



- PURPOSE -

This checklist was developed by the Durham Energy Committee together with the Durham Planning Board. It is intended to encourage developers, applicants for Site Plan Review, applicants for building permits, and members of the Durham Planning Board to consider and discuss optional energy efficiency measures appropriate to a specific application rather than to mandate general requirements. Discussion at early stages may result in opportunities for energy and cost savings.

Project name GARAGE CONVERSION TO OFFICE SPACE
 Date of Submittal 14 FEB 14
 Applicant name ANDREW RUTTER
 Engineer name _____
 Architect name WILLIAM SCHOONMAKER

New Construction Re-Development, Addition or Renovation

PART I. BUILDING CONSTRUCTION, SYSTEMS AND MATERIALS

National Accredited Rating for Building Energy System

Check one box: 1 Does your building meet standards for:

• Passive House Institute* <<http://www.passivehouse.us/passiveHouse/PHIUSHome.html>>
 • International Living Building Institute/Living Building Challenge* <<http://living-future.org/lbc>>
 • LEED* (Platinum, Gold, Silver) <<http://www.usgbc.org/>>
 • Energy Star* <<http://www.energystar.gov/>>

• Other _____
 [please indicate Internet address or other reference]

* 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 IV, "Consultation with Director of Zoning, Building Codes & Health."

None of the above

Yes	No	N/A	Energy performance and insulation
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2 Attic or ceiling insulation exceeds Town code (R value proposed = <u>49</u>) (see Chapter 38)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3 Walls insulation exceeds Town building code (R value proposed = <u>20</u>) (see Chapter 38)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4 Air sealing: passive air infiltration rate proposed*: <u>2.2 ACH 50 @ 75°F (USGBC)</u>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	5 Slabs: R value proposed _____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6 Basement foundation: R value proposed <u>MIN. R.30</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7 Hot water pipes: R value proposed <u>3 MIN.</u>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	8 Heating ducts: R value proposed _____
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	9 Plans to commission the building to confirm performance

* "Tight" envelopes require ventilation, typically with the use of energy or heat recovery ventilation systems.

Yes	No	N/A	Construction methods and materials	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10	Net zero construction, i.e., building(s) uses less than or same amount of energy it generates
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11	Energy efficient doors and windows (including screens)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12	Recycled content materials

Yes	No	N/A	Internal systems	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13	Low-flow plumbing fixtures
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14	Lighting: high efficiency
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15	Energy usage monitoring system(s)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16	Energy-efficient appliances (refrigerators, stoves, air conditioners, ceiling fans, etc.)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17	Energy-efficient HVAC system (proposed efficiency level ____)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18	Renewable HVAC system (e.g., biomass boiler or furnace) or geothermal
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	19	Renewable hot water system (e.g., solar thermal)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	20	Photovoltaic renewable electricity generation system (i.e., solar panels)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	21	Window technology or design that adjusts shading (active or passive, e.g., film, sensors)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	22	Ability to charge electric vehicles
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	23	Grey-water system (e.g., to capture water from sinks or showers to use for toilets or flower gardens)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	24	Mechanical ventilation: Energy Recovery Ventilator efficiency proposed = _____
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	25	Water usage monitoring system(s)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26	Cooling load reduction features, e.g., ceiling fans, solar-ray-blocking blinds

PART II. SITE AND SITING CONSIDERATIONS (if not applicable, check here NA)

Yes	No	N/A	Solar lighting, heating and cooling (passive and active)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	27	Passive solar lighting design (optimizes natural illumination for interiors)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	28	Solar access: availability of, or access to, unobstructed, direct sunlight, usually south-facing Preservation of abutting solar rights, e.g., solar skyspace easements applicable to all plots within a subdivision or to your neighbors
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	29	Orientation of internal streets allows solar access
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30	Deciduous trees that provide shade in summer and do not block solar gain in winter
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	31	Window placement maximizes winter solar penetration and minimizes solar penetration in summer
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	32	Vegetated rooftop(s), also known as a "green roof"

Yes	No	N/A	Parking	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	34	Incentives for tenants without cars ("no free parking")
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	35	Compact car space designation
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	36	Advanced technology and/or alternative fuel car space designation (e.g., hybrids; "E85")

Yes	No	N/A	Transportation, accessibility, connectivity	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	37	Pedestrian sidewalk network within the project area
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	38	Bicycle lane or path network within project area
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	39	Storage for bicycles outdoors (covered/uncovered) (secured/unsecured)<please circle
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	40	Storage for bicycles indoors (secured/unsecured)<please circle

PART III. OPERATIONS AND MAINTENANCE (if not applicable, check here N/A)

Yes No N/A Landscaping

Lower Town water use results in lower electricity demand at water and wastewater treatment plants.

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 41 Rainwater storage, e.g., cisterns |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 42 Existing vegetation or native species plantings |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 43 Xeriscaping (low-water-demand plants) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 44 Low-nitrogen-demand turf grass |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 45 Rain garden ("bioretention system") to manage stormwater runoff from roofs, driveways, parking areas |

Covenant terms (e.g., for homeowner associations) allow:

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 46 Outdoor clotheslines |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 47 Installation of outdoor energy-efficiency devices, such as solar panels |

PART IV. CONSULTATION WITH DIRECTOR OF ZONING, BUILDING CODES & HEALTH

Preliminary and follow-up consultations help solve problems and reduce costs

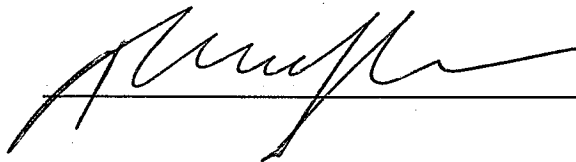
Yes No N/A Met with Town's Director of Zoning, Building Codes & Health

- | | | | |
|-------------------------------------|--------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 48 Date: <u>70 DEC'S AND SEVERAL TIMES SINCE</u> |
|-------------------------------------|--------------------------|--------------------------|--|

Notes from consultation:

ZONING ISSUES RE: OFFICE
SITE ISSUES: RE PARKING & UTILITY HOOK-UPS
ADA ISSUES: COMPLIANT BATHROOM & MOVEMENT THRU SPACE
PUMPING & MECHANICAL DESIGN: LOW FLOW / DUAL FLUSH, RADIANT HEAT, ON-DEMAND HOT WATER, LED FIXTURES, CEILING FANS, MINI-SPLIT OR TRU KALL?
WINDOWS: INSULATED GLASS LOW-E
Electrical lamps, fixtures & controls

Signature of Town's Director of Zoning, Building Codes & Health:

 3/11/14