*Attachment 7:*

# 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 _____

Date of Submittal _____

Applicant Name _____

Engineer Name _____

Architect Name _____

Project Contact _____

## *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 | ☐ | Passive House Institute | www.phius.org |
| 1.2 | ☐ | Living Building Challenge | living-future.org/lbc |
| 1.3 | ☐ | LEED | www.usgbc.org |
| 1.4 | ☐ | Energy Star | www.energystar.gov |
| 1.5 | ☐ | 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 | ☐ | ☐ | ☐ | Attic or ceiling insulation exceeds NH/Town code | R _____ | Chapter 38, Town |
| 2.2 | ☐ | ☐ | ☐ | Walls insulation exceeds NH/Town code | R _____ | Chapter 38, Town |
| 2.3 | ☐ | ☐ | ☐ | Air leakage testing proposed | _____ ACH @ _____ Pa | 3ACH@50Pa is NH/Town code |
| 2.4 | ☐ | ☐ | ☐ | Conventional slabs | R _____ | |
| 2.5 | ☐ | ☐ | ☐ | Radiant slabs | R _____ | |
| 2.6 | ☐ | ☐ | ☐ | Basement foundation | R _____ | |
| 2.7 | ☐ | ☐ | ☐ | Fenestration | U _____ | |
| 2.8 | ☐ | ☐ | ☐ | Hot water pipes | R _____ | |
| 2.9 | ☐ | ☐ | ☐ | Heating ducts inside envelope | R _____ | |
| 2.10 | ☐ | ☐ | ☐ | Heating ducts outside envelope | R _____ | |
| 2.11 | ☐ | ☐ | ☐ | Commissioning building to confirm performance | | |
| 2.12 | ☐ | ☐ | ☐ | Ventilation system proposed | Type: | |

## 3. Construction Methods and Materials

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

## 4. Internal Systems

| 4 | Y | N | N/A | Method | Proposed |
|---|---|---|---|---|---|
| 4.1 | ☐ | ☐ | ☐ | Lighting: high efficiency | Type: _____ |
| 4.2 | ☐ | ☐ | ☐ | Energy usage monitoring system(s), e.g., smart meters or submeters | |
| 4.3 | ☐ | ☐ | ☐ | Energy-efficient appliances (refrigerators, stoves, air conditioners, ceiling fans, etc.) | |
| 4.4 | ☐ | ☐ | ☐ | Cooling system efficiency | SEER _____ |
| 4.5 | ☐ | ☐ | ☐ | Heating system efficiency | AFUE _____ |
| 4.6 | ☐ | ☐ | ☐ | High-efficiency heating system or heat pumps | AFUE _____ |
| 4.7 | ☐ | ☐ | ☐ | Renewable hot water system (e.g., solar thermal) | SF _____ |
| 4.8 | ☐ | ☐ | ☐ | Photovoltaic renewable electricity generation system (i.e., solar panels) | _____ kW |
| 4.9 | ☐ | ☐ | ☐ | Daylight management (active or passive shades, overhangs, e.g., film, sensors) | |
| 4.10 | ☐ | ☐ | ☐ | Ability to charge electric vehicles | Level _____ |
| 4.11 | ☐ | ☐ | ☐ | Grey-water system (e.g., water from sinks or showers use for toilets or landscape) | |
| 4.12 | ☐ | ☐ | ☐ | Mechanical ventilation: heat or energy recovery ventilator | ___ % efficient |
| 4.13 | ☐ | ☐ | ☐ | Water usage monitoring system(s) | |
| 4.14 | ☐ | ☐ | ☐ | 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 | ☐ | ☐ | ☐ | Solar access (access of a solar energy system to unobstructed, direct sunlight) |
| 5.2 | ☐ | ☐ | ☐ | 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 | ☐ | ☐ | ☐ | Preservation of solar rights in subdivision or neighboring plots (e.g., solar skyspace easement) |

| | | | | |
|---|---|---|---|---|
| 5.4 | ☐ | ☐ | ☐ | Orientation of internal streets to maximize solar resource for building roofs) |
| 5.5 | ☐ | ☐ | ☐ | Tree species selection and location for shading and cooling |
| 5.6 | ☐ | ☐ | ☐ | Tree species selection and location to avoid blocking future solar access (for a solar energy system) |
| 5.7 | ☐ | ☐ | ☐ | Passive solar lighting design (optimizes natural illumination for interiors) |
| 5.8 | ☐ | ☐ | ☐ | Window placement maximizes winter solar penetration and minimizes summer solar penetration |
| 5.9 | ☐ | ☐ | ☐ | 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 | ☐ | ☐ | ☐ | Parking surcharges or incentives/rebates for tenants without cars ("no free parking") | |
| 6.2 | ☐ | ☐ | ☐ | Compact car space designation | |
| 6.3 | ☐ | ☐ | ☐ | Advanced technology and/or alternative-fuel car space designation (e.g., hybrids; "E85") | |
| 6.4 | ☐ | ☐ | ☐ | Pedestrian sidewalk network within the project area | |
| 6.5 | ☐ | ☐ | ☐ | Bicycle lane or path network within project area | |
| 6.6 | ☐ | ☐ | ☐ | Storage for bicycles outdoors | Please circle: secured \| unsecured -- covered \| uncovered |
| 6.7 | ☐ | ☐ | ☐ | 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 | ☐ | ☐ | ☐ | Rainwater storage, e.g., cisterns |
| 7.2 | ☐ | ☐ | ☐ | Xeriscaping (low-water-demand plants) |
| 7.3 | ☐ | ☐ | ☐ | Low-nitrogen-demand turf grass |
| 7.4 | ☐ | ☐ | ☐ | Rain garden or other "bio retention system" to manage site's storm water runoff |
| 7.6 | ☐ | ☐ | ☐ | Permit outdoor clotheslines (not prohibited by covenant rules) |
| 7.7 | ☐ | ☐ | ☐ | 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: