Greening the Guidelines

By taking the historic guidelines and “greening” them a new manual is created, a quick reference for the eco-conscious builder, developer, or homeowner. Providing the know-how to build an environmentally aware home, while maintaining the character of the neighborhood.

Historic Guideline:
Enclosing a porch may be appropriate when:
- The enclosure is designed to retain the open quality of the original porch by using large sheets of glass and by recessing he enclosure wall behind existing columns, railings, and cornices.
- Enclosing the front porch with an expansiveness of glass.
- 42% reduction in heating loads.
- Follows district guidelines.
- Glass can be removed in summer to allow for ventilation.

Siding
Historic district guideline:
Maintain the architectural characteristics of a building when applying siding.

Engineered wood siding:
- 80% Recovered wood fibers
- No formaldehyde
- Remove materials from landfill

Straw Board
- Rapidly renewable. Used for floor, wall, and roof underlayment.
- Low VOC emissions
- Many products use a soy based resin.
- Can be used for cabinetry and countertops.

Gypsum board
- 35% Post-consumer recycled content
- Synthetic gypsum made of bagasse desulfurization process at Tennessee Valley Authority coal-fired power plants.

House
- 40% Post-consumer recycled content
- High insulation performance horizontal R-27.75
- Reduces infiltration and heat losses.

Rainwater Catchment
- Puriﬁcation system can be used to provide drinking water.
- 100% of head provided by collection.
- Use of a composting toilet and a grey water recycling system is needed for sewer connection.

Historic Guideline:
- Gutters must be used to protect the home from deterioration.
- Gutters can be roofed over but must be functional.

Roofing
Historic district guideline:
- Use historic roof shingles materials such as Spanish, Spanish-style, shingles, etc.
- Insulation should be added for a weather-tight dike.
- Framing should be done in a manner that is consistent with the historical character.

PV Integrated Roofing
- Produces 100% power needs.
- Energy from appearance used Kenmore Energy Series.
- Maramara Santa Fe character.

Framing
- Certified wood from the FSC.
- Well managed forest ensures renewable resource by net clear.

Foundation
- Fly-ash, a by-product of coal fired electric plants, can be used in concrete.
- Reduce amount of ash sent to landfill.
- Uses less water in mix.
- Less need for Portland cement, there less reducing the amount of mining and

Bamboo flooring
- Rapidly accessible bamboo plant reaches maturity in 5-6 years.
- Strong and durable.
- Same installation as wood flooring.

Insulation
Cork/foam insulation
- 100% Recycled liners
- Wet spray application reduces infiltration
- R-3.7 per inch.

Historic Guideline:
- Windows should maintain character of house.
- Shutters should be operable.

Insulated shutter to be closed at night will reduce nighttime heat loss but can be left open during the day where solar radiation is desired.

42% REDUCTION IN HEATING NEEDS

Daily Energy Needs

Refrigerator
Kenmore 19.9 cu ft refrigerator # 345-24 Energy Use: 1.1 kWh/day

Clothes Washer
Kenzyme 3.5 cu ft top load washer # 154-62
Energy Use: 0.3 kWh/day

Oven
Kenmore 24" built in-34631-42
Energy Use: 1.0 kWh/day

Other
Lighting, small appliances, etc.
Energy Use: 3 kWh/day

Total Need: 6 kWh/day.
Average Available: 13.5 kWh/day

By using a solar hot water heating system no external heating is needed.
A flat plate collector with a surface area of 40 ft² will service the whole house.
A backyard shading device with the roof being the collector allows the heater to have southern exposure without compromising the character of the house.

100% WATER COLLECTION

Average Rainfall Blacksburg, VA

100% WATER COLLECTION

Daily Water Usage for Family of Four

<table>
<thead>
<tr>
<th>Activity</th>
<th>Daily Water Usage (gal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water closet</td>
<td>12.6 gal/day</td>
</tr>
<tr>
<td>Showers</td>
<td>30.3 gal/day</td>
</tr>
<tr>
<td>Clothes washer</td>
<td>33.2 gal/day</td>
</tr>
</tbody>
</table>

Total: 130.5 gallons

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100% SOLAR

Daily Power Output for 425’9’ at latitude

Courtesy of the EPA