



COMcheck Software Version 3.9.2

Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **Alteration**

Project Title : Terminal Renovation for:

Construction Site:
Old Dominion Freight Line
185 Rand Road
Portland, ME 04102

Owner/Agent:

Designer/Contractor:
Anthony Gipson, PE
Oliver-Rhoads & Associates, Inc.
301 Industrial Boulevard
Tullahoma, TN 37388
931.454.9940

Section 2: Interior Lighting and Power Calculation

A Area Category	B Floor Area (ft ²)	C Allowed Watts / ft ²	D Allowed Watts (B x C)
Terminal, Shop & Office (Warehouse)	9220	0.8	7376
Total Allowed Watts =			7376

Section 3: Interior Lighting Fixture Schedule

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Terminal, Shop & Office (Warehouse 9220 sq.ft.)				
LED 1: Other:	1	16	45	720
LED 2: Other:	1	17	55	935
LED 3: Other:	1	6	285	1710
LED 4: Other:	1	10	285	2850
Total Proposed Watts =			6215	

Section 4: Requirements Checklist

Interior Lighting PASSES

Lighting Wattage:

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

Allowed Watts	Proposed Watts	Complies
7376	6215	Passes

Controls, Switching, and Wiring:

2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

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. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.
9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.
10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.
11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

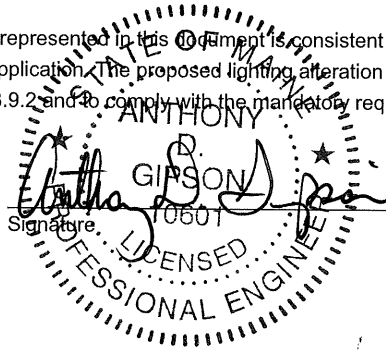
- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Section 5: Compliance Statement

Compliance Statement: The proposed lighting alteration project represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting alteration project has been designed to meet the 2009 IECC, Chapter 8, requirements in COMcheck Version 3.9.2 and to comply with the mandatory requirements in the Requirements Checklist.

Anthony D. Gipson, P.E.

Name - Title



Signature

2/17/14
Date



COMcheck Software Version 3.9.2

Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **Alteration**

Project Title : Terminal Renovation for:

Construction Site:

Old Dominion Freight Line
185 Rand Road
Portland, ME 04102

Owner/Agent:

Designer/Contractor:

Anthony Gipson, PE
Oliver-Rhoads & Associates, Inc.
301 Industrial Boulevard
Tullahoma, TN 37388
931.454.9940

Section 2: General Information

Building Location (for weather data):

Portland, Maine

Climate Zone:

6a

Section 3: Mechanical Systems List

Quantity System Type & Description

- 1 RTU-1 (Single Zone) :
Heating: 1 each - Central Furnace, Propane, Capacity = 80 kBtu/h
Cooling: 1 each - Rooftop Package Unit, Capacity = 39 kBtu/h, Air-Cooled Condenser
Proposed Efficiency = 15.00 SEER, Required Efficiency = 13.00 SEER
Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP method) : Passes
Fans:
FAN 1 Supply, Constant Volume, 1200 CFM, 1 motor nameplate hp
- 1 AC-2 (Single Zone) :
Heating: 1 each - Duct Furnace, Propane, Capacity = 80 kBtu/h
Proposed Efficiency = 95.00% Ec, Required Efficiency = 80.00% Ec
Cooling: 1 each - Split System, Capacity = 35 kBtu/h, Air-Cooled Condenser
Proposed Efficiency = 13.00 SEER, Required Efficiency = 13.00 SEER
Fan System: FAN SYSTEM 2 -- Compliance (Motor nameplate HP method) : Passes
Fans:
FAN 2 Supply, Constant Volume, 1350 CFM, 1 motor nameplate hp
- 1 AC-3 (Single Zone) :
Heating: 1 each - Duct Furnace, Propane, Capacity = 40 kBtu/h
Proposed Efficiency = 95.00% Ec, Required Efficiency = 80.00% Ec
Cooling: 1 each - Split System, Capacity = 23 kBtu/h, Air-Cooled Condenser
Proposed Efficiency = 13.00 SEER, Required Efficiency = 13.00 SEER
Fan System: FAN SYSTEM 3 -- Compliance (Motor nameplate HP method) : Passes
Fans:
FAN 3 Supply, Constant Volume, 800 CFM, 0 motor nameplate hp
- 1 WH-1:
Electric Storage Water Heater, Capacity: 30 gallons
Proposed Efficiency: 0.95 EF, Required Efficiency: 0.89 EF

Section 4: Requirements Checklist

Requirements Specific To: RTU-1 :

1. Equipment minimum efficiency: Rooftop Package Unit: 13.00 SEER

- 2. Newly purchased equipment meets the efficiency requirements

Requirements Specific To: AC-2 :

- 1. Equipment minimum efficiency: Duct Furnace (Propane): 80.00 % Ec
- 2. Equipment minimum efficiency: Split System: 13.00 SEER

Requirements Specific To: AC-3 :

- 1. Equipment minimum efficiency: Duct Furnace (Propane): 80.00 % Ec
- 2. Equipment minimum efficiency: Split System: 13.00 SEER

Requirements Specific To: WH-1 :

- 1. Water heating equipment meets minimum efficiency requirements: Electric Water Heater efficiency: 0.89 EF (211 SL, Btu/h (if > 12 kW))
- 2. First 8 ft of outlet piping is insulated
- 3. Hot water storage temperature controls that allow setpoint of 90°F for non-dwelling units and 110°F for dwelling units.
- 4. Heat traps provided on inlet and outlet of storage tanks

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

- 1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
 - Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
- 2. Minimum one temperature control device per system
- 3. Minimum one humidity control device per installed humidification/dehumidification system
- 4. Load calculations per ASHRAE/ACCA Standard 183.
- 5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
 - Continuously operating zones
- 6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
- 7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
Exception(s):
 - Ducts located within equipment
 - Ducts with interior and exterior temperature difference not exceeding 15°F.
- 8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
- 9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
- 10. Hot water pipe insulation: 1.5 in. for pipes <=1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 in. for pipes <=1.5 in. and 1.5 in. for pipes >1.5 in.
Steam pipe insulation: 1.5 in. for pipes <=1.5 in. and 3 in. for pipes >1.5 in.
Exception(s):
 - Piping within HVAC equipment.
 - Fluid temperatures between 55 and 105°F.
 - Fluid not heated or cooled with renewable energy.
 - Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
 - Runouts <4 ft in length.
- 11. Operation and maintenance manual provided to building owner
- 12. Thermostatic controls have 5°F deadband
Exception(s):
 - Thermostats requiring manual changeover between heating and cooling
 - Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
- 13. Balancing devices provided in accordance with IMC (2006) 603.17
- 14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft² in spaces >500 ft²) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.
Exception(s):
 - Systems with heat recovery.
 - Multiple-zone systems without DDC of individual zones communicating with a central control panel.
 - Systems with a design outdoor airflow less than 1200 cfm.

- Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
- 15. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings
Exception(s):
 - Gravity dampers acceptable in buildings <3 stories
- 16. Automatic controls for freeze protection systems present
- 17. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
Exception(s):
 - Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
 - Systems serving spaces that are heated and not cooled to less than 60°F.
 - Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
 - Heating systems in climates with less than 3600 HDD.
 - Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
 - Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
 - Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
 - a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) no simultaneous heating and cooling.

Section 5: Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed mechanical alteration project has been designed to meet the 2009 IECC, Chapter 8, requirements in COMcheck Version 3.9.2 and to comply with the mandatory requirements in the Requirements Checklist.

Billy D. Oliver

Name - Title



Signature:

Date

2/17/14

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date