



KEENAN + KENNY ARCHITECTS, LTD.

August 28, 2017

Town of Oak Bluffs
New Town Hall
56 School Street
Oak Bluffs, MA

Report of energy saving and sustainable materials and systems to be incorporated in the New Town Hall:
Presented to the Martha's Vineyard Commission.

A. BUILDING ENVELOPE:

1. Exterior Walls and Roofs:

- Insulation includes min. 6" of closed cell, high density spray foam at walls and minimum 8" at roofs.
- An additional layer of rigid insulation is installed over exterior sheathing, 1 ½" thick at walls and 3 ½" thick at roofs
- Rigid insulation acts as a thermal break reducing any heat loss through studs.

2. All interior areas are independently isolated and can be heated and/or cooled separately (see HVAC system description).

3. R Values

• Code Requirements:

- i. Stud Walls: R – 20.0
- ii. Walls below grade: R – 7.5
- iii. Floors (interior over unheated spaces – N.A.): R – 30.0
- iv. Slabs-on-grade perimeter: R – 10.0
- v. Roofs: R – 38.0

• Provided:

- i. Stud Walls: R – 36.54
- ii. Walls below grade: R – 13.0
- iii. Floors (interior, all space heated): R – 32.0
- iv. Slabs-on-grade: R – 10.0
- v. Roofs: R – 60.35

4. Windows and Doors

- All windows and door are the most efficient, high performance units available.
- Seventy five percent of the windows are operable awning type for natural ventilation. Awning windows are more efficient than other types, i.e. double-hung.

5. Foundation Walls and Slabs-on-grade

- All below grade concrete foundations are to receive a 2" thick, R – 13.0, rigid foam layer over a waterproofing membrane.
- The perimeter of slabs-on-grade will be insulated with continuous 4' deep x 4' wide layers of 2" rigid insulation

189 Main Street
Falmouth, MA 02540
508•540•0075 TEL
office@kandkarchitects.com

6. Roofing:

- A portion of the main roof will be a standing seam metal roof with an integrated clip system to provide easy fastening of a future photo-voltaic system without any future roofing penetrations (see electrical).

B. ELECTRICAL:

1. Most lighting fixtures to be high-efficient LED type.
2. Total building occupancy sensor lighting controls
3. Energy efficient systems will be similar to the new OB Firehouse which received a \$65G grant refund from the Cape Light Compact.
4. An 1800 square foot area is provided for the south facing shed roof dormer for future installation of a photo voltaic system which may provide 100% of the buildings electricity needs. PV power research will be required, the building will have all infrastructure required for the full PV array. Note: The power generated is fed back into the grid and not actually powering the building.

C. HVAC:

1. The heating, ventilating and air conditioning needs will be provided by a Mitsubishi City-Multi Variable Refrigerant Flow (VRF) system or approved equal as manufactured by Daikon AC. VRF zoning is an energy-efficient method of providing precise comfort control of indoor environments. This system is essentially a high efficiency heat pump system, which has a SEER (seasonal energy efficiency ratio) of 19.5.
2. VRF moves refrigerant to the zone to be heated or cooled, allowing the temperature of that area to be more precisely controlled. It can simultaneously cool some zones while heating other area. Zones are single or multiple room spaces that are conditioned to a set temperature and are operated independently from other rooms within the same usable space.
3. It should be noted that a SEER of 19.5 is well above the federal recommended minimum of 13.0; highest and best performance ratios are between 18.0 and 23.0.
4. The entire heating and ventilating system contains Energy Recovery units which recycle all exhaust air through the units mixing the building's warm exhaust air with outside fresh air before exiting the building with this system. All code required fresh air is basically pre-heated before it enters the building.

D. PLUMBING: All fixtures to be low volume (water) use and have sensor-type valves.

E. RECYCLED MATERIALS:

1. All flooring materials including LVT, carpet and tile will contain the highest industry standards for recycled material.
2. Ceiling acoustic tile products also have the best rating available.
3. Exterior materials, i.e. trim, are also scheduled to be high recycle content.

In closing, all design and planning for the new town hall represents the highest standards of sustainability possible.

Site water containment, primarily for roof storm/rain water is not planned to be reused or recycled.

Based on future studies and cost considerations we will further review the options for other sustainable elements.

Submitted By:

John J. Keenan, R.A.

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