



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>Kappa Delta Sorority Expansion/Renovation</u>
Date of Submittal	<u>20 December 2018</u>
Applicant Name	<u>AG Architects, PC Art Guadano</u>
Engineer Name	<u>Bennett Engineering Stephen Doel</u>
Architect Name	<u>AG Architects, PC Art Guadano</u>
Project Contact	<u>Art Guadano art@agarchitects.com 603-743-3700</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	Other		

2. Energy Performance and Insulation, Zone 6 IECC

2	Y	N	N/A	Method	Proposed	Reference
2.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Attic or ceiling insulation exceeds NH/Town code	R <u>49</u>	Chapter 38, Town
2.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Walls insulation exceeds NH/Town code	R <u>21+R6.6Ci</u>	Chapter 38, Town
2.3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Air leakage testing proposed	<u>3</u> ACH @ <u>50</u> Pa	3ACH@50Pa is NH/Town code
2.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Conventional slabs	R <u>10 / 4' PERIMETER</u>	
2.5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Radiant slabs	R _____	
2.6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Basement foundation	R <u>19</u>	
2.7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fenestration	U <u>.25</u>	
2.8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hot water pipes	R <u>4</u>	
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"/>	<input checked="" type="checkbox"/>	Heating ducts outside envelope	R _____	
2.11	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Commissioning building to confirm performance		
2.12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ventilation system proposed	Type: <u>ERV MECHANICAL VENTILATION</u>	

3. Construction Methods and Materials

3	Y	N	N/A	Method
3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Net zero construction, i.e., building uses less than or same amount of energy it generates
3.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Energy-efficient doors and windows (including screens) <i>WINDOWS, 20% ENERGY STAR</i>
3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Recycled content materials
3.4	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Locally sourced materials where available

4. Internal Systems

4	Y	N	N/A	Method	Proposed
4.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lighting: high efficiency	Type: <u>LED</u>
4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy usage monitoring system(s), e.g., smart meters or submeters	
4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy-efficient appliances (refrigerators, stoves, air conditioners, ceiling fans, etc.)	
4.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cooling system efficiency	<i>IEER</i> SEER <u>18.4</u>
4.5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Heating system efficiency (<i>EXISTING</i>)	AFUE <u>95.5</u>
4.6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High-efficiency heating system or <u>heat pumps</u> <i>COP @ 47°F</i>	AFUE <u>3.55</u>
4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Renewable hot water system (e.g., solar thermal)	SF _____
4.8	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Photovoltaic renewable electricity generation system (i.e., solar panels)	_____ kW
4.9	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Daylight management (active or passive shades, overhangs, e.g., film, sensors)	
4.10	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to charge electric vehicles	Level _____
4.11	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Grey-water system (e.g., water from sinks or showers use for toilets or landscape)	
4.12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mechanical ventilation: heat or energy recovery ventilator	<u>65</u> % efficient
4.13	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Water usage monitoring system(s)	
4.14	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Solar access (access of a solar energy system to unobstructed, direct sunlight)
5.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	<input checked="" type="checkbox"/>	Preservation of solar rights in subdivision or neighboring plots (e.g., solar skyspace easement)
5.4	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Orientation of internal streets to maximize solar resource for building roofs)
5.5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Tree species selection and location for shading and cooling
5.6	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Tree species selection and location to avoid blocking future solar access (for a solar energy system)
5.7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Passive solar lighting design (optimizes natural illumination for interiors)
5.8	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Window placement maximizes winter solar penetration and minimizes summer solar penetration
5.9	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	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"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Parking surcharges or incentives/rebates for tenants without cars ("no free parking")
6.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Compact car space designation
6.3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Advanced technology and/or alternative-fuel car space designation (e.g., hybrids; "E85")
6.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pedestrian sidewalk network within the project area
6.5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Bicycle lane or path network within project area
6.6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Storage for bicycles outdoors Please circle: secured <u>unsecured</u> -- covered <u>uncovered</u>
6.7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Storage for bicycles indoors Please circle: secured <u>unsecured</u>

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"/>	<input checked="" type="checkbox"/>	Rainwater storage, e.g., cisterns
7.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Xeriscaping (low-water-demand plants)
7.3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Low-nitrogen-demand turf grass
7.4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rain garden or other "bio retention system" to manage site's storm water runoff
7.6	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Permit outdoor clotheslines (not prohibited by covenant rules)
7.7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	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:

Signature of Building Inspector: