-really-add</p> <p>https://www.buildinggreen.com/newsbrief/brock-environmental-center-vindicates-onsite-wind-generation</p> <p>https://www.buildinggreen.com/feature/five-reasons-be-optimistic-about-solar-energy</p> <p>https://www.buildinggreen.com/newsbrief/ultimate-building-efficiency-requires-team-integration</p>	 Team 9 

	<p>Drawdown, the most comprehensive plan ever proposed to reverse global warming</p>	<p>Read Wind Turbine, Solar Farm, Geothermal, Rooftop Solar, Electricity Generation</p>	<p>All</p>
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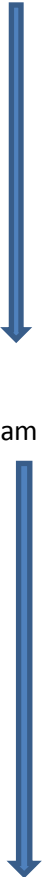
Assignment 5: One page summary on **Wind Turbine, Solar Farm, Geothermal, Rooftop Solar** reading above, double space, 12 point font

Exam 1 on Canvas

Review Atlanta trip visiting sites, understand and prepare questions to ask

<p>W, 7/18</p>	<p><i>Class Trip to Atlanta</i> Leaving Gainesville, 7/18 at 6:00 a.m./ Leaving Atlanta, 7/20 at 1:00 p.m.</p>		
	<p>UL, Underwriters' Electrical Bureau certification process for green products</p> <p>The Atlanta BeltLine</p> <p>Georgia Tech Sustainability</p> <p>Serenbe</p> <p>City of Atlanta sustainability</p> <p>Lifecycle Building Center</p>	<p>http://www.ul.com/about/ http://industries.ul.com/environment/leed-package</p> <p>http://beltline.org/about/the-atlanta-beltline-project/atlanta-beltline-overview/</p> <p>https://sustain.gatech.edu/sustainable-programs-and-practices</p> <p>http://serenbe.com/</p> <p>http://www.atlantaga.gov/index.aspx?page=18</p> <p>http://www.lifecyclebuildingcenter.org/</p>	<p>All</p> 

Module 4: Indoor Environmental Quality

<p>M, 7/23</p>	<p>Introduction</p> <p>Understanding and Measuring Mean Radiant Temperature</p> <p>Mind the Gaps: Making Existing Buildings More Airtight</p> <p>VOCs: Why They're Still Here and What You Can Do About It</p> <p>VOC Testing: What It Can and Can't Tell You</p> <p>Radon in Buildings</p> <p>Pushing Weatherization, Feds Look the Other Way on Radon</p> <p>Employee Performance Doubled in Well-Ventilated Buildings</p>	<p>https://www.buildinggreen.com/blog/understanding-and-measuring-mean-radiant-temperature</p> <p>https://www.buildinggreen.com/feature/mind-gaps-making-existing-buildings-more-airtight</p> <p>https://www.buildinggreen.com/feature/vocs-why-they-re-still-here-and-what-you-can-do-about-it</p> <p>https://www.buildinggreen.com/primer/voc-testing-what-it-can-and-can-t-tell-you</p> <p>http://www2.buildinggreen.com/article/radon-and-schools-study-denial?</p> <p>https://www.buildinggreen.com/news-analysis/pushing-weatherization-feds-look-other-way-radon</p> <p>https://www.buildinggreen.com/news-analysis/employee-performance-doubled-well-ventilated-buildings</p>	<p>Team 10</p> 
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	<p>Could Passivhaus High-Rise Become the Norm?</p>	<p>https://www.buildinggreen.com/newsbrief/could-passivhaus-high-rise-become-norm</p>	
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	<p>Drawdown, the most comprehensive plan ever proposed to reverse global warming</p>	<p>Read LED Lighting House Hold & Commercial, Electricity Generation</p>	<p>All</p>
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Assignment 6: One page summary on **LED Lighting House Hold & Commercial,** double space, 12 point font

Assignment 7: One page summary on **Atlanta trip,** double space, 12 point font


Material and Resources

<p>T, 7/24</p>	<p>Introduction</p> <p>BuildingGreen Announces Top 10 Products for 2018</p> <p>Two for One: Growing Food and Solar Energy Together</p> <p>Trump Imposes Tariffs on Imported Solar Panels</p> <p>Take Control of Your Materials: Four Empowering Lessons from Teams That Beat the Red List</p> <p>The PVC Debate: A Fresh Look</p> <p>What makes product green</p> <p>The Great Eight: High-Impact Material for Green Building</p> <p>Building life cycle assessment</p> <p>The Cost of Comfort: Climate Change and Refrigerants</p> <p>Would Wood Skyscrapers Improve Urban Sustainability?</p>	<p>https://www.buildinggreen.com/product-review/buildinggreen-announces-top-10-products-2018</p> <p>https://www.buildinggreen.com/news-analysis/two-one-growing-food-and-solar-energy-together</p> <p>https://www.buildinggreen.com/newsbrief/trump-imposes-tariffs-imported-solar-panels</p> <p>https://www.buildinggreen.com/feature/take-control-your-materials-four-empowering-lessons-teams-beat-red-list</p> <p>https://www.buildinggreen.com/feature/pvc-debate-fresh-look</p> <p>http://www2.buildinggreen.com/article/what-makes-product-green</p> <p>https://www.buildinggreen.com/feature/great-eight-high-impact-material-choices-green-building</p> <p>http://www2.buildinggreen.com/article/whole-building-life-cycle-assessment-taking-measure-green-building?</p> <p>https://www.buildinggreen.com/feature/cost-comfort-climate-change-and-refrigerants</p> <p>https://www.buildinggreen.com/news-analysis/would-wood-skyscrapers-improve-urban-sustainability</p>	<p>Team 10</p> <p>Team 11</p>  <p>Team 12</p>
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	<p>Drawdown, the most comprehensive plan ever proposed to reverse global warming</p>	<p>Read Refrigeration & Energy Storage (distributed & utilities), Buildings & Cities sector</p>	<p>All</p>
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Assignment 8: One page summary on **Refrigeration & Energy Storage (distributed & utilities),** double space, 12 point font

Material and Health

W, 7/25	Introduction		
	Finding Furniture Without Toxic Flame Retardants	https://www.buildinggreen.com/feature/finding-furniture- without-toxic-flame-retardants	Team 12
	Building product and health	http://www2.buildinggreen.com/article/building-products- and-health-look-risk-vs-hazard?	Team 12
	Understanding GreenScreen and List Translator Benchmarks	https://www.buildinggreen.com/primer/understandin g- greenscreen-and-list-translator-benchmarks	All 
	Cleaner Lungs Could Pay for Billion-Dollar Emissions Policies	https://www.buildinggreen.com/newsbrief/cleaner-lungs- could-pay-billion-dollar-emissions-policies	
Connection between water conservation and infections	http://www2.buildinggreen.com/article/surprisin g- connection-between-water-conservation-and-deadly- infections?		
	Drawdown, the most comprehensive plan ever proposed to reverse global warming	Read Cars, Electric Vehicles & Airplanes, Transport sector	All

Assignment 9: One page summary on **Cars, Electric Vehicles & Airplanes**, double space, 12 point font

Module 5: Building Durability

M, 7/30	Introduction		
	Building commissioning	https://www.buildinggreen.com/feature/verifying-performance-building-enclosure-commissioning	
	To Become Resilient, NYC Looks to Its Buildings	https://www.buildinggreen.com/news-analysis/become-resilient-nyc-looks-its-buildings	
	Climate Change: Building Industry, You’ve Got This!	https://www.buildinggreen.com/feature/climate-change-building-industry-you%E2%80%99ve-got	
	Design Strategies for Occupant Engagement—and Why They Boost Performance	https://www.buildinggreen.com/feature/design-strategies- occupant-engagement%E2%80%94and-why-they-boost- performance	
	Concrete Pours through Loophole in New Carbon Law	https://www.buildinggreen.com/news-analysis/concrete-pours-through-loophole-new-carbon-law	
Urgent: Zero-Carbon Buildings Needed	https://www.buildinggreen.com/newsbrief/urgent-zero-carbon-buildings-needed		
	Drawdown, the most comprehensive plan ever proposed to reverse global warming	Read Insulation & Smart Glass , Building sector	All

Assignment 10: One page summary on **Insulation & Smart Glass**, double space, 12 point font

Looking ahead: Climate Adaptation

<p>T, 7/31</p>	<p>Design for the next century’s weather</p> <p>Resilient Design-Smarter Building for a Turbulent Future</p> <p>The Four Core Issues to Tackle for Resilient Design (And the Programs That Can Help)</p> <p>Resilient Design: 7 Lessons from Early Adopters</p> <p>Six Ways Existing Buildings Can Save the Planet</p> <p>Green Building Training for Low-Income Communities</p> <p>‘Build Higher’: HUD’s Rules After Harvey, Irma, Maria</p> <p>How a Hurricane Forged New Hope for Resilience</p> <p>Bouncing Forward from Disasters</p>	<p>http://www2.buildinggreen.com/article/designing-next-centurys-weather?</p> <p>http://www2.buildinggreen.com/article/resilient-design-smarter-building-turbulent-future?</p> <p>https://www.buildinggreen.com/feature/four-core-issues-tackle-resilient-design-and-programs-can-help</p> <p>http://www2.buildinggreen.com/article/resilient-design-7-lessons-early-adopters?</p> <p>https://www.buildinggreen.com/feature-shorts/six-ways-existing-buildings-can-save-planet</p> <p>https://www.buildinggreen.com/newsbrief/green-building-training-low-income-communities</p> <p>https://www.buildinggreen.com/feature-shorts/build-higher-hud-s-rules-after-harvey-irma-maria</p> <p>https://www.buildinggreen.com/feature-shorts/how-hurricane-forged-new-hope-resilience</p> <p>https://www.buildinggreen.com/op-ed/bouncing-forward-disasters</p>	
<p>W, 8/1</p>	<p>WELL Building Standards</p> <p>Fitwel system</p> <p>20 Ways to Advance Sustainability in the Next Four Years</p> <p>Mass Timber to Be Recognized in Washington Code</p> <p>New Insulated Metal Panels without Halogenated Flame Retardants</p>	<p>http://www2.buildinggreen.com/article/well-building-standard-officially-launches?</p> <p>https://fitwel.org/certification</p> <p>https://www.buildinggreen.com/feature/20-ways-advance-sustainability-next-four-years</p> <p>https://www.buildinggreen.com/newsbrief/mass-timber-be-recognized-washington-code</p> <p>https://www.buildinggreen.com/product-review/new-insulated-metal-panels-without-halogenated-flame-retardants</p>	<p>All</p> 
	<p>Drawdown, the most comprehensive plan ever proposed to reverse global warming</p>	<p>Read Educating Girls & Family Planning, Women & Girls sector</p>	<p>All</p>

Exam 2 on Canvas

Assignment 11: One page summary on **Educating Girls & Family Planning**, double space, 12 point font

<p>Final</p>	<p>Final project presentations</p>	<p>30 minutes presentation including video (if selected) and Q/A per team</p>	
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Pres. 8/6,7,8	To be uploaded and submitted on Canvas before class Presentation dates: 8/6, Teams 12, 10, 1, 3 8/7, Teams 11, 9, 7, 4 8/8, Teams 8, 2, 6, 5	Each team to turn in options: <ul style="list-style-type: none">- Report and presentation. Or- Report and a video. Or- Presentation and a video	
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