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	121 Technology Drive
Date of Submittal	2-16-2023
Applicant Name	R.J. Kelly Company
Engineer Name	TBD
Architect Name	Gregory Smith, AIA, CPHC® - GSD Associates, LLC
Project Contact	Shawn Smith, R.J. Kelly Company

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 (detailing for continuity and air and water barriers)	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	X	None of the Above	
1.6		The Building is a large 500,000+ sf Industrial building with Associated Office space. It is currently being subdivided into a multi-tenant industrial and office space building; The proposed renovations are not definitive at this point as all tenants are not yet known. Existing buildings are not required to comply with any of the above standards. However, many of the principles will be used in the design and construction of the facility. The owner will meet or exceed the requirements of the codes for all new construction. Compliance with the IEBC 2018, IBC 2018, and the IECC 2021 as required by the town of Durham, NH.	
	Other	1. Where Roofing is being replaced, additional insulation will be installed, and the Roof Insulation will comply with or exceed the roof insulation of R-30ci for the areas being re-roofed. 2. The existing exterior wall stucco system is in poor condition and is currently proposed to be removed to the existing steel studs. This studdo wall system is primarily located at the two and three story office sections near the main entrance of the building. A new Horizontal Insulated Metal Panel system is to be installed that will meet or exceed the exterior wall insulation U-	

Factor in the continuous insulated metal panels. This insulated wall panel will contain the thermal barrier, air and water barrier and bulk water shedding for the entire wall.

3. The intent of the new wall system is to provide a continuous air seal at the transition to the new and existing roof system , new windows, and the existing foundation system where it is installed. The majority of the existing wall panels are already insulated metal panels that will remain.
4. The existing office building is currently planned to have all of the ribbon windows replaced. These new windows and storefronts will meet or exceed the 2021 IECC energy code for fenestration. and doors. The windows will be designed to be air sealed to the adjacent air barrier. It is the intent of the details to follow detailing standards for Passive House with respect to air sealing and continuity of the insulation.
5. See Attached renderings for imagery of the renovated building façade.

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2. Energy Performance and Insulation, Zone 6 IECC – The information below is related to the Commercial IECC code for applicable areas being renovated, reroofed, or exterior façade replacement. Not all areas of the building are to be reclad or reroofed. All Insulation values will meet or exceed the R Values, or U Factors established in IECC 2021.

2	Y	N	N/A	Method	Proposed	Reference
2.1	x	☐	☐	Roof Insulation Attic or ceiling insulation exceeds NH/Town code	R __30ci_____	Chapter 38, Town
2.2	x	☐	☐	Walls insulation exceeds NH/Town code	R _-19ci+_____	Chapter 38, Town
2.3	☐	☐	x	Air leakage testing proposed	_____ ACH @ _____ Pa	3ACH@50Pa is NH/Town code
2.4	☐	☐	X	Conventional slabs	R _____	
2.5	☐	☐	x	Radiant slabs	R _____	
2.6	☐	☐	X	Basement foundation	R _____	
2.7	X	☐	☐	Fenestration Meet or exceed where new	U _____	
2.8	X	☐	☐	Hot water pipes –(where new piping)	R _____	
2.9	X	☐	☐	Heating ducts inside envelope (where new)	R _____	
2.10	X	☐	☐	Heating ducts outside envelope (where new)	R _____	
2.11	☐	X	☐	Commissioning building to confirm performance		
2.12	X	☐	☐	Ventilation system proposed (where new)	Type: __TBD_____	

3. Construction Methods and Materials

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

4. Internal Systems

4	Y	N	N/A	Method	Proposed
4.1	X	☐	☐	Lighting: high efficiency (LED's where New)	Type: _____
4.2	☐	☐	X	Energy usage monitoring system(s), e.g., smart meters or submeters TBD	
4.3	X	☐	☐	Energy-efficient appliances (refrigerators, stoves, air conditioners, ceiling fans, etc.)(all new to meet energy star)	
4.4	☐	☐	X	Cooling system efficiency TBD	SEER _____
4.5	☐	☐	X	Heating system efficiency TBD	AFUE _____

4.6	☐	☐	X	High-efficiency heating system or heat pumps TBD	AFUE _____
4.7	☐	☐	X	Renewable hot water system (e.g., solar thermal) TBD	SF _____
4.8	☐	☐	X	Photovoltaic renewable electricity generation system (i.e., solar panels) TBD	_____ kW
4.9	☐	☐	X	Daylight management (active or passive shades, overhangs, e.g., film, sensors) TBD	
4.10	☐	☐	x	Ability to charge electric vehicles TBD	Level _____
4.11	☐	☐	X	Grey-water system (e.g., water from sinks or showers use for toilets or landscape) TBD	
4.12	☐	☐	X	Mechanical ventilation: heat or energy recovery ventilator TBD	___ % efficient
4.13	☐	☐	X	Water usage monitoring system(s) TBD	
4.14	☐	☐	x	Cooling load reduction features, e.g., ceiling fans, solar-ray-blocking blinds TBD	

PART II: SITE AND SITING CONSIDERATIONS

5. Solar Resource Utilization TBD – Solar is not currently planned to be installed on the roof, A ground mounted system may be possible and is being investigated.

5	Y	N	N/A	Method
5.1	☐	☐	X	Solar access (access of a solar energy system to unobstructed, direct sunlight) TBD
5.2	☐	☐	X	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	☐	☐	X	Preservation of solar rights in subdivision or neighboring plots (e.g., solar skyspace easement)
5.4	☐	☐	X	Orientation of internal streets to maximize solar resource for building roofs)
5.5	☐	☐	X	Tree species selection and location for shading and cooling
5.6	☐	☐	X	Tree species selection and location to avoid blocking future solar access (for a solar energy system)
5.7	X	☐	☐	Passive solar lighting design (optimizes natural illumination for interiors) – The use of Sol-a-tube sky lighting system is being considered for some of the renovated tenant areas. TBD.
5.8	☐	☐	X	Window placement maximizes winter solar penetration and minimizes summer solar penetration. Existing windows - NA
5.9	☐	☐	X	Vegetated rooftop(s) or other type of "green" roof to provide cooling and/or manage stormwater

6. Parking, Transportation, Accessibility, and Connectivity. Existing Limitations of the electrical service to the site are limited at this time and are dedicated to providing tenant power needs for the operations. Any additional power that may be brought into the site, or generated on site, will be required for additional EV charging.

6	Y	N	N/A	Method	
6.1	☐	X	☐	Parking surcharges or incentives/rebates for tenants without cars ("no free parking")	
6.2	☐	☐	☐	Compact car space designation TBD if needed.	
6.3	☐	☐	X	Advanced technology and/or alternative-fuel car space designation (e.g., hybrids; “E85”)TBD	
6.4	X	☐	☐	Pedestrian sidewalk network within the project area	
6.5	☐	X	☐	Bicycle lane or path network within project area	
6.6	☐	☐	☐	Storage for bicycles outdoors TBD	Please circle: secured | unsecured -- covered | uncovered
6.7	☐	☐	☐	Storage for bicycles indoors TBD	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	☐	X	☐	Rainwater storage, e.g., cisterns
7.2	☐	X	☐	Xeriscaping (low-water-demand plants)
7.3	☐	X	☐	Low-nitrogen-demand turf grass
7.4	☐	X	☐	Rain garden or other "bio retention system" to manage site’s storm water runoff
7.6	☐	X	☐	Permit outdoor clotheslines (not prohibited by covenant rules)
7.7	☐	☐	X	Permit installation of outdoor energy-efficiency devices, e.g., solar panels TBD

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: