



TOWN OF DURHAM
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ENERGY CONSIDERATIONS CHECKLIST

The Durham Energy Committee and the Durham Planning Board developed this checklist to encourage developers, applicants for Site Plan or Subdivision review, applicants for building permits, and Planning Board members to systematically consider the energy efficiency of Durham's new or renovated buildings and sites that are being developed or subdivided. Early discussion of such mandatory (where required under specific Town, State, or Federal standards) or optional energy efficiency measures may result in both energy and cost savings. For information on available funding energy efficiency improvements, see www.nhsaves.com. Completion of this checklist and a meeting with the Building Inspector and a representative of the Durham Energy Committee is required prior to any Planning Board site plan or subdivision approval.

Project Name	<u>Marketing Center for Riverwoods Durham</u>
Date of Submittal	<u>June 30, 2017</u>
Applicant Name	<u>The Riverwoods Group</u>
Engineer Name	<u>Jeff Clifford, PE Altus Engineering, Inc.</u>
Architect Name	<u>Alyssa Murphy, AIA Manypenny Murphy Architecture</u>
Project Contact	<u>Justine Vogel</u>

PART I. BUILDING CONSTRUCTION, SYSTEMS AND MATERIALS

1. National Accredited Rating for Your Building(s)

These organizations have established energy-efficiency criteria. Qualifying applicants are encouraged to complete and attach the checklist from that certification (to be used for informational purposes only) and may then skip to Part III, "Consultation with Director of Zoning, Building Codes & Health."

1	Check	Rating System	Website
1.1	<input type="checkbox"/>	Passive House Institute	www.phius.org
1.2	<input type="checkbox"/>	Living Building Challenge	living-future.org/lbc
1.3	<input type="checkbox"/>	LEED	www.usgbc.org
1.4	<input type="checkbox"/>	Energy Star	www.energystar.gov
1.5	<input checked="" type="checkbox"/>	None of the Above	
1.6	<input type="checkbox"/>	Other	

2. Energy Performance and Insulation, Zone 6 IECC

2	Y	N	N/A	Method	Proposed	Reference
2.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Attic or ceiling insulation exceeds NH/Town code	R_ will exceed cavity fill requirement for existing building	Chapter 38, Town
2.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Walls insulation exceeds NH/Town code	R_____	Chapter 38, Town
2.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Air leakage testing proposed	_____ ACH @ _____ Pa	3ACH@50Pa is NH/Town code
2.4	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Conventional slabs	R_____	
2.5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Radiant slabs	R_____	
2.6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Basement foundation	R_____	
2.7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fenestration	U_____	
2.8	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Hot water pipes	R_____	
2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Heating ducts inside envelope	R_____	

2.10	<input type="checkbox"/>	<input type="checkbox"/>	x	Heating ducts outside envelope	R _____
2.11	<input type="checkbox"/>	<input type="checkbox"/>	x	Commissioning building to confirm performance	
2.12	x	<input type="checkbox"/>	<input type="checkbox"/>	Ventilation system proposed	Type: __continuous fan at restrooms

3. Construction Methods and Materials

3	Y	N	N/A	Method	
3.1	X	<input type="checkbox"/>	<input type="checkbox"/>	Net zero construction, i.e., building uses less than or same amount of energy it generates	
3.2	X	<input type="checkbox"/>	<input type="checkbox"/>	Energy-efficient doors and windows (including screens)	
3.3	X	<input type="checkbox"/>	<input type="checkbox"/>	Recycled content materials	
3.4	X	<input type="checkbox"/>	<input type="checkbox"/>	Locally sourced materials where available	

4. Internal Systems

4	Y	N	N/A	Method	Proposed
4.1	x	<input type="checkbox"/>	<input type="checkbox"/>	Lighting: high efficiency	Type: _LED_
4.2	<input type="checkbox"/>	<input type="checkbox"/>	x	Energy usage monitoring system(s), e.g., smart meters or submeters	
4.3	x	<input type="checkbox"/>	<input type="checkbox"/>	Energy-efficient appliances (refrigerators, stoves, air conditioners, ceiling fans, etc.)	
4.4	<input type="checkbox"/>	<input type="checkbox"/>	x	Cooling system efficiency	SEER _____
4.5	<input type="checkbox"/>	<input type="checkbox"/>	x	Heating system efficiency	AFUE _____
4.6	x	<input type="checkbox"/>	<input type="checkbox"/>	High-efficiency heating system or heat pumps	SEER 16+
4.7	<input type="checkbox"/>	x	<input type="checkbox"/>	Renewable hot water system (e.g., solar thermal)	SF _____
4.8	<input type="checkbox"/>	x	<input type="checkbox"/>	Photovoltaic renewable electricity generation system (i.e., solar panels)	_____ kW
4.9	x	<input type="checkbox"/>	<input type="checkbox"/>	Daylight management (active or passive shades, overhangs, e.g., film, sensors)	
4.10	<input type="checkbox"/>	x	<input type="checkbox"/>	Ability to charge electric vehicles	Level _____
4.11	<input type="checkbox"/>	x	<input type="checkbox"/>	Grey-water system (e.g., water from sinks or showers use for toilets or landscape)	
4.12	<input type="checkbox"/>	x	<input type="checkbox"/>	Mechanical ventilation: heat or energy recovery ventilator	__ % efficient
4.13	<input type="checkbox"/>	x	<input type="checkbox"/>	Water usage monitoring system(s)	
4.14	x	<input type="checkbox"/>	<input type="checkbox"/>	Cooling load reduction features, e.g., ceiling fans, solar-ray-blocking blinds	

PART II: SITE AND SITING CONSIDERATIONS

5. Solar Resource Utilization

5	Y	N	N/A	Method	
5.1	x	<input type="checkbox"/>	<input type="checkbox"/>	Solar access (access of a solar energy system to unobstructed, direct sunlight)	
5.2	x	<input type="checkbox"/>	<input type="checkbox"/>	Solar-ready zone (a section of the roof or building overhang reserved for a future solar photovoltaic or solar thermal system with required internal conduit or plumbing pre-installed)	
5.3	<input type="checkbox"/>	<input type="checkbox"/>	x	Preservation of solar rights in subdivision or neighboring plots (e.g., solar skyspace easement)	
5.4	<input type="checkbox"/>	<input type="checkbox"/>	x	Orientation of internal streets to maximize solar resource for building roofs)	
5.5	<input type="checkbox"/>	<input type="checkbox"/>	x	Tree species selection and location for shading and cooling	
5.6	<input type="checkbox"/>	<input type="checkbox"/>	x	Tree species selection and location to avoid blocking future solar access (for a solar energy system)	
5.7	x	<input type="checkbox"/>	<input type="checkbox"/>	Passive solar lighting design (optimizes natural illumination for interiors)	
5.8	<input type="checkbox"/>	<input type="checkbox"/>	x	Window placement maximizes winter solar penetration and minimizes summer solar penetration	
5.9	<input type="checkbox"/>	<input type="checkbox"/>	x	Vegetated rooftop(s) or other type of "green" roof to provide cooling and/or manage stormwater	

6. Parking, Transportation, Accessibility, and Connectivity

6	Y	N	N/A	Method	
6.1	<input type="checkbox"/>	x	<input type="checkbox"/>	Parking surcharges or incentives/rebates for tenants without cars ("no free parking")	
6.2	x	<input type="checkbox"/>	<input type="checkbox"/>	Compact car space designation	
6.3	<input type="checkbox"/>	x	<input type="checkbox"/>	Advanced technology and/or alternative-fuel car space designation (e.g., hybrids; "E85")	
6.4	<input type="checkbox"/>	x	<input type="checkbox"/>	Pedestrian sidewalk network within the project area	
6.5	<input type="checkbox"/>	<input type="checkbox"/>	x	Bicycle lane or path network within project area	
6.6	x	<input type="checkbox"/>	<input type="checkbox"/>	Storage for bicycles outdoors	Please circle: secured unsecured -- covered uncovered
6.7	<input type="checkbox"/>	x	<input type="checkbox"/>	Storage for bicycles indoors	Please circle: secured unsecured

7. Landscaping and Covenant Terms

Lower water use not only results in reduced water bills but also reduces electricity usage at the Town's water and wastewater treatment facilities.

7	Y	N	N/A	Method
7.1	<input type="checkbox"/>	<input type="checkbox"/>	x	Rainwater storage, e.g., cisterns
7.2	<input type="checkbox"/>	<input type="checkbox"/>	x	Xeriscaping (low-water-demand plants)
7.3	<input type="checkbox"/>	<input type="checkbox"/>	x	Low-nitrogen-demand turf grass
7.4	<input type="checkbox"/>	<input type="checkbox"/>	x	Rain garden or other "bio retention system" to manage site's storm water runoff
7.6	<input type="checkbox"/>	<input type="checkbox"/>	x	Permit outdoor clotheslines (not prohibited by covenant rules)
7.7	<input type="checkbox"/>	<input type="checkbox"/>	x	Permit installation of outdoor energy-efficiency devices, e.g., solar panels

PART III: CONSULTATION WITH BUILDING INSPECTOR

Consultation with the Building Inspector can help highlight and solve potential problems early in the project design phase and reduce overall costs of code compliance. A consultation with the Building Inspector and a representative of the Durham Energy Committee is required prior to approval of any site plan or subdivision application. A follow-up consultation with the Building Inspector, after Planning Board approval, is encouraged and will generally occur as part of the building permit application process.

Consultation Notes

Meeting Date:

Project representatives met with Audrey Cline, Michael Behrendt and an Energy Commission representative on July 29, 2017.

Signature of Building Inspector: