

Generated by COMcheck-Web Software
Envelope Compliance Certificate

2003 IECC

Section 1: Project Information

Project Type: **New Construction**
 Project Title : Schnitzer Northeast

Construction Site:	Owner/Agent:	Designer/Contractor:
568 Riverside Street Portland, Maine	Prolerized New England Comapny, LLC 69 Rover St Everett, Massachusetts 02149 781-873-1662	Dennis Waters Patco Construction 1293 Main Street Sanford, Maine 04073 207-324-5574 x24 dwaters@patco.com

Section 2: General Information

Building Location (for weather data):	Portland, Maine
Climate Zone:	15
Heating Degree Days (base 65 degrees F):	7378
Cooling Degree Days (base 65 degrees F):	268
Vertical Glazing / Wall Area Pct.:	2%

<u>Activity Type(s)</u>	<u>Floor Area</u>
Other	8700
Office	3600

Section 3: Requirements Checklist

Envelope PASSES Design 9% better than code.

Climate-Specific Requirements:

Component Name/Description	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor ^(a)
Roof: Metal, without Thermal Blocks	12042	19.0	0.0	0.101	0.053
Ext. Wall: Metal Wall w/o Thermal Blocks	14725	13.0	0.0	0.123	0.075
Window: Vinyl Frame, 2 Pane w/ Low-E, Clear, SHGC 0.29	288	---	---	0.330	0.526
Door: Solid	243	---	---	0.140	0.122
Floor: Unheated Slab-On-Grade, Vertical 4 ft.	12000	---	7.0	---	---

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.

Air Leakage, Component Certification, and Vapor Retarder Requirements:

- 1. All joints and penetrations are caulked, gasketed or covered with a moisture vapor-permeable wrapping material installed in accordance with the manufacturer's installation instructions.
- 2. Windows, doors, and skylights certified as meeting leakage requirements.
- 3. Component R-values & U-factors labeled as certified.
- 4. Insulation installed according to manufacturer's instructions, in substantial contact with the surface being insulated, and in a manner that achieves the rated R-value without compressing the insulation.
- 5. Stair, elevator shaft vents, and other dampers integral to the building envelope are equipped with motorized dampers.
- 6. Cargo doors and loading dock doors are weather sealed.
- 7. Recessed lighting fixtures are: (i) Type IC rated and sealed or gasketed; or (ii) installed inside an appropriate air-tight assembly with a 0.5 inch clearance from combustible materials and with 3 inches clearance from insulation material.

8. Building entrance doors have a vestibule equipped with closing devices.
Exceptions:

Building entrances with revolving doors.

Doors that open directly from a space less than 3000 sq. ft. in area.

9. Vapor retarder installed.

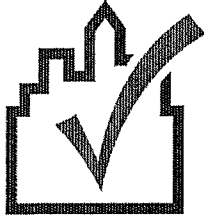
Section 4: Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed envelope system has been designed to meet the 2003 IECC requirements in COMcheck-Web and to comply with the mandatory requirements in the Requirements Checklist.

Dennis Waters, Vice Pres.
Name - Title

Dennis M. A.
Signature

6/3/10
Date



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**Interior Lighting Compliance
 Certificate**

2003 IECC

Section 1: Project Information

Project Type: **New Construction**
 Project Title : Schnitzer Northeast

Construction Site:
 568 Riverside Street
 Portland, Maine

Owner/Agent:
 Prolerized New England Comapny, LLC
 69 Rover St
 Everett, Massachusetts 02149
 781-873-1662

Designer/Contractor:
 Dennis Waters
 Patco Construction
 1293 Main Street
 Sanford, Maine 04073
 207-324-5574 x24
 dwaters@patco.com

Section 2: General Information

Building Use Description by: **Activity Type**

<u>Activity Type(s)</u>	<u>Floor Area</u>
Other	8700
Office	3600

Section 3: Requirements Checklist

Interior Lighting:

- 1. Total proposed watts must be less than or equal to total allowed watts.

<u>Allowed Watts</u>	<u>Proposed Watts</u>	<u>Complies</u>
12660	1608	YES

- 2. Exit signs 5 Watts or less per sign.

Exterior Lighting:

- 3. Efficacy greater than 45 lumens/W.

Exceptions:

Specialized lighting highlighting features of historic buildings; signage; safety or security lighting; low-voltage landscape lighting.

Controls, Switching, and Wiring:

- 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

Areas designated as security or emergency areas that must be continuously illuminated.

Lighting in stairways or corridors that are elements of the means of egress.

- 5. Master switch at entry to hotel/motel guest room.
- 6. Individual dwelling units separately metered.
- 7. Each space provided with a manual control to provide uniform light reduction by at least 50%.

Exceptions:

Only one luminaire in space;
 An occupant-sensing device controls the area;
 The area is a corridor, storeroom, restroom, public lobby or guest room;
 Areas that use less than 0.6 Watts/sq.ft.

- 8. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

Areas with only one luminaire, corridors, storerooms, restrooms, or public lobbies.

- 9. Photocell/astronomical time switch on exterior lights.

Exceptions:

Lighting intended for 24 hour use.

- 10. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

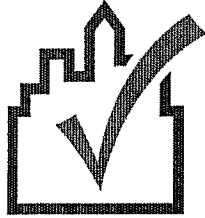
Section 4: Compliance Statement

Compliance Statement: The proposed lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the 2003 IECC, Chapter 8, requirements in COMcheck-Web and to comply with the mandatory requirements in the Requirements Checklist.

Denn M. A Vice Pres.
Name - Title

Dennis Waters
Signature

6/3/10
Date



Generated by COMcheck-Web Software
**Interior Lighting Application
 Worksheet**

2003 IECC

Section 1: Allowed Lighting Power Calculation

A Area Category	B Floor Area (ft ²)	C Allowed Watts / ft ²	D Allowed Watts (B x C)
Other	8700	1	8700
Office	3600	1.1	3960
Total Allowed Watts =			12660

Section 2: Proposed Lighting Power Calculation

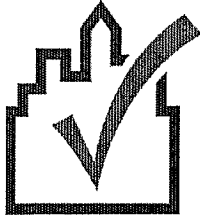
A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Other (8700 sq.ft.)				
Compact Fluorescent: Other / Electronic	6	12	54	648
Office (3600 sq.ft.)				
Compact Fluorescent: Other / Electronic	3	30	32	960
Total Proposed Watts =				1608

Section 3: Compliance Calculation

If the Total Allowed Watts minus the Total Proposed Watts is greater than or equal to zero, the building complies.

Total Allowed Watts = 12660
 Total Proposed Watts = 1608
 Project Compliance = 11052

Interior Lighting PASSES Design 87% better than code.



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Mechanical Compliance Certificate

2003 IECC

Section 1: Project Information

Project Type: **New Construction**
Project Title : Schnitzer Northeast

Construction Site:
568 Riverside Street
Portland, Maine

Owner/Agent:
Prolerized New England Comapny, LLC
69 Rover St
Everett, Massachusetts 02149
781-873-1662

Designer/Contractor:
Dennis Waters
Patco Construction
1293 Main Street
Sanford, Maine 04073
207-324-5574 x24
dwaters@patco.com

Section 2: General Information

Building Location (for weather data): **Portland, Maine**
Climate Zone: **15**
Heating Degree Days (base 65 degrees F): **7378**
Cooling Degree Days (base 65 degrees F): **268**

Section 3: Mechanical Systems List

Quantity System Type & Description

- | | |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | HVAC: Heating: Unit Heater, Gas, Capacity 125000 kBtu/h, Efficiency: 80.00 / Cooling: Split System, Capacity 80000 kBtu/h, Efficiency: 9.00 , Air-Cooled Condenser |
| 1 | Water Heating: Service Water Heater, Efficiency: 0.62 |

Section 4: Requirements Checklist

Requirements Specific To: HVAC :

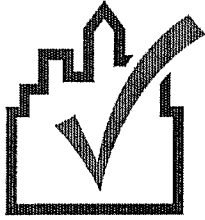
- 1. Equipment minimum efficiency: Unit Heater (Gas): 80.0 % Ec
- 2. Minimum one temperature control device per zone
- 3. Equipment minimum efficiency: Split System: 9.0 EER (9.2 IPLV)
- 4. Systems serving more than one zone must be VAV systems
 - Exception: Where pressure relationships must be maintained
 - Exception: Zones or supply air systems with at least 75% of reheating/recooling energy site recovered or site solar
 - Exception: Zones with humidity requirements for special processes
 - Exception: Zones with cfm <300 and flow rate <10% of total design flow rate
 - Exception: Outside air needed to meet IMC Chapter 4

Requirements Specific To: Water Heating :

- 1. Heat traps in inlet/outlet fittings
- 2. 1/2-in. insulation on 8 ft of inlet/outlet piping if no integral heat traps
- 3. Gas Instantaneous Water Heater efficiency: 0.6 EF

Generic Requirements: Must be met by all systems to which the requirement is applicable:

- 1. Load calculations per ASHRAE Fundamentals
- 2. Plant equipment and system capacity no greater than needed to meet loads
 - Exception: Standby equipment automatically off when primary system is operating



Generated by COMcheck-Web Software
**Mechanical Requirements
Description**

2003 IECC

The following list provides more detailed descriptions of the requirements in Section 4 of the Mechanical Compliance Certificate.

Requirements Specific To: HVAC :

1. The specified heating and/or cooling equipment is covered by the ASHRAE 90.1 Code and must meet the following minimum efficiency:
Unit Heater (Gas): 80.0 % Ec
2. Each zone of a multiple-zone system must have its own temperature control device.
3. The specified heating and/or cooling equipment is covered by ASHRAE 90.1 Code and must meet the following minimum efficiency: Split System: 9.0 EER (9.2 IPLV)
4. Systems serving multiple thermostatic control zones must be variable-flow systems. Zone terminal controls must reduce the flow of primary supply air before reheating, recooling, or mixing air streams to one of the following: a) 30% of the maximum supply air to each zone, b) 300 cfm or less where the maximum flow rate is less than 10% of the total fan system supply airflow rate, or c) minimum ventilation requirements of Chapter 4 of the International Mechanical Code.
 - Exception: VAV controls are not required for zones with special pressurization or cross-contamination requirements. These zones must be called out in the construction documents for easy identification during field inspection.
 - Exception: VAV controls are not required for zones or supply air systems where at least 75% of the reheating and recooling energy is made available through the use of site-recovered or site solar energy. These zones must be called out in the construction documents for easy identification during field inspection.
 - Exception: VAV controls are not required for zones with special humidity control requirements for specialized processes. These zones must be called out in the construction documents for easy identification during field inspection.
 - Exception: VAV controls are not required for zones that require less than 300 cfm of supply air provided the total airflow to these zones does not exceed 10% of the total design flow rate for the system.
 - Exception: VAV controls are not required where constant volume supply air is necessary to meet the minimum outside air requirements of Chapter 4 of the International Mechanical Code. These zones must be called out in the construction documents for easy identification during field inspection.

Requirements Specific To: Water Heating :

1. Heat traps are required on noncirculating water heating systems on both inlet and outlet connections. Heat traps may be purchased or field-fabricated by creating a loop or inverted U-shaped arrangement on the inlet and outlet pipes.
2. Pipe insulation for the specified noncirculating service hot water system is required for all piping in the following categories: a) the first 8 ft of outlet piping from any constant-temperature, noncirculating storage system b) the inlet piping between the storage tank and a heat trap in a noncirculating storage system Pipe insulation must be at least 1/2 in. and have a conductivity no >0.28 Btu-in/(h-ft²-degrees F).
3. Service water heating equipment used solely for heating potable water, pool heaters, and hot water storage tanks must meet the following minimum efficiency: Gas Instantaneous Water Heater efficiency: 0.6 EF

Generic Requirements: Must be met by all systems to which the requirement is applicable:

1. Design heating and cooling loads for the building must be determined using procedures in the ASHRAE Handbook of Fundamentals or an approved equivalent calculation procedure.
2. All equipment and systems must be sized to be no greater than needed to meet calculated loads. A single piece of equipment providing both heating and cooling must satisfy this provision for one function with the capacity for the other function as small as possible, within available equipment options.
 - Exception: The equipment and/or system capacity may be greater than calculated loads for standby purposes. Standby equipment must be automatically controlled to be off when the primary equipment and/or system is operating.
 - Exception: Multiple units of the same equipment type whose combined capacities exceed the calculated load are allowed if they are provided with controls to sequence operation of the units as the load increases or decreases.
3. Each heating or cooling system serving a single zone must have its own temperature control device.
4. Each humidification system must have its own humidity control device.
5. The system or zone control must be a programmable thermostat or other automatic control meeting the following criteria: a) capable of setting back temperature to 55 degrees F during heating and setting up to 85 degrees F during cooling, b) capable of automatically setting back or shutting down systems during unoccupied hours using 7 different day schedules, c) have an accessible 2-hour occupant override, d) have a battery back-up capable of maintaining programmed settings for at least 10 hours without power.

- Exception: A setback or shutoff control is not required on thermostats that control systems serving areas that operate continuously.
 - Exception: A setback or shutoff control is not required on systems with total energy demand of 2 kW (6,826 Btu/h) or less.
6. Outdoor-air supply systems with design airflow rates >3,000 cfm of outdoor air and all exhaust systems must have dampers that are automatically closed while the equipment is not operating.
 7. The system must supply outside ventilation air as required by Chapter 4 of the International Mechanical Code. If the ventilation system is designed to supply outdoor-air quantities exceeding minimum required levels, the system must be capable of reducing outdoor-air flow to the minimum required levels.
 8. Air ducts must be insulated to the following levels: a) Supply and return air ducts for conditioned air located in unconditioned spaces (spaces neither heated nor cooled) must be insulated with a minimum of R-5. Unconditioned spaces include attics, crawl spaces, unheated basements, and unheated garages. b) Supply and return air ducts and plenums must be insulated to a minimum of R-8 when located outside the building. c) When ducts are located within exterior components (e.g., floors or roofs), minimum R-8 insulation is required only between the duct and the building exterior.
 - Exception: Duct insulation is not required on ducts located within equipment.
 - Exception: Duct insulation is not required when the design temperature difference between the interior and exterior of the duct or plenum does not exceed 15 degrees F.
 9. All joints, longitudinal and transverse seams, and connections in ductwork must be securely sealed using weldments; mechanical fasteners with seals, gaskets, or mastics; mesh and mastic sealing systems; or tapes. Tapes and mastics must be listed and labeled in accordance with UL 181A or UL 181B.
 - Exception: Continuously welded and locking-type longitudinal joints and seams on ducts operating at static pressures less than 2 inches w.g. pressure classification.
 10. Mechanical fasteners and seals, mastics, or gaskets must be used when connecting ducts to fans and other air distribution equipment, including multiple-zone terminal units.
 11. All pipes serving space-conditioning systems must be insulated as follows: Hot water piping for heating systems: 1 in. for pipes <=1 1/2-in. nominal diameter, 2 in. for pipes >1 1/2-in. nominal diameter. Chilled water, refrigerant, and brine piping systems: 1 in. insulation for pipes <=1 1/2-in. nominal diameter, 1 1/2 in. insulation for pipes >1 1/2-in. nominal diameter. Steam piping: 1 1/2 in. insulation for pipes <=1 1/2-in. nominal diameter, 3 in. insulation for pipes >1 1/2-in. nominal diameter.
 - Exception: Pipe insulation is not required for factory-installed piping within HVAC equipment.
 - Exception: Pipe insulation is not required for piping that conveys fluids having a design operating temperature range between 55 degrees F and 105 degrees F.
 - Exception: Pipe insulation is not required for piping that conveys fluids that have not been heated or cooled through the use of fossil fuels or electric power.
 - Exception: Pipe insulation is not required for runout piping not exceeding 4 ft in length and 1 in. in diameter between the control valve and HVAC coil.
 12. Operation and maintenance documentation must be provided to the owner that includes at least the following information: a) equipment capacity (input and output) and required maintenance actions b) equipment operation and maintenance manuals c) HVAC system control maintenance and calibration information, including wiring diagrams, schematics, and control sequence descriptions; desired or field-determined set points must be permanently recorded on control drawings, at control devices, or, for digital control systems, in programming comments d) complete narrative of how each system is intended to operate.
 13. Each supply air outlet or diffuser and each zone terminal device (such as VAV or mixing box) must have its own balancing device. Acceptable balancing devices include adjustable dampers located within the ductwork, terminal devices, and supply air diffusers.
 14. Service water heating equipment must meet minimum Federal efficiency requirements included in the National Appliance Energy Conservation Act and the Energy Policy Act of 1992, which meet or exceed ASHRAE 90.1 Code. New service water heating equipment can be assumed to meet these requirements.
 15. Water-heating equipment must be provided with controls that allow the user to set the water temperature to 110 degrees F for dwelling units and 90 degrees F for other occupancies. Controls must limit output temperatures of lavatories in public facility restrooms to 110 degrees F.
 16. Thermostats controlling both heating and cooling must be capable of maintaining a 5 degrees F deadband (a range of temperature where no heating or cooling is provided).
 - Exception: Deadband capability is not required if the thermostat does not have automatic changeover capability between heating and cooling.
 - Exception: Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
 17. Stair and elevator shaft vents must be equipped with motorized dampers capable of being automatically closed during normal building operation and interlocked to open as required by fire and smoke detection systems. All gravity outdoor air supply and exhaust hoods, vents, and ventilators must be equipped with motorized dampers that will automatically shut when the spaces served are not in use.
 - Exception: Gravity (non-motorized) dampers are acceptable in buildings less than three stories in height above grade.
 - Exception: Ventilation systems serving unconditioned spaces.



Certificate of Design Application

From Designer: Carl W. Walker
 Date: 5/12/10
 Job Name: Schnitzer Northeast
 Address of Construction: 568 Riverside Street

2003 International Building Code

Construction project was designed to the building code criteria listed below:

Building Code & Year 2003 IBC Use Group Classification (s) F-1, B
 Type of Construction Type III B
 Will the Structure have a Fire suppression system in Accordance with Section 903.3.1 of the 2003 IRC yes
 Is the Structure mixed use? yes If yes, separated or non separated or non separated (section 302.3) separated
 Supervisory alarm System? yes Geotechnical/Soils report required? (See Section 1802.2) yes

Structural Design Calculations

Submitted for all structural members (106.1 - 106.11)

Design Loads on Construction Documents (1603)

Floor Area Use	Loads Shown
Process	250 psf
2nd floor office	80 psf

Wind loads (1603.1.4, 1609)

yes Design option utilized (1609.1.1, 1609.6)
95 mph Basic wind speed (1809.3)
1.0 Building category and wind importance Factor, K_{zt} (table 1604.5, 1609.5)
C Wind exposure category (1609.4)
enclosed Internal pressure coefficient (ASCE 7)
15.2 Component and cladding pressures (1609.1.1, 1609.6.2.2)
15.2 Main force wind pressures (7603.1.1, 1609.6.2.1)

Earth design data (1603.1.5, 1614-1623)

yes Design option utilized (1614.1)
I, C Seismic use group ("Category")
40/10 Spectral response coefficients, SDs & SD1 (1615.1)
D, 4 Site class (1615.1.5)

N/A Live load reduction
20 psf Roof live loads (1603.1.2, 1607.11)
37.80 psf Roof snow loads (1603.7.3, 1608)
60 psf Ground snow load, P_g (1608.2)
37.8 psf If $P_g > 10$ psf, flat-roof snow load P_f
1 FE (1.90) If $P_g > 10$ psf, snow exposure factor, C_e
1 If $P_g > 10$ psf, snow load importance factor, I_s
Heated (1.0) Roof thermal factor, C_t (1608.4)
37.8 psf Sloped roof snowload, P_s (1608.4)
C Seismic design category (1616.3)
braced frames Basic seismic force resisting system (1617.6.2)
3.0 Response modification coefficient, R , and deflection amplification factor C_d (1617.6.2)
E.L.F. Analysis procedure (1616.6, 1617.5)
 Design base shear (1617.4, 1617.5.1)
 Flood loads (1803.1.6, 1612)
N/A Flood Hazard area (1612.3)
N/A Elevation of structure
 Other loads
3psf collateral Concentrated loads (1607.4)
N/A Partition loads (1607.5)
N/A Misc. loads (Table 1607.8, 1607.6.1, 1607.7, 1607.12, 1607.13, 1610, 1611, 2404)