

# COMcheck Software Version 4.0.3.0 Mechanical Compliance Certificate

## Section 1: Project Information

Energy Code: 2009 IECC

Project Title: Bangor Savings Bank - Marginal Way

Project Type: New Construction

Construction Site:

20 Marginal Way  
Portland, ME 04101

Owner/Agent:

Jason Donovan  
Bangor Savings Bank  
PO Box 930  
Bangor, ME 04402-0930  
207-942-5211  
Jason.Donovan@bangor.com

Designer/Contractor:

Mason Rowell  
Landry/French Construction  
160 Pleasant Hill Road  
Scarborough, ME 04074  
207-730-5566  
mrowell@landryfrenchconstruction.com

## Section 2: General Information

Building Location (for weather data):

Portland, Maine

Climate Zone:

6a

## Section 3: Mechanical Systems List

Quantity System Type & Description

- 1 Boiler System (Multiple-Zone w/ Perimeter System) :  
Heating: 1 each - Other, Hot Water, Capacity = 229 kBtu/h  
No minimum efficiency requirement applies  
Fan System: None
- 1 SSD-1 (Single Zone) : Split System Heat Pump  
Heating Mode: Capacity = 54 kBtu/h,  
Proposed Efficiency = 9.00 HSPF, Required Efficiency = 7.70 HSPF  
Cooling Mode: Capacity = 40 kBtu/h,  
Proposed Efficiency = 18.00 SEER, Required Efficiency = 13.00 SEER  
Fan System: FAN SYSTEM 2 | SSD-2 -- Compliance (Brake HP method) : Passes  
  
Fans:  
FAN 2 Supply, Constant Volume, 1377 CFM, 0.8 motor nameplate hp, 0.6 brake hp
- 4 SSD-2,3,5,11 (Single Zone) : Split System Heat Pump  
Heating Mode: Capacity = 14 kBtu/h,  
Proposed Efficiency = 9.00 HSPF, Required Efficiency = 7.70 HSPF  
Cooling Mode: Capacity = 10 kBtu/h,  
Proposed Efficiency = 18.00 SEER, Required Efficiency = 13.00 SEER  
Fan System: FAN SYSTEM 3 | SSD-2,3,5,11 -- Compliance (Brake HP method) : Passes  
  
Fans:  
FAN 1 Supply, Constant Volume, 335 CFM, 0.5 motor nameplate hp, 0.3 brake hp
- 1 SSD-4 (Single Zone) : Split System Heat Pump  
Heating Mode: Capacity = 34 kBtu/h,  
Proposed Efficiency = 9.00 HSPF, Required Efficiency = 7.70 HSPF  
Cooling Mode: Capacity = 25 kBtu/h,  
Proposed Efficiency = 18.00 SEER, Required Efficiency = 13.00 SEER  
Fan System: FAN SYSTEM 3 | SSD-2,3,5,11 -- Compliance (Brake HP method) : Passes  
  
Fans:  
FAN 1 Supply, Constant Volume, 335 CFM, 0.5 motor nameplate hp, 0.3 brake hp
- 3 SSD-6,8,10 (Single Zone) : Split System Heat Pump  
Heating Mode: Capacity = 8 kBtu/h,  
Proposed Efficiency = 9.00 HSPF, Required Efficiency = 7.70 HSPF

Cooling Mode: Capacity = 6 kBtu/h,  
Proposed Efficiency = 18.00 SEER, Required Efficiency = 13.00 SEER  
Fan System: FAN SYSTEM 5 | SSD-6,8,10 -- Compliance (Brake HP method) : Passes

Fans:  
FAN 4 Supply, Constant Volume, 317 CFM, 0.5 motor nameplate hp, 0.1 brake hp

- 1 SSD-7 (Single Zone) : Split System Heat Pump  
Heating Mode: Capacity = 40 kBtu/h,  
Proposed Efficiency = 9.00 HSPF, Required Efficiency = 7.70 HSPF  
Cooling Mode: Capacity = 30 kBtu/h,  
Proposed Efficiency = 18.00 SEER, Required Efficiency = 13.00 SEER  
Fan System: FAN SYSTEM 6 | SSD-7 -- Compliance (Brake HP method) : Passes
- Fans:  
FAN 5 Supply, Constant Volume, 1138 CFM, 0.8 motor nameplate hp, 0.5 brake hp

- 1 SSD-9 (Single Zone) : Split System Heat Pump  
Heating Mode: Capacity = 27 kBtu/h,  
Proposed Efficiency = 9.00 HSPF, Required Efficiency = 7.70 HSPF  
Cooling Mode: Capacity = 20 kBtu/h,  
Proposed Efficiency = 18.00 SEER, Required Efficiency = 13.00 SEER  
Fan System: FAN SYSTEM 7 | SSD-9 -- Compliance (Brake HP method) : Passes

Fans:  
FAN 6 Supply, Constant Volume, 688 CFM, 0.5 motor nameplate hp, 0.3 brake hp

- 2 SSD-12,13 (Single Zone) : Split System Heat Pump  
Heating Mode: Capacity = 20 kBtu/h,  
Proposed Efficiency = 9.00 HSPF, Required Efficiency = 7.70 HSPF  
Cooling Mode: Capacity = 15 kBtu/h,  
Proposed Efficiency = 18.00 SEER, Required Efficiency = 13.00 SEER  
Fan System: FAN SYSTEM 8 | SSD-12,13 -- Compliance (Brake HP method) : Passes

Fans:  
FAN 7 Supply, Constant Volume, 635 CFM, 0.5 motor nameplate hp, 0.3 brake hp

- 1 HRU-1 (Single Zone) :  
Cooling: 1 each - Single Package DX Unit, Capacity = 38 kBtu/h, Air-Cooled Condenser, Air Economizer  
Proposed Efficiency = 13.20 SEER, Required Efficiency = 13.00 SEER  
Fan System: FAN SYSTEM 8 | Heat Recovery Unit -- Compliance (Brake HP method) : Passes

Fans:  
FAN 8 Supply, Single-Zone VAV, 1165 CFM, 1.3 motor nameplate hp, 0.9 brake hp  
FAN 9 Exhaust, Single-Zone VAV, 1165 CFM, 1.3 motor nameplate hp, 0.7 brake hp  
Pressure Drop Credits:  
Heat recovery device, 0.2454 credit

- 1 DSS-1,ACCU-2 (Single Zone) :  
Cooling: 1 each - Split System, Capacity = 12 kBtu/h, Air-Cooled Condenser, No Economizer, Economizer  
exception: None  
Proposed Efficiency = 18.00 SEER, Required Efficiency = 13.00 SEER  
Fan System: FAN SYSTEM 3 | SSD-2,3,5,11 -- Compliance (Brake HP method) : Passes

Fans:  
FAN 1 Supply, Constant Volume, 335 CFM, 0.5 motor nameplate hp, 0.3 brake hp

- 1 Plant 1:  
Heating: Hot Water Boiler, Capacity 229 kBtu/h, Gas  
No minimum efficiency requirement applies
- 1 Water Heater 1:  
Electric Storage Water Heater, Capacity: 50 gallons  
Proposed Efficiency: 100.00 EF, Required Efficiency: 0.86 EF

## Section 4: Requirements Checklist

### Requirements Specific To: Boiler System :

1. Minimum one temperature control device per zone
2. Systems serving more than one zone must be VAV systems
3. Controls capable of resetting supply air temp (SAT) by 25% of SAT-room temp difference
- Exception(s):
- Systems that prevent reheating, recooling or mixing of heated and cooled supply air

- Seventy five percent of the energy for reheating is from site-recovered or site solar energy sources.
- Zones with peak supply air quantities of 300 cfm (142 L/s) or less.
- 4. VAV fans with static pressure sensors are placed in a position such that the controller setpoint is no greater than one-third the total design fan static pressure. If placement results in the sensor being located downstream of major duct splits, multiple sensors are installed in each major branch.  
Exception(s):
  - Systems with DDC of individual zone boxes reporting to the central control panel and reset of static pressure setpoint based on the zone requiring the most pressure.
- 5. Systems with DDC of individual zone boxes reporting to the central control panel has static pressure setpoint reset based on the zone requiring the most pressure.

**Requirements Specific To: SSD-1 :**

- 1. Equipment minimum efficiency: Heat Pump: 7.70 HSPF 13.00 SEER

**Requirements Specific To: SSD-2,3,5,11 :**

- 1. Equipment minimum efficiency: Heat Pump: 7.70 HSPF 13.00 SEER

**Requirements Specific To: SSD-4 :**

- 1. Equipment minimum efficiency: Heat Pump: 7.70 HSPF 13.00 SEER

**Requirements Specific To: SSD-6,8,10 :**

- 1. Equipment minimum efficiency: Heat Pump: 7.70 HSPF 13.00 SEER

**Requirements Specific To: SSD-7 :**

- 1. Equipment minimum efficiency: Heat Pump: 7.70 HSPF 13.00 SEER

**Requirements Specific To: SSD-9 :**

- 1. Equipment minimum efficiency: Heat Pump: 7.70 HSPF 13.00 SEER

**Requirements Specific To: SSD-12,13 :**

- 1. Equipment minimum efficiency: Heat Pump: 7.70 HSPF 13.00 SEER

**Requirements Specific To: HRU-1 :**

- 1. Equipment minimum efficiency: Single Package Unit: 13.00 SEER

**Requirements Specific To: DSS-1,ACCU-2 :**

- 1. Equipment minimum efficiency: Split System: 13.00 SEER

**Requirements Specific To: Plant 1 :**

- 1. Newly purchased heating equipment meets the heating efficiency requirements
- 2. Two-pipe changeover heating/cooling controls must have:
  - a) 15 degrees F deadband where boiler and chiller can not operate,
  - b) allow operation in either heating or cooling for at least 4 hrs. and
  - c) prevent difference between heating and cooling set points greater than 30 degrees F

Exception(s):

- Air/evap condenser and extensive outside-air filtration
- 3. Systems with multiple boilers have automatic controls capable of sequencing boiler operation

**Requirements Specific To: Water Heater 1 :**

- 1. Water heating equipment meets minimum efficiency requirements: Electric Water Heater efficiency: 0.86 EF (267 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:**

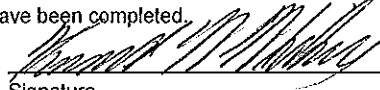
- 1. Plant equipment and system capacity no greater than needed to meet loads  
Exception(s):
  - Standby equipment automatically off when primary system is operating
  - Multiple units controlled to sequence operation as a function of load
- 2. Minimum one temperature control device per system
- 3. 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):



- 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.

KENNETH WHITKIS  
Principal Mechanical Designer-Name

  
Signature

6/6/16  
Date