SL-1 Passive Solar, Ventilation & Shading Design
Typical Preservation Plan

Must show:
All trees $\geq 6$” dbh that are entirely on site.

Root protection zones for trees to be preserved.

House footprint(s) [conceptual].
SL-3 Follow State Plans & Smart Growth Principles

- Must do all 4!
- SL-3a Pedestrian Paths & Bike Trails
- SL-3b Secure & Safe Bike Racks
- SL-3c Safe Shelter for Commuters
- SL-3d Access to Neighborhood or Project Park
IA-1 Ducts & HVAC Protected from Dust

• Seal ducts to prevent construction dusts and debris from entering system.
• Use temporary filters
• In specs: *Indoor Environmental Quality Management Plan for construction*
• IAQ Guideline for Occupied Buildings under Construction (SMACNA)
IA-2 Low VOC Interior Paints & Finishes
IA-3 Low VOC Adhesives & Sealants

• No toxic solvents, formaldehyde, mercury or hydrocarbons
• Safer for people with chemical sensitivities
• See VOC guide in Appendix 1 of the Green Future Program Requirements
IA-4 Durable, Healthy Flooring

- Hardwood (including Bamboo)
- Linoleum
- Ceramic Tile
- Carpet & Rug Institute’s Green Label Plus Carpeting
IA-5 Medium-efficiency (or higher) air filters

- MERV-8 minimum (Minimum Efficiency Reporting Value 1-16) the higher the number, the more particles removed.
- Pleating captures more particles
- 30-35% more effective in eliminating air particulates
IA-6 All Combustion devices power vented or sealed combustion

- Prevents back-drafting of carbon monoxide, & other gas products into indoor air
- Good for Too-tight construction
IA-7 Automatic Bathroom Ventilation

IA-8 Direct Venting of Kitchen

- Rated at 1.5 sones or less
- A “sone” is a unit of loudness (1 sone = 40 decibels)
- When fans are too noisy, people tend to unplug them.
- Minimize moisture, odor & smoke
- Automatic off-switch and/or humidity-sensors
- Don’t rely on Windows!!
IA-9 Encapsulation of non-Ur UF (Urea Formaldehyde) free composites

Daily Activity Patterns

- On average, people spend 85% or more of each day indoors
- HCHO concentrations are considerably higher indoors vs. outdoors
- HCHO concentrations from composite wood products lead to direct human exposure

What are Typical Formaldehyde Levels?

70 years at 1 µg/m³ = 6 lifetime cancers per million
IA-10 Insulation with Low Formaldehyde Content

- Johns Manville eliminated the use of formaldehyde in their insulation products in 2002
- Cellulose (recycled newspaper)
- Recycled cotton & denim (treated w/nontoxic flame retardants)
- Icynene (HCFC-free)
IA-11 Operable Windows

New for 2008!
New for 2008!

IA-12 Access to Daylighting & View from Each Bedroom

- Consider creating a courtyard to get light to interior spaces
- Orient the most used rooms to the best views
DM-1 Exterior Wall Drainage Plane

- “Drain the Rain”
- Brick veneer cavity walls
- Drainable EIFS (Dryvit)
- Vented or porous ext. cladding/air cavity/drainage layer on support wall/rigid, water-tight, airtight support wall
DM-2 Window Detail & Flashing

- EEBA - Energy & Environmental Building Association
- Appendix 2 in Green Future Requirements
- Flashing creates a drainage plane to keep all water out!
- Requires good supervision in the field.
DM-3 Gutter Downspouts discharge 3’ from Foundation

- Kicks water away from foundation - 6 feet away is best
- Stops below-grade moisture problems
- Attach a 90 degree elbow if too close to property line
DM-4 Install 30-Yr for Pitched & 20-Yr for Flat Roofs

- A Tax Credit requirement already.
EE-1 All Units NJ Energy Star Certified
EE-2 All Appliances Energy Star

• Meet intent of program
• 15% More efficient than code

Must have at least one Utility (gas or electric)
Individually metered

Front loading Washing machine

New Jersey ENERGY STAR® Homes
## EE-3 Efficient Lighting

### ENERGY STAR® ADVANCED LIGHTING PACKAGE SAVINGS LOOK-UP TOOL

This table illustrates the potential energy bill and bulb replacement savings that could be realized if a standard lighting package were replaced with fixtures that earned the ENERGY STAR. On average, an ENERGY STAR Advanced Lighting Package will use 1/3 of the energy used by a standard lighting package while providing equal or more light.

<table>
<thead>
<tr>
<th>Electricity price per kilowatt-hour (paid by the homeowner)</th>
<th>The number of fixtures that will be replaced in this house</th>
<th>Total annual electricity and bulb replacement savings realized when using ENERGY STAR qualified fixtures</th>
<th>Increase to price of home resulting from upgrade to ENERGY STAR qualified lighting</th>
<th>Mortgage payment increase (over 12 months) resulting from upgrade to ENERGY STAR qualified fixtures</th>
<th>Total annual savings after increase to mortgage is taken into account</th>
<th>Total savings over 8 Years</th>
<th>Total savings over 30 Years</th>
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</table>

Products that earn the ENERGY STAR prevent greenhouse gas emissions by meeting strict energy efficiency guidelines set by the U.S. Environmental Protection Agency and the U.S. Department of Energy. [www.energystar.gov](http://www.energystar.gov)
EE-4 Specify Windows w/Low-E coating

- Low emissivity refers to a coating on glass that reduces heat loss
- The lower the emissivity rating, the better insulation of the window in regard to heat loss
- Light can enter, heat stays out
- Less heat used in winter and less A.C. in summer
EE-5 Basement Ceiling Encapsulated Insulation Batts

- Determine where building envelope is.
- Encapsulate to prevent airborne particulates
- Seal at edge of first floor framing and rim joist
EE-6 All ductwork in conditioned space

- Reduce heat loss to unconditioned space
- Less energy spent to raise or lower indoor temperature
- Air quality not as susceptible to outside pollutants.
EE-7 Occupancy & Daylighting Controls

• Photocells on outdoor lighting - turns off during day.
• Occupancy sensors for rooms w/intermittent vacancy. (meeting rooms, laundry, storage/supply rooms)
EE-8 High-Energy Factor Water Heater

- Gas water heaters: tank walls insulated, intermittent-ignition instead of standard pilot light, enhanced heater exchanger

- **Annual Fuel Utilization Efficiency (AFUE)** represents the % of fuel turned into heat.

- The higher the AFUE, the more efficient the unit & $$ saved.

  - **Gas-fired units:** Energy factor of 0.60 or greater.
  - **Electric tank models:** 0.91 Energy Factor or greater
  - **Tankless models:** 0.65 Energy Factor or greater
EE-9 Programmable Thermostats

- Weekday/Weekend programming
- Vacation Override
- Keyboard Lock
- Energy Monitor
- Filter Change Indicator
- Auto Season Changeover
RE-1 Recycle/Salvage construction debris

- Min. of 50% project waste shall be diverted from landfill
- Contract with hauler/recycler indicating off-site separation method

Waste Management Plan For Construction and Demolition Waste should Be included in specs.
RE-2 Recycling Centers in Common Areas

- Easy access, well-marked stations.
- Accessible
- Compatible w/township or municipal recycling program
RE-3 Recycling Plan for Each Unit

- Designated containers and space for tenants to collect recyclables
- Separate glass, plastic metals, paper
WC-1 Low-Flow Fixtures

WC-2 High Efficiency Toilets

- Kitchen faucets: max of 1.5 gpm (gallons per minute)
- Bathroom faucets: 0.5 gpm
- Showerheads: max of 2 gpm
- Toilets: less than 1.3 gallons per flush efficiency or better
WC-3 Water Efficient Landscaping

- Native &/or drought tolerant
- Turf no more than 50%
- Require less fertilizer and pesticides
WC-4 High-Efficiency Irrigation

• Preference is for none
• Drip irrigation to reduce evaporation and overspray
• Timers/automatic shut-off
• Plan irrigation zones carefully
WC-5 Pervious Pavers for outdoor patios & walkways

- Use at least 50% pervious material for outdoor patios & walkways
- Allows rainwater to soak through
- Reduces runoff, reduce need to water plants
OM-1 Property Management
O&M Manual & Training

• Operation & maintenance of sustainable technologies
• Resource & Energy conservation
• Signed letter confirming training of staff
OM-2 Tenant O&M Manual & Training

- Hands on training
- Programming thermostats
- Cleaning refrigerator coils
- Minimizing appliance electrical use
- Teach Sustainable design ideals
- Signed letter for each unit
OM-3 Integrated Pest Management

- Enclose firewood in rodent-proof box
- Open up or remove double fencing
- Remove ivy
- Remove dense vegetation
- Harvest & pick up dropped fruit & nuts
- Pick up dog droppings
- Rat-guard on utility wires
- Screen all roof vents & chimneys
- Seal all openings around pipes, cables & wires that enter walls & foundations
- Provide a tight fitting cover for crawl space
- Do not accumulate trash

- Check garage shelves & storage lofts for rat evidence
- Keep all garbage cans covered
- Rodent-proof garden sheds
- Feed your pet only the amount it will eat
- Weatherstrip front & side garage doors so they close tightly
- Screen or close openings under overlapping roof lines
- Repair damaged ventilation screens