• BEYOND CAL-GREEN •
Cost Effective
Zero-Net Energy Homes

Bob Massaro, Founder and CEO
The Healthy Building Companies • Thriving Communities
Napa, California

BayREN September Form 2016

Presenting within the context
of our projects that are
Zero Net Energy
and
Ultra Low Water Consuming
...
WHAT WE DO

HOW WE ARE DIFFERENT

WHY WE ARE COST EFFECTIVE
Application of our Sustainable Elements

MULTI-FAMILY
Application of our Sustainable Elements

MULTI-FAMILY

45 Townhomes - Napa 2006

Application of our Sustainable Elements

SINGLE-FAMILY

Custom Home – Sonoma 2007
Application of our Sustainable Elements

STUDENT HOUSING

Dormitory (61 Students)
St. Helena 2010

Application of our Sustainable Elements

SUPPORTIVE HOUSING

Supportive Housing, Napa 2012
Application of our Sustainable Elements
CASE STUDY HOMES (Spec)

Showcase Homes
2013 - Napa

Application of our Sustainable Elements
MINI-OHOMES
Raising the bar – Introducing Three New Projects

Harvest Village
11 New ZNE Homes
Harvest Village

Huntley Square
A MiniOHome Village (575 S.F.)
Napa Creek Village
Targeted to be the Greenest Multi-Family Project in the U.S.

Napa Creek Village
48 Rental Condos • Napa
Looking at these projects through 3 Lenses

1. Our Design Principles
2. Why we are so Cost Effective.
3. Our 4 “Value Metrics”

#1 - Create and Enliven Community
#2 - Reduce our Carbon Footprint

#3 - Provide Healthy Indoor Environments
#4 - Save every drop of water we can!

#5 - Build beautiful places people will thrive in.
Our Cost Effectiveness Equation

Smarter 
+ 
Faster 
= 
Greener & Healthier

OTechnology
Advanced Steel Panelization

healthy BUILDINGS
TECHNOLOGY GROUP
The Offsite Process

OTECHNOLOGY IS NOT – MODULAR, PREFAB, MOBILE HOMES, TRAILERS…

The Onsite Process
Money saved from OTechnology is used to pay for...

- Renewable Energy
- Grey Water Systems
- Electric Vehicle Charging Stations
- Living Walls
- Community Gardens…

... and other features that improve the beauty of the projects and the quality of life for our residents.
BUILD IT GREEN Confirms – NCV among the greenest of 40,000 projects they have ever evaluated.

- Annual energy savings equivalent to 3,472,072 lightbulbs.
- Annual water savings equivalent to 30,371 bathtubs.
- One-time overall carbon emissions avoided equivalent to taking 11,646 cars off the road.
- Annual overall carbon emissions avoided equivalent to taking 42 cars off the road.
- Annual savings of solid waste diverted from landfills equivalent to filling 345 trash cans.

Preliminary LEED Analysis
Napa Creek Village

<table>
<thead>
<tr>
<th>Phase</th>
<th>Projected</th>
<th>Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation &amp; Design Process</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Location &amp; Linkages</td>
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<tr>
<td>Sustainable Sites</td>
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<td>22</td>
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<tr>
<td>Water Efficiency</td>
<td>15</td>
<td>15</td>
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<tr>
<td>Energy and Atmosphere</td>
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<td>38</td>
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<tr>
<td>Materials &amp; Resources</td>
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<td>16</td>
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<tr>
<td>Indoor Environmental Quality</td>
<td>17</td>
<td>21</td>
</tr>
<tr>
<td>Awareness &amp; Education</td>
<td>3</td>
<td>3</td>
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</tbody>
</table>

Total 111 136

Upper Level LEED Platinum!
Grey water system

Grey Water

- Showers only – Too much water otherwise.
- Increased water consumption of plants.
- NCV - First MFR project in the North Bay with G.W. System
- No Garbage Disposals – Encourage composting
- Sanitation District & Effluent
NO Natural Gas

- 100% Electric (heat pumps, HP water heaters, Induction cooking)

- Any excess plug loads covered by Marin Clean Energy 100% Clean Energy

Re-examining Planning Codes

*Pocket Neighborhoods*
Our Success Metrics - Blower Door Tests

- **Square Footage**:
  - Main House: 1,260 ft²
  - Cottage: 640 ft²
- **Volume of House**:
  - Main House: 10,710 ft³
  - Cottage: 5,440 ft³
- **Total Surface Area**:
  - Main House: 3,735.5 ft²
  - Cottage: 2,142 ft²
- **Blower Door Results @ Final**:
  - Main House: 366 cfm @ 50Pa
  - Cottage: 124 cfm @ 50Pa
- **ACH@50 (air changes/hr)**:
  - Main House: 2.05 ACH50
  - Cottage: 1.37 ACH50
- **ACHnat (air changes/hr)**:
  - Main House: 0.102 ACHn
  - Cottage: 0.068 ACHn

Main House and Cottage compared to other Standards

<table>
<thead>
<tr>
<th>Program</th>
<th>Standard</th>
<th>Main House</th>
<th>Cottage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title 24 Compliance</td>
<td>≤ 4.0 ACH @ 50Pa</td>
<td>2.05 ACH @ 50Pa</td>
<td>1.37 ACH @ 50Pa</td>
</tr>
<tr>
<td>Energy Star V.3</td>
<td>≤ 0.60 @ 50Pa</td>
<td>2.05 ACH @ 50Pa</td>
<td>1.37 ACH @ 50Pa</td>
</tr>
</tbody>
</table>
Our Success Metrics – Infra-Red Images

**THERMAL IMAGING PICTURES**

Cottage Bedroom: Very little temperature differential.

<table>
<thead>
<tr>
<th>Main Image Markers</th>
<th>Temperature</th>
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<tr>
<td>Hot</td>
<td>72.7°F</td>
</tr>
<tr>
<td>Cold</td>
<td>70.4°F</td>
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Cottage Side Door: No air leakage from around weatherstripping.

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Our Success Metrics – Awards

**LEED Gold**

*Valley Oaks Villas was identified as one of the Top Three Green Neighborhoods in the North Bay by Solano Magazine, April/May 2008.*
Our Best Success Metrics – Happy Clients

“Comfortable and Wonderfully Quiet”
10/29/12 – Randy and Mary Allana

“The space has been given considerable thought. You can feel the attention to detail and it is appreciated by all who enter.”
01/12/13 Tahlia & Sam

“A definite WOW experience. Made me feel so GOOD about the environment -- that everything is constructed to support Mother Earth and her populace. I will spread the word OHome.”
11/29/12 Anne

“The OHome continues to amaze. Great use of space, good concepts. The OHome is a wonderful place to relax, reflect, and refresh.”
02/14/13 Lisa

“We were super impressed with all the sustainability elements”
04/21/13 Julie and Todd

“WOW - is the word for the O Home. What a great modern space, great light, great location, a great feel all around. We loved staying here. Lara’s allergies - sneezing - didn’t affect her once while in the OHome. She really appreciates good, clean, dust-free air!”
01/30/13 Tony & Larq

High-Performance Housing that is affordable for all

Our Project Mix
Market Rate 50%
Workforce 25%
Affordable (Deed Restricted) 15%
An Impact Investment needs balance to be successful for people and the planet.

Our Goal

To modify the built environment to....
Change the World!

Thank You!

Questions?

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