



TOWN OF DAVIE

SOUTH FLORIDA SUSTAINABILITY GUIDE



Permit / Development Review Applicant Information

Name:	
Company:	
Address:	
City / Zip:	
Phone:	
Fax:	
E-mail:	



SUSTAINABILITY PRINCIPLES:

The Town of Davie Green Energy & Environmental Committee has developed a South Florida Sustainability Guide for new construction and major renovation of commercial, residential, and industrial buildings. The checklist is designed to promote the utilization of environmentally friendly and energy efficient principles and methods consistent with programs such as the U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) and the Florida Green Building Coalition. It is best completed by the homeowner and/or contractor, architect and project team working together to set achievable goals.

Community/Neighborhood – use of compact building design; energy efficient street lighting; fuel efficient automobiles/transit; connectivity, density

Lot Choice – priority uses of small properties in urban areas; use of "greyfield" and "brownfield" lands that can be cleaned; use of lands close to sewer and power lines, mass transit and green space

Site Choice – re-create or preserve wildlife habitat or shelter; replant or donate vegetation; use cleared materials for mulch or landscaping or stabilizing soil; save or reuse topsoil; encourage biodiversity

Water Efficiency/Conservation – use of very efficient clothes washers; low-flow toilets or waterless urinals; use of reclaimed water; innovative irrigation or drought tolerant plants; use of rain gardens, bioswales and cisterns; Florida-friendly native plants

Energy Efficiency/Conservation – use of light colored exterior walls; buildings shaded on the east and west by trees; property sized air-conditioners; use of ceiling fans; energy efficient appliances and indoor lighting; efficient well-pumping; use of alternate electrical grids and/or use of wind/solar/natural gas energy

Materials – use of building materials with recycled content; eco-friendly insulation; lumber from sustainable sources; locally produced materials.

Health – use of detached garage; carbon monoxide alarm; central dehumidification systems; energy efficient bathroom exhaust fans with timer; humidistat; whole house filtration.



MEASURE	SELECT
SITE DEVELOPMENT	
1. Site located in Traditional Neighborhood Development (TND) or small lot cluster development	
2. Build with density / compact development (at least 6 units per acre)	
3. Develop shared community: resources, facilities, services	
4. Build on an infill site	
5. Site within 1/4 mile to mass transit, basic community resources	
6. Site within 1/2 mile of existing infrastructure	
7. Site within 1/2 mile of public open / green space	
8. Brownfield site, utilize on-site remediation	
9. Greyfield site	
10. Avoid prime farmland, wetlands, near water bodies, endangered species habitat	
11. Site building to maximize natural features to shade, cool; block / control wind, rain / flooding	
12. Orient the building to use cross ventilation	
13. Avoid siting livestock barns, sheds near water bodies and wetlands	
14. Refer to climate change inundation maps	
LANDSCAPING	
1. *Protect / amend native soil use organic compost, fertilizers, pest control	
2. *Retain existing viable native trees	
3. *Plant / retain deciduous trees on south, shade trees on east and west	
4. *No irrigation, practice xeriscaping	
5. *Use native adaptive non-invasive, salt tolerant / high wind resistant / food producing plants/trees, encourage biodiversity	
6. *No / minimize turf, < 20% of landscape	
7. *No wetland mitigation	
8. *Reuse / mill cleared non-toxic, non-invasive materials, trees for mulch / landscape	
9. On-site water catchment (rain barrels, underground cisterns) / wet retention / dry detention	
10. *Direct filtered rooftop runoff (i.e. gutters) to planted nonedible areas, catchment systems	
11. If irrigation is required by code, install high-efficiency micro drip irrigation system with water sensor, timer	
12. Plant edible landscape / food garden. Test soil for nutrients, contaminants	
13. Use aquaponics / hydroponics	
14. Mulch applied 3-4 inches deep around plants, use non-cypress; recommend melaleuca, eucalyptus, pine bark and needles	
15. Consider designations: NatureScape Broward, National Wildlife Certified Yard,	



MEASURE	SELECT
BUILDING ENVELOPE	
DESIGN	
1. * Site building (as per Zoning Code) to minimum setback from street	
2. * Build smaller home, < 2,000 ft. for 3/2	
3. * Efficient envelope volume, minimize building footprint	
4. * Perimeter based on 2 foot dimensions or materials standard units	
5. * Reduce (WFR) Wall to Floor Ratio - recommend .15-.35 (GSF bldg. to vertical Sq. Ft. façade)	
6. * Interior floor plan based on 2 foot dimensions or materials standard units	
7. Detached garage / Carport	
8. Attached garage with air barrier between garage and living space (including attic)	
9. Roofed / screened porch, min 100 sq.ft. with 3 sides open, orient to the street	
10. 3 in 12 <= roof slope <= 6 in 12	
11. * Plan for east through south to west (90° to 270°) roof area for solar use	
12. * Exterior walls / roof to be light colored	
13. Large overhangs (eave and gable) 3' minimum	
14. Consider cupola for passive stack ventilation	
15. * Passive solar day lighting, avoid direct south, west exposure	
16. Daylighting to penetrate to 75% building interior, use: windows, skylights, clerestories. solar tubes and light shelves	
17. Shade windows with eaves, sunshades, canopies, green screens, deciduous trees	
18. * Reuse/salvage/recycle original materials; reuse / maintain existing walls, floors, beams, columns, roof	
19. Finished floor level at least 12 inches above 100 year flood plain; consider using 500 year flood plain if higher	
20. Garage / Carport and driveway sloped to drain away from building	
21. Garage / Carport floor at least 4 inches lower than living floor	
22. Plan for future renovations, deconstruction. Include Universal Design, flexibility to meet present and future occupants	
FOUNDATION	
1. * Use recycled content aluminum forms / reuse form boards	
2. Use recycled content aggregate	
3. Concrete with fly ash or blast furnace slag (avoid if organic gardening)	
4. Insulate solid concrete foundation / slab for heating and air conditioning purposes	
5. Drainage tile on and around top of footing	
6. Drainage board for below grade walls	
7. * Bottom of slab at least 8 inches above graded gravel bed for proper drainage	
8. * Seal all slab penetrations / install galvanized steel mesh barrier termite control system around	

pipes that penetrate the slab

9. * Protect exposed foundation / insulation with moisture resistant, pest-proof cover
10. * Capillary break between foundation and framing
11. * Avoid chemical soil treatment, use alternative Florida Building Code approved method of foundation protection
12. Downspouts discharge minimum 3 feet from foundation
13. Condensate lines discharge minimum 3 feet from foundation, 5 feet or > from dryer vent
14. Consider: slab designed for future additions

* Designates a low or no cost item



MEASURE	SELECT
BUILDING ENVELOPE	
STRUCTURE	
1. * Develop a construction /demolition / recycle /reuse / donate / waste management plan	
2. * Floor joist perimeter insulated and sealed	
3. * Seal all external cracks, joints, penetrations, edges and entry points with caulking/foam	
4. Roofing materials / systems: recycled content, durable, high SRI value Energy Star rated. Consider vegetative / landscaped green roof	
5. Secondary water protection installed on roof	
6. Install radiant barrier roof sheathing, adhesive applied to sheathing	
7. * Roofing best practices - refer to RoofPoint, guideline for roofing systems	
8. * No vapor barrier on inside of assemblies (wall, roof)	
9. Install house wrap under siding	
10. * Use alternative siding materials (recycled content siding / soffit materials, fiber cement)	
11. * Use stack (OVE) framing techniques	
12. Substitute solid sawn lumber with engineered lumber / reclaimed lumber	
13. Use Forest Stewardship Council (FSC) Certified Wood for all wood	
14. Wood frame building, use wood I-joists for floors and ceilings	
15. Wood frame house and/or wood frame 2nd. floor designed with vented rain screen	
16. * All wood products serving structural (including decking), exterior finish and cellulosic material - borate or ACQ treated' should not contain chromium or arsenic	
17. * Keep all wood such as siding and trim at least 12 inches above soil	
18. * Wood siding and exterior trim primed on all sides	
19. Use recycled composite plastic boards for decking	
20. * Use no wood to concrete connections	
21. Concrete filled block with recycled aggregate	
22. Use recycled steel interior web trusses	
23. * Consider: roof trusses designed for future additions	
24. * Avoid wood studs, use recycled-content steel studs for interior framing	
25. * Use 24 inches on center instead of 16 inches where allowable by code	
26. * Powder in boric acid into interior and exterior walls before sealing	
27. Finger jointed or laminated products	
28. * 2-stud corners with drywall clips	
WINDOWS & DOORS	
1. Install energy-efficient Energy Star windows (double glass), low emissivity (Low-e), with low conductivity frames (no aluminum)	
2. Install solar tint film on windows	
3. Install screens on all windows and doors (excluding front door)	

4. Hurricane impact or add shutters	
5. * Window and door flashing	
6. Operable windows, prefer manual	
INSULATION	
1. Upgrade wall and ceiling insulation to exceed California Title 24 or code required R values	
2. Install recycled content, formaldehyde-free fiberglass insulation, cotton batt, cellulose, spray foam Insulation (i.e. isonyne)	
3. * Use advanced infiltration reduction practices	
4. * No unsealed space or water heating combustion located inside conditioned area or electric	
5. * Install floor insulation over crawl space	
6. * Weather strip around all openings; windows, doors, utility lines and all wall penetrations	
7. Consider solar shades; light responsive shades	



MEASURE	SELECT
ENERGY	
HVAC	
1. Conduct energy audit of new / remodeling structure (HERS index <85)	
2. * HVAC automated controls integrated with lighting, occupancy, security	
3. * Proper sizing of HVAC system	
4. Install above required code SEER 13, recommend minimum 16	
5. Install new or replace old ductwork within conditioned space	
6. Install attic ventilation systems when not using spray insulation	
7. Install solar attic fan, whole house fan	
8. * Consider natural vs. mechanical ventilation; (i.e. building orientation, operable windows, fans, cupola, wind chimneys, material selections)	
9. * Install air conditioning with natural refrigerants / no HCFC	
10. Shade exterior condenser unit; pad elevation = buliding slab elevation	
11. Test for radon, if positive install radon / soil gas vent system	
12. * No air handler/return ducts in garage or unsealed garage attic	
13. Whole house positive filtration, air admittance vents	
14. Central dehumidification system	
15. Cross ventilation and ceiling fans	
16. * Protect and seal all ducts during construction	
17. Duct work smoke tested allowing leaks to be sealed prior to drywall	
18. Clean all ducts, change filter(s) before occupancy	
19. Install high-efficiency particulate air (HEPA) filter MERV 8 or higher HVAC checkup every two years	
20. * HVAC filter easily accessible, change monthly or more if high usage during construction	
21. Eliminate wood burning fireplaces; retrofit with EPA certified wood stove / inserts. Install / replace dampers, install airtight doors on fireplace	
22. Direct vent, sealed combustion fireplace w/ electronic ignition, factory installed	
23. Install separate garage exhaust fan on motion sensor and timer	
24. Use duct mastic on all ductwork joints	
25. Recycled content air conditioner condenser pad * Written plan for exhaust and intake vents	
26. * Replacing condensing unit check for thermostatic expansion valve (TXV)	
RENEWABLE ENERGY	SELECT
1. Install Photovoltaic (PV) Panels	

- 2. Install Solar Thermal Panels
- 3. Consider wind, hydro, hydrogen power
- 4. Consider biodigester for reduction of waste (horse manure, livestock etc.), energy production, fresh water, compost

* Designates a low or no cost item



MEASURE	SELECT
ENERGY	
ELECTRICAL	
1. * Install programmable thermostat (78° or higher summer, 62° or lower winter)	
2. * Install surge suppression / lightening protection system	
3. * Replace incandescents with LED bulbs, max. 100W fixtures, or compact fluorescent lightbulbs (CFLs) or standard fluorescent bulbs (LED's Preferred)	
4. Exterior building & street lighting energy efficient, avoid light pollution - fixture type (i.e. no globe)	
5. Install insulation-compatible (IC) , sealed recessed lighting fixtures	
6. Install high quality solar power (PV) walkway lights with motion sensor	
7. Energy Star Advanced Lighting Package	
8. Install lighting controls include multiple settings, dimmer; occupancy sensor	
9. Install automatic systems coordinate HVAC, lighting due to use and occupancy:	
systems integration - access control / security camera systems and lighting control /	
energy management / HVAC controls	
10. * Security systems to be incorporated at pre-design	
11. Install high-efficiency ceiling fans, switch fan rotation summer and winter settings	
12. Energy Star bath fans with timer and humidistat	
13. * Avoid vampire usage, use power strips. Unplug appliances, electronics etc. when not in use	
14. Install carbon monoxide alarm, fire and smoke detector. Monoxide for gas appliances, inside garages, and near generators.	
15. * Wire / pre-wire for present / future photovoltaic (PV) installation	
16. * Wire / pre-wire 220/240V 40-amp dedicated circuit for home charger electric vehicle	
APPLIANCES	
1. Install ENERGY STAR® Appliances: washer, dryer, refrigerator, dishwasher, water cooler	
2. Energy-efficient oven / range, clothes dryer	
3. * Install washer & dryer outside conditioned space, consider outside clothes line	
4. Laundry rooms inside conditioned space must have window or other make-up air source	
5. * User-friendly (lever style) clothes washer water shutoff	
6. Install horizontal axis washing machine, consider all-in-one washer/dryer	
7. Use armored / PEX or metal (except copper) hoses from service to all fixtures / appliances	



MEASURE	SELECT
WATER	
PLUMBING	
1. Install solar hot water system or pre-plumb for future system	
2. * Insulate all hot water pipes	
3. * Compact hot water distribution	
4. Low flow faucets and shower heads / install flow reducers in existing	
5. All showers equipped with one shower head	
6. * Install water shut-off valve in shower	
7. Install ultra-low-flush or dual-flush toilets (1.28 gpf or less)	
8. No garbage disposal	
9. Install tankless water heater	
10. * Install timers on water heater tanks	
11. * Install sealed water heater / install heater jacket	
12. Install on-demand hot water circulation pump	
13. Automatic in home water sensor / shut off system installed	
14. * Rainwater harvesting for interior and exterior non-potable uses	
15. Water shut-off nozzles for all garden hoses	
16. Install a greywater system with meter	
17. Vanity water collection for toilet flushing	
18. * Reclaimed water: Meter on system, volume based pricing arrangement	
19. Reclaimed water: Air conditioner, mechanical condensate re-use	
(not suitable for edible landscaping)	
20. Install chlorine filter on shower heads, consider whole-house water filtration system	
21. Consider running hot water line in unconditioned attic, in building's south face	
or under driveway	
22. Consider running cold water line under slab and/or in building north face	

* Designates a low or no cost item



MEASURE	SELECT
HEALTH	
INDOOR AIR QUALITY / FINISHES	
1. Integrated pest management system, no chemicals (interior and exterior)	
2. Low dust collecting, durable, low maintenance window coverings	
3. No-VOC water based paints, stains, adhesives, sealants, and finishes	
4. Choose fragrance free cleaning products; healthier and safer; could potentially mask harmful, odors that could alert a problem	
5. No use of urea-formaldehyde particleboard	
6. Substitute particleboard with formaldehyde-free medium density fiberboard (MDF)	
7. Install whole house vacuum system	
8. * Cleanable mat or grate at entrance areas	
9. * Light colored interior and exterior walls, ceilings, flooring	
WASTE REDUCTION	
1. Install built-in recycling / compost center	
2. * Reduce consumption, avoid over packing, reuse / recycle	
3. * Encourage buy back from the supplier	
4. Use nontoxic, environmentally safe, biodegradable cleaning products	
TRANSPORTATION	
1. Buy fuel-efficient vehicle, refer to Department of Energy fuel-efficient list	
2. Buy hybrid, electric, alternative fuel (i.e. solar, hydrogen water, air) vehicles	
3. * Follow no idling policy	
4. * Support mass transit - bus, train, trolley	
5. * Find alternative modes; walk, bicycle	
6. * Join a carpool / vanpool	
OTHER	
1. Comply with Fortified for Safer Living standards	
2. As required by code, barrier free entrance, universally designed living area	
3. Engineered/alternative material for outdoor living	
4. Safe room	
5. Exterior structures and equipment properly anchored	
6. * Utilize rebate programs and financial incentives	
7. * Use reusable tote bags, not plastic or paper. Avoid cross contamination, especially raw meat; wash reusable tote bags	
8. * For garbage, use bags designed to decompose in a landfill	
9. * Verify landfill allows for these bags to decompose properly	
10. * Encourage pre-design charette including all stakeholders	
11. Building department officials; reviewers, inspectors required to attend LEED Green Associate	
12. class, minimum one LEED AP on staff (recommended speciality BD&C or EB O&M)	
13. Develop and implement green educational program and outreach	
14. * Buy locally produced foods and goods	

15. * Compost organic waste for gardens

16. * Consider making cleaning products from baking soda, vinegar, and borax (no bleach)

17. * Utilize recycling / rebate programs

Additional Resources

U.S. Green Building Council LEED Rating System

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=222>

LEED for New Construction & Major Renovations

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=220>

LEED for Existing Buildings: Operations & Maintenance

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=221>

LEED for Commercial Interiors

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=145>

LEED for Core and Shell

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=295>

LEED for Schools

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1586>

LEED for Retail

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1734>

LEED for Healthcare

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1765>

LEED for Homes

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=147>

LEED for Neighborhood Development

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=148>

Florida Green Building Coalition Certifications

<http://www.floridagreenbuilding.org/homes>

<http://floridagreenbuilding.org/commercial>

<http://floridagreenbuilding.org/hi-rise-residential>

<http://floridagreenbuilding.org/land-development>

StopWaste.org Green Building Guidelines

<http://www.stopwaste.org/home/index.asp?page=469>

Living Building Challenge

<https://ilbi.org/lbc>