



Integral Building & Design

231 Main Street, Suite 103, PO Box 96

New Paltz, NY 12561

(845) 255-0418

C-5

October 8, 2016

David Shepler
Net-Zero Development LLC
18 Cooper St
New Paltz, NY 12561
(845) 514-7374

Re: Net-Zero Energy Design Results

Site: Zero Place, Rte. 32N, New Paltz, NY

- Mixed-use Residential and Commercial Spaces
- 48-Apartment Units (1 & 2-Bdrm)
- 192 kW Solar PV Array System

Dear David,

This letter is to confirm the projected energy consumption and power generation for the ZERO Place project. I have reviewed the proposed design to evaluate and confirm the potential to achieve Net-Zero Energy for all of the residential dwellings units. This means that the total energy use for the apartments will be off-set by the power generation of solar energy on an average annualized basis. In sum, my analysis has determined that the design of the building, as referenced above and represented on plans provided by BOLDER Architecture, is projected to produce *more than 100%* of the total energy consumption of the residential apartment units.

Integral Building & Design

Our mission is to assist building professionals to design and construct buildings with increased energy efficiency, durability, comfort and most importantly, safety for their occupants. Our team of energy professionals are nationally accredited Energy Raters by RESNET, ENERGY STAR, US DOE, Passive-House Institute-US and the USGBC. We have some of the most extensive knowledge and experience in New York State with Net-Zero Energy Buildings. Our services include design consulting for building enclosures, moisture management, HVAC systems, including energy modeling, performance testing and commissioning. Additionally, we serve as third-party verifiers and Raters for both energy efficiency and green building program compliance.

Summary of Design Evaluation for ZERO Place

The building design was evaluated in terms of energy use, efficiency and power generation utilizing nationally recognized energy rating standards and accredited software tools including AEC / NORESO's REM-Rate. The design concept for this project is based on high performance building principles with the integration of some of the most advanced strategies for thermal control, space conditioning, energy efficient appliances, LED lighting, energy monitoring and other related end-uses. The results of the energy-modeling demonstrate that the building design and specifications, exclusive of the Solar PV system, are projected to reduce energy loads of the residential dwelling units collectively by more than sixty-percent (60%) relative to the performance of typical new dwellings of the

same size. This is due to the high performance building enclosure including Insulated Concrete Form (ICF) wall construction, super-insulation at the roof and triple-pane fenestration.

Upon inclusion of the solar PV system for energy generation into the calculations, the energy modeling projections demonstrate a complete reduction of annualized utility-grid energy consumption, as outlined below.

The annual energy use and generation values, averaged for all the apartment dwelling units, are as follows:

Projected Energy Use, inclusive of:

Space Heating & Cooling

Geo-thermal Systems dedicated to each dwelling served by a common loop

Domestic Water Heating

Electric Heat Pumps, Solar Thermal and Drain Water Heat Recovery

Lighting, Appliances and Plug-loads

ENERGY STAR Appliances, LED Lighting, Smart-use Plug Load Controls and Energy Monitoring

Total 224,544 kWh/Yr

Projected Power Generation:

Total Solar Array Production: 225,888 kWh/Yr

Projected Energy Use to be Generated on-site via Solar PV System: 100.6%

HERS Index (<https://www.resnet.us/hers-index>):

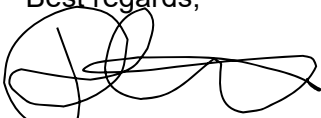
Scale 100 – 0 (100 = Typical New Home, 0 = Net-Zero Energy) 0

Notes:

- Actual energy use and power vary based on various conditions including solar exposure and occupant behavior.
- The values referenced in the projections are based on the current preliminary building design and will need to be confirmed upon the final building design.
- Energy consumption related to the residential common areas of the building (ie: corridors, elevator and exterior lighting) as well as the commercial spaces are not included in the calculations above.

Should you have any questions or require any additional information, please do not hesitate to contact me directly at 845-255-0418 or via cell phone at 845-853-5915.

Best regards,



Pasquale Strocchia

Certified Building Performance Professional and Energy Rater

Cc: Anthony Aebi, Greenhill Contracting
Keith Libolt, Libolt & Sons
David Toder, BOLDER Architecture