# Florida Green Home Certification Standard

## REFERENCE GUIDE V13


FLORIDA GREEN BUILDING COALITION

# Florida Green Home Standard

## *Reference Guide*

## Version 13

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This reference guide is intended to serve two purposes:

- To provide information on green home practices.
- To provide details on how to earn points for complying with the Florida Green Home Designation Standard.

The Florida Green Building Coalition Green Home Standard applies to:

- Single-family and multi-family residential units less than four (4) stories
- New construction and existing buildings
- Homes considered a dwelling unit by the Florida Building Code
- Structures that comply with local zoning ordinances
- Projects 4 and 5 stories that use separate HVAC systems may use the Home Standard in lieu of the High-Rise Standard.

For each home application, the following are required submittals:

- Copy of the Permit
- Photos of the house on lot – Front, back and sides. A minimum of the front photo showing home number must be submitted. It is suggested that additional home photos are taken from the corners of the property showing front/sides and back/sides
- Dimensioned Floor Plan
- Landscape Plan and Plant list
- Irrigation Schematic

Depending on the credits selected, please be prepared to submit the following for documentation:

- Elevation
- Electrical plan/Lighting plan
- Foundation Plan
- Site Plan
- Survey

**Some of the credits have required submittals, these are designated by the color red.**

Multi-Family Projects

Multi-family projects may submit each unit within the project for certification or may submit the project for Whole Building Certification.

Whole Building Certification is available to multi-unit projects. For buildings that are 3 stories, the unfinished commercial or leasable space must be is less than or equal to 33%, 4 stories less than or equal to 25% and for 5 stories less than or equal to 20% of the total conditioned square footage of the building. NOTE: Plans with a square footage calculation as well as photos of unfinished area MUST be submitted. Whole Building Certification applies to multifamily projects with non-commercial, residential amenity and support spaces contained within the building, provided the support spaces comply with the green credits sought for the residential units. For example, if low flow toilets are claimed then all the toilets installed in the project, units and common areas MUST comply, if the project is pursuing the Low VOC credit, then the units and common areas must both use Low VOC products.

Note:

It is possible to combine many submittals in one detailed plan. Letters or documented verbal communication from vendors can substitute for material and equipment cut sheets where required. No document produced by FGBC is intended to supersede or contradict the Florida Building Code.

# Table of Contents

# PREREQUISITES

**Requirement:** Single family homes must comply with the prerequisites

**Multi-Family:** For multi-family projects, the project must comply with the prerequisites (versus each unit).

## PREREQUISITE 1 SWIMMING POOL SPA

If the home will have or has a swimming pool or spas FGBC requires that a minimum of ONE of the following (P1.1 – P1.4) options is implemented.

### P1.01 Sanitation System that Reduces Chlorine Use

**Requirement:** Homes with swimming pools install and use a pool sanitation system that reduces the use of chlorine.

**Points:** Prerequisite – ONE of P1.1 – 1.4 is required

**Submittals:** Cut sheet or photo of sanitation system.

**Intent:** Provide a healthier sanitation system for home occupants. Traditional pool sanitization requires large quantities of chemicals that are both unhealthy for the environment and individuals. Reduced chlorine systems may be used to maintain the pool, such as recycled salt alternatives, ultraviolet or ozone systems.

**Resources**: The below photos are only shown to represent the type of equipment you may see on the jobsite during inspections. Note FGBC does not endorse any products.


*Figure 1 - Salt-water pool sanitation system and UV lighting options*

### P1.02 Pool/Spa Cover

**Requirement:** Homes with pools and or spas have covers and the owners have been educated regarding their proper use.

**Points:** Prerequisite – ONE of P1.1 – 1.4 is required

**Intent:** Pool covers are used to reduce heat loss, chemical evaporation, keep water clean and lengthen swimming season. Depending on materials and the amount of time the cover is used, temperature increases of 5°F to 10°F may be expected from a cover. A 5°F increase is reasonable when the cover is used 12 hours a day and a 10°F increase could be expected when it is used 20 hours a day. Transparent or lightly translucent covers work best because they allow solar energy to pass through and be

absorbed by the pool water, and they prevent heat loss at night. Opaque covers are best used in Florida at night to prevent heat loss. Various types of pool covers are available at your local pool supply store.

**Submittals:** Cut sheet or photo of cover.

**Resources:** The below photos are only shown to represent the type of equipment you may see on the jobsite during inspections. Note FGBC does not endorse any products.

## P1.03 Solar Pool Heating System

**Requirement:** Use solar pool heating system

**Points:** Prerequisite – ONE of P1.1 – 1.4 is required

**Intent:** Reduce energy use and cost of heating a pool. The average yearly cost for heating a residential pool in Florida is approximately $2,198 using electrical resistance (2024 Florida kWh average = $0.1364/kWh), and often over $500 using an electric heat pump or using natural gas. Liquid propane costs about the same as electrical resistance. A solar pool heating system is appropriate in our Florida climate and can pay for itself in as little as two years.

**Submittals:** Cut sheet or photo of heating system.

**Resources:** For information on the State of Florida solar pool heating testing and certification program and a list of all certified manufacturers, visit:

http://www.fsec.ucf.edu/en/consumer/solar_hot_water/pools/index.htm

## P1.04 Dedicated PV to Run Pool Equipment

**Requirement:** Install the equivalent number of photovoltaic panels necessary to power the pool equipment a minimum of 6 hours/day in the summer

**Points:** Prerequisite – ONE of P1.1 – 1.4 is required

**Intent:** Reduce homeowner ongoing energy use and costs. The cost to run the pool can easily comprise 20% of the total household electricity use. Install a renewable power source capable of generating a minimum of 2,500kWh per year.

**Submittals:** Summary of pool equipment and a total of the expected annual energy consumption along with specifications and proof of installation of an equivalent photovoltaic system.

**Resources:** http://www.fsec.ucf.edu/en/consumer/solar_hot_water/pools/sizing.htm#Collector

## P1.05 Home has no pool or spa

**Requirement:** Home has no pool or spa

**Points:** Prerequisite – if home has no swimming pool

**Intent:** Reduce energy consumption and chemical usage as a result of individual pools and spas

**Submittals:** N/A

**Resources:** N/A

# Prerequisite 2 Waterfront Considerations

Waterfront Florida yards present special challenges and responsibilities and as such, landscapes bordering surface-water resources must address water quality of the adjacent surface water by implementing at least ONE of the following measures.

## P2.01 Use of Native Aquatic Vegetation in Shoreline

**Requirement:** 75% of your property's shoreline must be bordered by native aquatic plants.

**Points:** Prerequisite – ONE of P2.1 – 2.3 is required

**Intent:** Naturally sloping lagoon shorelines, particularly when buffered by a fringe of mangroves and/or marsh grass, help smooth out waves and reduce turbidity (cloudiness) in the water. Mangroves and other shoreline plants contribute to the lagoon's food web, attract wildlife, such as wading birds, and help prevent erosion of the shoreline. Such plants also contribute to the treatment of storm water runoff before it enters the water body.

**Submittals:** Photo and plant list.

**Resources:** To find appropriate plant species for your area, contact your water management district or your local horticultural extension office, or for a full list of extension agencies, visit: https://plants.ifas.ufl.edu/why-manage-plants/aquatic-and-wetland-plants-in-florida/ http://www.dep.state.fl.us/secretary/watman/

## P2.02 No Turf Adjacent to Natural Water Bodies

**Requirement:** No turf can be adjacent to a natural body of water. A natural body of water is defined as beach, river, lake, or wetland, but not a man-made retention area. A minimum 10-foot border of non-irrigated, site-appropriate plants are installed. Choose a low maintenance ground cover or Florida Friendly drought tolerant low maintenance plantings.

**Points:** Prerequisite – ONE of P2.1 – 2.3 is required

**Intent:** Enhancing natural vegetation with additional native plantings and removing non-native, invasive plants can improve both the function and aesthetics of the shoreline. Native plantings require little maintenance in the form of fertilizer that can enter the water body via stormwater runoff and can result in harmful algal blooms. Cultivated turf, which requires supplemental irrigation, pesticide, fertilizer, and mowing, is an especially poor choice for the shoreline area due to polluted nutrient runoff and potential for grass clippings to enter the water body. Turf species that do not require any supplemental inputs, such as Bahia, are acceptable.

**Submittals:** Photo and plant list.

**Resources:** To find appropriate plant species for your area, contact your water management district or your local horticultural extension office, or for a full list of extension agencies, visit: http://www.dep.state.fl.us/secretary/watman/

## P2.03 Use of terraces, swales, or berms to slow storm water

**Requirement:** Use terraces, swales, and berms protecting a minimum of 75% of the shoreline that will slow storm water movement to the natural water body

**Points:** Prerequisite – ONE of P2.1 – 2.3 is required

**Intent:** Use various techniques to slow storm water movement into the water body, thereby allowing it to be treated naturally by the onshore environment. Such structures should be placed landward of the mean high-water line. A qualified individual should be consulted before changing drainage patterns along your shoreline. Contact your local water management district.

**Submittals:** Photo

**Resources:** For more information consult A Guide to Environmentally Landscaping: Florida Yards and Neighborhoods Handbook or visit https://ffl.ifas.ufl.edu/

### P2.04 Home site does not border natural water body

**Requirement:** Home site does not border a natural body of water. A natural body of water is defined as beach, river, lake, or wetland, but not a man-made retention area.

**Prerequisite** – If home site does not border natural body of water

**Intent:** Reduce nutrient loading in natural bodies of water.

**Submittals:** Photo

**Resources:** For more information consult A Guide to Environmentally Landscaping: Florida Yards and Neighborhoods Handbook or visit https://ffl.ifas.ufl.edu/

## Prerequisite 3 Invasive Exotic Species

### P3.01 Landscape Considerations

**Requirement:** Reduce or eliminate existing Category 1 invasive exotic vegetation according to lot size. No invasive exotic class 1 plants be located on sites/lots that are less than 1/5 acre, and for lots greater than 1/5 acre, no invasive exotic class 1 plants be located within 50 feet of the structure (foundation or conditioned space). Because trees provide shade to the lot and home and will not affect water conservation, established trees, 6" caliper or greater, that are listed as invasive may be left on the site, however, removal is encouraged.

**Points:** Prerequisite - Required

**Intent:** Avoid the spread of invasive exotic plants and promote a Florida Friendly landscape.

**Submittals:** **Required – ONLY for homes with existing landscaping - Inspection/approval by Florida Yards and Neighborhoods (FY&N) personnel, certified Florida Master Gardener, Florida Water Star Certifier, or approved professional.**

Suggested for new landscape - Landscape plan and plant list

**Resources:** A list of such plants is provided by the Florida Exotic Pest Plant Council (FLEPPC) and can be found at: https://www.floridainvasives.org/plant-list/

# CATEGORY 1: ENERGY

## E1 HERS Index – Energy Ratings

### E1.01a Confirmed Florida HERS Rating

**Requirement:** Family: Energy Rater must provide a Confirmed HERS index (showing an increase in efficiency over code). The energy rater must be independent of the HERS Quality Assurance Control provider, i.e., a RESNET QAC provider cannot confirm its own employees' energy ratings for FGBC projects.

**Multi-family:** If submitting as individual units, each unit must be submitted with a unit specific application and confirmed HERS Index.

If submitting as a whole building, the weighted average of the Confirmed HERS may be used. A confirmed HERS Index must be submitted for each unit however only 1 application is required for the building.

**Points:** 10 points are awarded for submitting a Confirmed HERS rating

3 FGBC Energy points are awarded for each point below a HERS of 60.

(Points awarded = 10 + (3) (60-HERS). E.g. HERS of 55 = 25 points

**Intent:** Reduce Energy Consumption in homes. Elements included in the Home Energy Rating System (HERS) Index can be found in the table listed below. Points are awarded for homes more energy efficient than code. Many line items builders often ask to receive credit for may be found within the HERS Index calculation. Note the HERS Index is based on whole house energy performance.

| Energy Gauge USA / HERS Index | | |
|---|---|---|
| Envelope | | |
| Floors | Windows | Roof |
| Foundation type | # & size of windows | Roof Configuration / Slope |
| Insulation value | Tint / U-factor | Roof Material / Color |
| Perimeter / Area | Type of Frame | Attic Details |
| Floor covering | Overhang details | Conditioned ceiling Area |
| Walls | Ceilings | Solar absorbance |
| Orientation | Ceiling style | Roof deck insulation level |
| Area | Insulation value | Radiant barrier system |
| Insulation value | Area | Attic Ventilation ratio |
| Doors | Garage | Infiltration |
| Door Area / U Value | Attached or not | Building envelope leakage |
| Equipment | | |
| Hot Water | Ducts | Appliances and Lights |
| Type / location | Insulation value | Programmable Thermostat |
| Efficiency | Duct Location | Refrigerator |
| Daily usage | Air Handler Location | % fluorescent lighting |
| Set Temperature | Amount of leakage | Ceilings fans |
| Solar or heat recovery | Duct surface area | Dishwasher |
| Cooling | Heating | Photovoltaics |
| System Type | System Type | Array |
| Capacity | Efficiency | Inverter |
| SEER | Capacity | Batteries |

**Submittals:** **Required - Copy of signed confirmed HERS rating**

**Resources:** To find out more about Florida Energy Ratings, visit the Florida Solar Energy Center's website at: https://energyresearch.ucf.edu/consumer/buildings/home-energy-ratings/ This website contains priorities for designing an energy- efficient home in Florida, along with listings of local Energy Raters.

**OR**

**FOR MULTI-FAMILY ONLY**

## E1.01.b1 Prescriptive Energy Path

**Requirement:** This section may not be combined with E1.01a. Points claimed in this section will require photographic proof of Level I Insulation installation, a completed thermal bypass inspection checklist (Energy Star Thermal Bypass Checklist is acceptable), a copy of the load calculation and proof that installed tonnage is within 15% of the Manual J's.

Provide field documentation of Energy Calculation inputs such as window SHGC and U- Factor via photo of window stickers, insulation R values, etc.

MULTFAMILY LOAD CALCULATIONS: The load calculations must be for each distinctive unit type and must show that orientation of the unit as well as vertical location of the unit does not change required tonnage.

| **E1.01.b1 Efficient HVAC System** | |
|---|---|
| **Points** | **Requirement** |
| 4 Points | Minimum SEER 16 w/variable speed AH, electric heat allowed |
| 6 Points | Minimum SEER 16 w/HSPF 9.0 - AHRI Certificate required |
| 16 Points: | Minimum SEER 17 w/HSPF >9.0 or ground/water source HP COP > 4.0 Close loop system only (AHRI Certificate required). |
| 12 Points | Mini splits ONLY with minimum SEER of 21- |

## E1.01.b2 Ducts

8 Points: Ducts in Conditioned space – ALL if in sealed attic or crawlspace must be supply AND return

OR

6 Points: Duct blaster Qn out <= 0.4 – Provide report - top floor only

## E1.01.b3 Envelope Options

6 Points: Radiant Roof Decking – photo required

1 Points: Windows (1) and Glass Sliding Doors (2)- Maximum U-factor = 0.40 and Maximum SHGC = 0.25

2 Points: Minimum R-38 ceiling insulation or R-30 at roof deck

2 Point: CMU walls minimum R-5.1

4 Point: CMU walls/Mass wall >= R-7.0

| | |
|---|---|
| 2 Point | 2 x 4 Walls minimum R-15 – documentation required |
| 6 Points | 2 x 6 Walls or other wall systems (SIPS & ICF) >= R-19 |
| 2 Points: | Roofing installed is Energy Star, cool roof compliant, has an LRV>50 or a<br>SRI > 78 roofing |

### E1.01.b4 Appliances/Equipment

| | |
|---|---|
| 10 Points | Energy Star qualified heat pump/hybrid tank water heater – strongly encouraged in garage/non conditioned space |
| 8 Points: | Gas Tankless – must be installed outside conditioned space OR |
| 10 Points: | Daisy chained comprehensive gas tankless approach to whole building –<br>For example, 8 heaters for whole building (like a mini boiler) |
| 2 Points: | Tankless Electric UEF .917 – very high demand – is this more of a water saver than and energy saver |
| 1 Point: | Energy Star Dish Washer |
| 1 Point: | Energy Star Refrigerator |
| 4 Point: | Energy Star Washing Machine |

**Intent:** Reduce Energy Consumption in single and multi-family homes.

**Submittals:** Points claimed in this section will require photographic proof of Level I Insulation installation, a completed thermal bypass inspection checklist (Energy Star Thermal Bypass Checklist is acceptable), a copy of the load calculation and proof that installed tonnage is within 15% of the Manual J's. Provide field documentation of Energy Calculation inputs such as window SHGC and U-Factor via photo of window stickers, insulation R values, etc.

**MULTI-FAMILY LOAD CALCULATIONS**: The load calculations must be for each distinctive unit type and must show that orientation of the unit as well as vertical location of the unit does not change required tonnage.

**Resources:** energystar.gov

## E2 Energy – Design, Field Testing and Inspections, Finishes, Amenities

FGBC has created this design section to award points for other energy conservation measures that are not considered within the HERS Rating System. Many of these measures involve proper design and layout of the home that can lead to energy savings through passive, rather than active action.

### E2.01 Thermal Enclosure System Inspection (points not available if using E1.01b as it is a required corequisite)

**Requirement:** Conduct a Thermal Enclosure System inspection of the home.

**Points:** 1

**Intent:** The Energy Star Thermal Enclosure System Rater Checklist is a multi-point list of building details where thermal bypass, or movement of heat around or through insulation, frequently occurs due to missing air barriers or gaps between the air

barrier and insulation. Reducing thermal bypasses are important as they can lead to comfort and warranty issues as well as higher utility bills.

**Submittals:** **Required – Energy Star Thermal Enclosure System Rater Checklist, pre drywall photos of interior of the home.**

**Resources:**

https://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/TBC_Guide_062507.pdf

https://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/TBC_06-02-2008.pdf

## E2.02 Ductwork and Joints Sealed with Mastic

**Requirement:** All ductwork connections must be sealed with mastic

**Points:** 1

**Intent:** Reduce/eliminate duct leakage to unconditioned space. Duct leakage significantly contributes to excessive energy use and can cause pressure imbalances that lead to durability problems. Using mastic compound to seal all ductwork connections provides a seal that is much less prone to failure than tape.

**Submittals:** **Photo of multiple properly sealed joints.**

**Resources**: N/A

## E2.03 Ductwork Smoke Tested Allowing Leaks to be Sealed Prior to Drywall

**Requirement:** AC Contractor or Smoke Testing personnel administer smoke test, identify leaks, and verify leaks are sealed. Use theatrical smoke to identify leaks visually, verify leaks are sealed by visual inspection (leaks are sealed when there is no more smoke coming from the ductwork). AC contractor must be present to seal leaks. Smoke testing protocol as follows:

1. All boots are temporarily sealed by either the AC Contractor or Smoke Testing personnel.
2. Potable smoker or duct tester/fogger is connected to the supply and return sections of the duct work. All dampers, if installed, to be verified open by AC Representative.
3. AC Representative is present during Smoke Testing to seal observed leakages with approved materials.
4. Smoke Testing personnel note severity and location of leakages.

5. Smoke Testing personnel verify that all leaks have been sealed at rough-in and supply certificate to client attesting to that fact with date and signature of the Smoke Tester.

**Points:** 1

**Intent:** Smoke testing ductwork at rough-in allows otherwise invisible leaks to be identified and sealed while they are still accessible. This process provides visual and procedural education for the HVAC installers potentially resulting in improvement on future jobs. Leaks are NOT quantified at this stage. Note that leakage from the boots temporary covers, which allow the theatrical smoke to flow through the system, sealing of drywall to boot connections, leakages associated with the air handler cabinet, and the potential for damage to the ductwork by other trades may also impact the resulting duct leakage.

**Submittals:** **Required - Signed affidavit by testing agent verifying smoke test and sealing of all leaks**

**Resources:** N/A

## E2.04 Cross Ventilation and Ceiling Fans Code Credits

**Requirement:** Install ceiling fans and incorporate cross ventilation in all main living spaces and bedrooms. To qualify each bedroom and all primary living areas must have ceiling fans and a minimum of one window present on at least two walls in each room.

**Points:** 1

**Intent:** Reduce energy bills and encourage passive design. The HERS system awards credit for either cross ventilation or ceiling fans, but not for both. Incorporating cross ventilation and ceiling fans into a home design encourages less reliance on air conditioning systems during periods of cooler ambient temperatures by circulating air more efficiently and thus making the home more comfortable.

**Submittals:** Photos or floor plan showing locations of windows and installed ceiling fans.

**Resources:** http://www.fsec.ucf.edu/en/publications/html/FSEC-PF-306-96/index.htm

## E2.05 Roofed Porch, Minimum 100 Square Feet and 3 Sides Open

**Requirement:** The home must have a minimum of a 100 SF porch or outdoor living space that is covered and open either on three sides or on the two opposing sides to allow for ventilation. The porch may be screened but not enclosed by solid walls or cabinetry

between 1'6" and 6'8" above floor height. The open sides must not be blocked by walls or building projections within a distance of three times (3x) the ceiling height.


**Points:** 1

**Intent:** Porches provide a comfortable outdoor living, cooking, and eating space during cooler months and reduce reliance on the home's air conditioning system. As with the rest of the home's design, providing shade with overhangs, keeping the roof cool, and installing a ceiling fan will further increase comfort.

**Submittals:** Photos or floor plan showing location of porch.

**Resources:** N/A

## E2.06 Passive Solar Space Heat System

**Requirement:** Design home for passive solar heating such that the home incorporates 30 BTU/oF/ft2 of storage for every square foot of south-facing glass Credit not available for homes in the South Florida climate zone (as defined by the Department of Community Affairs (DCA) - refer to the map below or check the home's energy code compliance form)

**Points:** 1

**Intent:** Homes designed for passive solar heating utilize, and sometimes store, energy from the sun during the winter months. South-facing windows receive significant winter sun and much less summer sun. Incorporating south-facing glass and placing the main living area on the south side of the home takes full advantage of this. Heat storage can be achieved by using a good conducting material on the slab floor, such as tile or slate, to provide for thermal mass. Concrete block and brick partition walls also provide good thermal mass, as do designs that incorporate water. Homes can also use this "mass" to preserve cool temperatures when the air conditioning system is operating.

**Submittals:** Details of storage system.

**Resources**: N/A

## E2.07 Passive Solar Daylighting

**Requirement:** Incorporate solar day lighting with clerestory windows, skylights or light/solar tubes that are Energy Star certified.

**Points:** 1

**Intent:** Home designed for passive solar day lighting allows sunlight to enter the home without excessive heat gain. Examples include north- and south-facing clerestory windows.

Clerestory windows are windows that are above the eye level for privacy and allow sunlight in while reducing heat gain. Such windows should be operable to also provide a ventilation outlet. Solar light tubes (domed glass roof fixtures coupled with an insulated reflective tube) are encouraged and provide usable reflected light without the heat gain. Light-colored interior surfaces (walls, ceilings, floors) also aid with natural lighting by reflecting light rather than absorbing it. Light-colored surfaces are beneficial whether using natural or artificial lighting.

**Submittals:** Photos or plan showing location of day-lighting features.

**Resources:** N/A



## E2.08 Deciduous Trees on South

**Requirement:** Use shade trees to shade more than 75% of south elevation. Southern climate zones (map page 20), 75% must be shaded but trees do not need to be deciduous.

**Multi-Family:** For multi-family projects, shading of the individual unit's south side shall be used as a basis for awarding this credit to the individual unit. If the south facing wall is an adjacent wall with conditioned space on the other side, the wall may be considered appropriately shaded and receive credits. Note: this credit is not applicable to multi-family projects certified as a whole building or worst case.

**Points:** 1

**Intent:** Placement/preservation of trees that will shade south elevations during warm weather, but do not block heat/light during cool weather can yield energy savings.

**Submittals:** Photo or site plan showing locations of trees.

**Resources:** N/A

## E2.09 House Shaded on the East and West by Trees

**Requirement:** Use trees to shade a minimum of 25% of the total wall area within 45o of due east or west that separate the conditioned area from the outside (omit garage and porch walls). Observe amount of wall area under full shade during the summer or use a sun path tool. If trees are immature, no extrapolations are to be made to their adult size.

**Multi-Family:** For multi-family projects, shading of the individual unit's east and west side shall be used as a basis for awarding this credit to the individual unit. If the east and west sides of the unit are adjacent walls with conditioned space on the other side, the wall may be considered appropriately shaded and receive credits. Note: this credit is not applicable to multi-family projects certified as a whole building or worst case.

**Points:** 1 point for each 25% of shaded east and west wall area (averaged)

**Intent:** During the cooler seasons, a house can achieve a large solar heat gain during the morning and early evening hours as the sun rises and sets. These times also correspond to peak demand placed on utilities. By providing shade trees on the east and west sides of the house, cooling demand can be significantly reduced, since a single mature tree can avert as much heat from a home site as two residential size central air conditioners. Foundation plantings of smaller shrubs are also beneficial to keep the ground next to the house cool and to block re-radiation from adjacent hot surfaces (however, no plants should be placed within 24" of the foundation to prevent excess moisture from accumulating). Trees can also be used to shade the air conditioner condenser, which can further reduce cooling costs. Shade produced by balconies and other overhangs are not included here, for their influence is taken into account in the HERS rating system.

**Submittals:** Photo or site plan showing locations of trees.

**Resources:** N/A

## E2.10 Floor Joist Perimeter Insulated and Sealed

**Requirement:** Insulate and seal around the perimeter of all framed floors –To receive this credit the home must be greater than 1 story.

**Points:** 1

**Intent:** In homes greater than 1 story, it is critical to ensure that the external perimeter of all framed floors are insulated, as well as sealed, to prevent leakage of unconditioned air and moisture into the floor cavity. Often times, forced air ductwork is located within this cavity, and can suffer significant efficiency loss through contact with the unconditioned air. Because blown-in foam insulation is an air barrier as well as a thermal barrier, additional sealing is not necessary. Sealing of all building assembly connections within the rim joist area is required when using other types of insulation.

**Submittals:** Photo or wall section detail.

**Resources:** N/A


## E2.11 Light Colored Exterior Walls

**Requirement:** At least 80% of the home's exterior surfaces on the outside of conditioned space must have a finish such that the LRV ≥ 60 for stucco and all painted finishes and/or a Solar Reflective Index ≥29 for metal and vinyl. If a documented reflectivity is not available, this credit can only be given to "white" or "off white".

**Points:** 1

**Intent:** Dark colors absorb more heat from sunlight; in contrast, light-colored surfaces have been shown to reduce cooling costs. A code credit is currently available for homes in Florida that incorporate white metal or tile roofs. Many paint colors are now available that offer adequate reflectance specs in colors other than "white."

**Submittals:** Cut sheet showing reflectance spec. When appropriate, photos and calculations indicating the percent coverage of the light finishes.

**Resources:** N/A

## E2.12 Light Colored Interior Walls, Ceilings, Carpet/Floors

**Requirement:** All bedrooms and all major living spaces in the home have light-colored wall and ceiling surfaces with a reflectance of at least 50% (or Light Reflectance Value (LRV) > 50).

Bonus point awarded if all major living spaces and bedrooms have light colored flooring. If a documented reflectivity is not available, this credit can only be given to "white" or "off white".

**Points:** 1 point for walls and ceiling
2 points for walls, ceiling, and floors

**Intent:** Light-colored interior surfaces increase efficiency by reflecting and dispersing light rather than absorbing it. Light-colored surfaces are beneficial whether using natural or artificial lighting.

**Submittals:** Photo or cut sheet of paint/surface used.

**Resources:** N/A

## E2.13 Maximum 52w Fixtures in Bathrooms

**Requirement:** All bathroom light fixtures in the home are designed to use a maximum total of 52 watts. A fixture as defined by FGBC is any amenity or system that uses lights and operates on a single switch. These include items such as recessed cans, vanities, lights, mirror fixtures, etc. Multiple switches may be incorporated into the bathroom; however, each switch must only activate 52 watts of lighting total. Limit the number of bulbs per switch or use low wattage lighting such as LED or Power over Ethernet (PoE) lighting.

**Points:** 1

**Intent:** Typically, bathrooms have lighting fixtures that can contain 4 or 5 bulbs. Such fixtures can add excessive heat to the conditioned space, and the amount of light output is generally excessive. This credit is designed to reduce both energy use directly as well as heat generated from lighting. For example, if a bathroom has a vanity with 4 light bulbs and a recessed can, the home can achieve points if one of two things happens: The 4 light bulb fixture is tied to one switch and has a combined wattage of less than 52W and the recessed can is tied to a separate switch and has wattage of less than 52W. Or the fixture and recessed can are tied to the same switch and the combined wattage of the 5 lights is less than 52 watts.

**Submittals:** Photo of light fixtures

**Resources:** N/A

## E2.14 Install a State Certified Solar Water Heating System

**Requirement:** Install a properly sized State certified solar hot water system that has a solar fraction ≥ 0.5.

**Points:** 2

**Intent:** Water heating can account for a large portion of a home's energy use. A modestly sized solar water heating will provide 50-70% of an average household's hot water needs at low cost.

**Submittals:** **Required - Spec. sheet and copy of certification results.**

**Resources:** http://www.fsec.ucf.edu/en/consumer/solar_hot_water/homes/index.htm

## E2.15 Insulate All Hot Water Pipes

**Requirement:** Insulate all hot water piping (including that which is buried) with a minimum of ½" insulation.

**Points:** 1

**Intent:** Insulating the piping will minimize heat losses while water is flowing through or remaining stagnant inside the pipes. CPVC is not a suitable replacement for insulation.

**Submittals:** **Required - Photo of the buried insulated lines or a receipt for the appropriate amount of pipe insulation must be provided.**

**Resources:** N/A

## E2.16 Energy-Efficient Cooktop

**Requirement:** Install an Induction Cooktop

**Points:** 1

**Intent:** Induction cooktops are more efficient than gas or electric cooktops. Heat is transferred directly to the cookware which results in less heat loss and faster heating times. Induction cooktops heat quickly and can reduce cook time saving energy.

**Submittals:** Photo or cut sheet of appliance(s).

**Resources:** Cut sheet for each appliance

## E2.17 Efficient Pumps (Pools and Wells)

**Requirement:** Pools: Install pool pump that is Energy Star or NEMA Premium Efficiency to service any installed pools and spas.

Wells: Install well pump that has supplied power at 220V, and the system contains a storage tank with a volume greater than 35 gallons. Only homes whose potable water is served by a deep well are eligible for this point. You may also receive a point if photovoltaic panels sized to run the pump are installed on the home.

**Multi-Family:** For multi-family projects, all pumps on the project site must comply with the efficient pump requirements to receive credit.

**Points:** Efficient Pool Pump: 3 Points
Efficient Well Pump: 1 Point

**Intent:** When using a well pump, larger storage volumes will minimize the number of times the pump must cycle on/off, thereby minimizing the large amount of energy needed to start the pump motor.

**Submittals:** Include details of pump/storage system.

**Resources:** N/A

## E2.18 Efficient Envelope Volume

**Requirement:** Design a home with minimal outside surface area such that the below formula is less than 43. Total gross wall area refers to the walls, windows and doors that separate the conditioned space from the non-conditioned space.

$$\left( \frac{Total\ gross\ wall\ area}{\sqrt{(Conditioned\ square\ footage) * (Number\ of\ stories)}} \right) < 43$$

**Intent:** Some home designs minimize the number of outside surfaces while others have shapes that have many projections. Although many projections may help for cross ventilation, minimal outside surface area is beneficial for times when air conditioning or heating is occurring.

**Submittals:** Dimensioned floor plan and calculation.

**Resources:** N/A

## E2.19 Dwelling Unit Attached, Zero Lot-Line, Row House

**Requirement:** Attached unit or zero lot line, apartment, condo, or row houses automatically qualify for the credit.

**Multi-Family:** Include the point on all checklists

**Points:** 1

**Intent:** Residences bound by other conditioned spaces on any or all sides use less energy for cooling and heating than residences bound by unconditioned or spaces.

**Submittals:** Photo or site plan.

**Resources:** N/A

## E2.20 Ceiling Penetrations

**Requirement:** No penetrations of the thermal building envelope. If recessed can lights are used, one point may be allowed if they are placed in a location that will not breach the thermal envelope, i.e., into an unvented attic, ceiling of a lower floor, or soffit that is completely within the envelope. Ceiling mounted speakers also fall into this category. Alternatively, the 2 points can be obtained if no recessed fixtures are used in the home.

**Points:** 1 Point: No breach of thermal envelope
2 Points: No recessed fixtures are used

**Intent:** Recessed IC fixtures refer to fixtures installed flush with the ceiling that are rated for insulation contact. Sealed IC fixtures, or ICAT (Insulation Contact Airtight), have no penetrations and do not permit air to exchange between the conditioned space and the attic. During installation, it is also important that the gap between the can and the ceiling material be sealed to prevent conditioned air from leaking through this gap, and/or to prevent hot attic air from entering into the conditioned space.

**Submittals:** Cut sheet of can lights used or photos of unvented attic. Resources: N/A

## E2.21 Energy Star® Ceiling Fans

**Requirement:** Install all Energy Star ceiling fans.

**Points:** 3

**Intent:** Decrease energy consumed

**Submittals:** Provide ceiling fan information confirming energy star.

**Resources:** https://www.energystar.gov/products/ceiling_fans

## E2.22 Outdoor Lights are Energy Efficient

**Requirement:** All installed exterior lights are low voltage, photovoltaic, LED, PoE, or operate on motion sensors or timers

**Multi-Family:** Include this point if all of the outdoor lighting that is controlled by the switches in the individual unit are energy efficient. Often this will be the light outside the tenant's door or on a balcony. Site lighting or lighting for the parking lot is not included in this credit if it is not controlled by the tenant. FGBC strongly encourages certifying agents to discuss the use of efficient site lighting with their clients for multi-family projects.

**Points:** 2

**Intent:** Outdoor lighting, including exterior house, path, and driveway lights, typically consumes a great deal of energy, especially when left on throughout the entire night.

Photovoltaic systems are a good choice for walkways, driveways, and landscaping. Most available units have storage batteries that will charge during daylight hours and power the lights all night; some will even provide power for 2 to 3 days in case the weather is cloudy. Motion sensors are recommended for outdoor lighting, particularly if incandescent floodlights are used. Low voltage landscape lights that operate on a timer are also an energy efficient choice.

**Submittals:** None required – visual inspection by Certifying Agent.

**Resources:** N/A


## E2.23 Energy Efficient Sheathing

**Requirement:** The frame portion of the home is sheathed with a product where all seams are taped or a vertical sheathing product that eliminates horizontal seams and requires all vertical seams to occur over studs.

**Points:** 1

**Intent:** Significant air leakage results from traditional OSB horizontally installed sheathing due to required spacing between sheets. Choosing a sheathing that includes taped

seams or vertical seams located over studs, reduces air leakage by as much as 60% as tested by the NAHBRC.

**Submittals:** None required – visual inspection/test by Certifying Agent.

**Resources:** N/A

# CATEGORY 2: WATER

## W1 Fixtures and Appliances

This section deals with indoor water fixtures and other water using devices connected to them. Often, water saving features result in direct energy savings by placing a lower demand on the water heater.

### W1.01 Water Saving Clothes Washer

**Requirement:** Clothes washer Energy Star qualified or has an Integrated Water Factor (IWF) ≤ 4.3 (top load), IWF ≤ 3.7 (front load), IWF ≤ 4.2 (washers ≤ 2.5 cubic feet (CF)).

**Multi-Family:** Include this point if each individual unit has a water saving clothes washer OR if the central laundry facility is on site and includes water saving clothes washers. Alternatively, points may also be awarded for commercial clothes washers with a Water Factor (WF) ≤ 4.5.

**Points:** 3 points if Energy Star Qualified or appropriate WF

**Intent:** The Water Factor (WF) is a metric that allows for comparison of clothes washer water consumption independent of clothes washer capacity. The WF equals the total weighted per-cycle water consumption divided by the capacity of the washer. Since energy savings in an efficient clothes washer are primarily governed by the amount of water that needs to be heated, conserving water also conserves energy.

**Submittals:** Photo or cut sheet for each appliance showing, A) Energy Star compliance for WF of 6, or B) documentation of WF if not Energy Star qualified and/or if claiming WF of 4 or less.

**Resources**: The WF may not be found on the Energy Guide label and should be identified through the Energy Star® website for a particular model if the applicant is seeking 3 points. https://www.energystar.gov/productfinder/product/certified-clothes-washers/results

### W1.02 Low Flow Shower Heads

**Requirement:** All installed showerheads must have a flow rate ≤ 2.0 gallons per minute (gpm). Note, if there are two showerheads in the master that DO NOT operate simultaneously the point may still be awarded.

**Points:** 1

**Intent:** The Florida Building Code and National Energy Policy Act of 1992 (EPACT) require that all installed showerheads and faucets be rated at a maximum flow rate of 2.5 gallons per minute at 80 psi water pressure. Laminar flow controls may also be used that deliver a precise volume of water at faucets, showerheads, and hose outlets. Unlike conventional water-saving fixtures that deliver varying flow rates in response to varying line pressure, fixtures equipped with laminar flow controls deliver a constant

rate, lower than that mandated by EPACT. The EPA WaterSense program labels showerheads that operate at 2 gallons per minute or less so a WaterSense-labeled showerhead will earn the point.

**Submittals:** Photo of packaging, photo of flow rate indicated on the showerhead, or cut sheet of product indicating flow rate and/or WaterSense label.

**Resources:** For a list of showerheads that have earned the WaterSense label: http://www.epa.gov/watersense/product_search.html?Category=4

## W1.03 All Showers Equipped with One Showerhead

**Requirement:** A maximum of one shower head is allowed per 15 sf of shower compartment.

**Points:** 1

**Intent:** Although EPACT sets a maximum limit on flow per showerhead, building codes do not set a limit on the number of showerheads that can be used.

**Submittals:** Photo of each shower showing showerhead.

**Resources:** N/A

## W1.04 Low Flow Lavatory Faucets

**Requirement:** All lavatory sinks faucets have flow rates of 1.5 gallons per minute (gpm) or less. Additional points are available if all lavatory sink faucets have a flow rate of 1.0 gpm or less.

**Points:** 1 point if all lavatory sink faucet flow rates are 1.5 gpm or less
2 points if all lavatory sink faucet flow rates are 1.0 gpm or less

**Intent:** Faucets account for more than 15 percent of indoor household water use. According to the EPA, by installing low-flow bathroom sink faucets or faucet accessories, an average household can save more than 500 gallons each year.

To make it easy to find and select water-efficient products with good performance, the EPA (Environmental Protection Agency) has introduced its WaterSense® program, a label that is backed by independent testing and certification. WaterSense®-labeled products perform their intended functions as well as or better than their less-efficient counterparts.

**Submittals:** Photo of packaging, cut sheet of product, or photo of product itself indicating flow rate and/or WaterSense label.

**Resources:** For a list of bathroom faucets and aerators that have earned the WaterSense® label, visit https://lookforwatersense.epa.gov/products/

## W1.05 High Efficiency Water Closets, Dual-Flush or Single-Flush Water Closets

**Requirement:** All Water Closets (WC) installed in the home flush at volumes less than or equal to 1.28 gallons per flush (gpf).

**Points:** 2 points if all WC are ≤ 1.28 gpf or dual flush
3 points if all WC are ≤ 1.1 gpf

**Intent:** Toilets represent the largest source of indoor water use in the home, accounting for up to 30%-40% of water demand. The Florida building code and National Energy Policy Act of 1992 (EPACT) require that all installed toilets be rated at a maximum flow rate of 1.6 gallons/flush. There are toilets on the market today that exceed these standards.

To make it easy to find and select water-efficient products with good performance, the EPA (Environmental Protection Agency) has introduced its WaterSense® program, a label that is backed by independent testing and certification. WaterSense® labeled products perform their intended functions as well as or better than their less-efficient counterparts. And generally speaking, they are about 20 percent more water efficient.

**Submittals:** Required-Cut sheet for toilet

**Resources:** For a list of high efficiency commodes that have earned the WaterSense® label, visit https://lookforwatersense.epa.gov/products/

## W1.06 Water Closets with UNAR Map Rating (600gpf)

**Requirement:** All Installed toilets have a minimum MaP Rating of 600 grams per flush.

**Points:** 1

**Intent:** A MaP (Maximum Performance) Rating is a measure of toilet performance provided in grams per flush (gpf). Better performing toilets do not require multiple flushes. MaP Premium is new designation. The MaP Premium label identifies those rare products that offer both superior performance AND superior efficiency. A link to their list of approved (minimum 600gpf) toilets is listed below.

**Submittals:** Required-Cut sheet for toilet.

**Resources:** www.map-testing.com, https://map-testing.com/downloads/

## W1.07 Compact Hot Water Distribution

**Requirement:** Install compact hot water distribution system. For a conventional system, no branch line from the water heater to any fixture may exceed 25 feet in one-story homes. Add 1x the ceiling height for two story homes and add 2x the ceiling height for three- or four-story homes. Branch lines from the central heater to each fixture must be a maximum of ½- inch diameter. One point is also available for use of a manifold system, or for use of a recirculation loop with an on-demand control with auto pump shut-off in the kitchen and each full bathroom.

**Points:** 1

**Intent:** By centrally locating the water heater, heat and water losses can be reduced by minimizing piping runs. Heat losses can also be minimized by installing an on-demand circulation loop, or by installing a manifold system with individual small diameter water lines dedicated to each fixture.

**Submittals:** Plumbing plan.

**Resources:** N/A

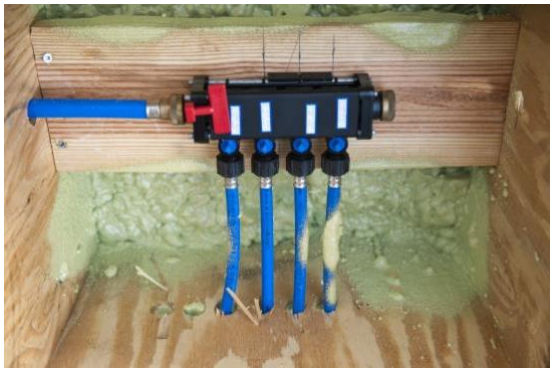


*Figure 1 Manifold hot water system*

*Figure 2 Manifold hot water system*

## W2 Greywater Reuse

Greywater is generally defined as domestic wastewater from any source except toilets and the kitchen sink—this includes laundry, shower/bath, faucets, and dishwasher. (Note that laundry greywater can only be used outside in micro-irrigation.) It can also include air conditioner condensate. Statistics show that 50-75% of the water consumption in an average Florida home is for exterior landscape irrigation, and generally, our precious potable water resource is used for this purpose. Greywater is rich in nutrients, and many landscape plants and grasses will thrive when watered with greywater. In turn, the terrestrial environment acts to naturally purify this waste stream without chemicals or added energy and returns the water to its natural cycle.

Greywater differs from blackwater (water from toilets and kitchen sink), in that it is free of pathogens and solids. Greywater only contains 1/10 the amount of nitrogen as blackwater, and the organic content of greywater typically decomposes much faster than that of blackwater. Although inherently safer than blackwater, greywater cannot be considered as potable, and, therefore, landscape application must take place subsurface and cannot be used with sprayers or rotors. To utilize greywater from household fixtures, plumbing in the home must separate drains from blackwater and greywater sources. For new construction, a reuse system should be planned during the design stage. Since laundry equipment generally has drain hoses that are not fixed, washing machines are an excellent source of reuse water.

### W2.01 Greywater System

**Requirement:** Install greywater system as described below

**Points:** 1 point - Pre-plumb for partial greywater system or full greywater system. A full system is defined as one that disperses water from laundry, shower/bath, faucets and dishwasher to flush toilets or irrigate the landscape. Local building code may disallow one of these options. If that is the case, the system will still be considered full. If local code only permits one option, they system is considered partial.

**Intent:** Reduce the consumption of potable water by using alternative sources.

**Submittals:** **Required -Construction drawings of installed dual piping and filtration systems**

**Resources:** N/A

**OR**

**1 point** Reuse air conditioner condensate

**Intent:** Air conditioner condensate can also be considered a source of greywater. Annual air conditioner condensate volume can average between 1500 and 3500 gallons. Inexpensive purification devices are available that make the water useable for pool refilling, irrigation, or make-up water for water-cooled air-conditioning units.

**Submittals:** Certifying agent inspection

**Resources:** N/A

**OR**

**2 points** Vanity water collection system installed for toilet flushing

**Intent:** An under-vanity water reservoir system used for the collection of vanity sink water to later be used for the flushing of the adjacent toilet is also another source of greywater and can save a significant amount of water each year especially in homes with families.

**Submittals:** **Required - Schematic of system design and or product photo and cut sheets.**

**Resources:** N/A

**OR**

**3 points** Whole house greywater system installed and operational. Install greywater system that disperses water from laundry, shower/bath, faucets or dishwasher to the landscape. Note that laundry greywater can only be used outside in micro-irrigation.

**Intent:** Reduce the consumption of potable water by using alternative sources.

**Submittals:** **Required - Construction drawings of the proposed system, photo of installed system and product information**

**Resources:** Two excellent greywater resources are the book entitled “Create an Oasis with Greywater” by Art Ludwig, and the Oasis Design website, located at: http://oasisdesign.net/ .Another good source of information is the City of Austin’s Sustainable Building Sourcebook at: https://www.ou.edu/content/dam/okh2o/docs/Sustainable_Building_Sourcebook.pdf.F

or more info visit: https://edis.ifas.ufl.edu/publication/AE453
https://www.hydraloop.com

# W3 Rainwater Harvesting

## W3.01 Rainwater Harvesting - System Installed with Dedicated Use

**Requirement:** Installed collection and storage system with a dedicated indoor or outdoor use. For non-potable system, install a rain barrel or system with ≥ 500 gallons of storage capacity for irrigation. For potable systems, install a ≥ 500- or ≥ 2,500-gallon capacity system.

Potable systems must have a certified potable filtration system installed, design must be approved, inspected and certified by ACSCA/ASE.

**Points:** **1 Point** Rain Barrel

**2 Points** Non-Potable 500 Gallon System

**3 Points** Potable 500 Gallon System

**5 Points** Potable 2,500 Gallon System

**Intent:** With an average rainfall of 54 inches/year in the state of Florida (compared to the national average of 27 inches/year), harvested rainwater is an excellent source of water for indoor and outdoor use. Rainwater harvesting is now mandated for new construction in Florida Keys, Bermuda and the U.S. Virgin Islands. Rainwater is generally harvested from a roof surface, and system components include properly designed gutters, piping, roof washers, screens, and a storage tank/cistern. System capacities can range from thousands of gallons to trashcan-sized rain barrels. Harvested rainwater could also be a good source for toilet flushing.

**Submittals:** Schematic of system design, equipment submittal and photos of installed system.

**Resources:** For more information consult A Guide to Environmentally Landscaping: Florida Yards and Neighborhoods Handbook or visit https://sfyl.ifas.ufl.edu/lawn-and-garden/saving-and-using-rainwater/

Additional information on rainwater harvesting can be found at:
https://sustainablesources.com/water/harvested-rainwater/

## W4 Reclaimed Water Reuse

Reclaimed water is wastewater that has received at least secondary treatment and basic disinfection and is reused after flowing out of a domestic wastewater treatment facility. Reclaimed water is not potable but is made available by municipalities and wastewater utilities for purposes such as irrigation and toilet flushing. Although infrastructure costs can be high to arrange for reclaimed water service, once available the actual cost for the water is relatively inexpensive. Reuse of reclaimed water provides a useful method for treatment facilities to dispose of their treated wastewater. Even though reclaimed water is considered an alternative source, it is still available in limited supply. Whether or not the homeowner is charged based on the meter, a meter will still allow the homeowner to monitor their water use.

### W4.01 Water for Irrigation

**Requirement:** Use reclaimed water for the home's irrigation needs. Non potable water used for irrigation that does not come from a natural body of water or a well may also qualify for this credit.

**Multi-Family:** For multi-family projects, 2 points shall be awarded to each unit (if submitting each unit for certification) if reclaimed water is used to irrigate the entire project. If submitting for whole building for certification, the project site irrigation must use reclaimed or non-potable water for irrigation.

**Points:** 1 - partial irrigation supplied by reuse
2 - all irrigation supplied by reuse

**Intent:** Reduce potable water use

**Submittals:** Documentation that describes reclaimed water use agreement, photos of reuse irrigation pipe installed during construction or construction drawings indicating connection to reuse.

**Resources:** N/A

## W4.02 Meter on Reclaimed Irrigation System

**Requirement:** Meter must be installed on the reclaimed water use for the home

**Multi-Family:** For multi-family projects, points shall be awarded to the unit if a meter is installed on the reclaimed water use for the property.

**Points:** 1

**Intent:** Reduce water consumption, metering and charging for irrigation water often results in water conservation as a cost saving strategy

**Submittals:** Photo of meter installed at the site.

**Resources:** N/A

## W4.03 Volume-Based Pricing Arrangement

**Requirement:** Base pricing for reclaimed water such that increased use, volume, results in increased fees per unit.

**Points:** 1

**Intent:** Reduce water consumption, pricing agreements that increase fees based on volume of consumption can incentivize less water use.

**Submittals**: Documentation that describes reclaimed water pricing.

**Resources:** N/A

## W4.04 Reclaimed Water for Toilet Flushing Requirement:

**Requirement:** Use reclaimed water to flush toilets

**Points:** 2

**Intent:** Reduce potable water use

**Submittals**: Documentation that describes reclaimed water use agreement.

**Resources**: N/A

# W5 Installed Landscape

Select plants to minimize the maintenance, water use, electricity associated with irrigation, fertilizer or pesticide that must be used to maintain the landscape. Stormwater runoff carries pollutants such as fertilizers, pesticides, soil, and petroleum products. Fertilizers and pesticides from residential areas can be serious threats to the health of Florida's waters. Plant selection will also determine how long your landscape will last. Appropriately sized and located plant species will allow for a landscape that thrives and requires less water and chemicals. More people are conserving water both inside and outside the home, and interest is growing in landscaping with native and other beneficial trees, shrubs, and ground covers. Many of these benefits to the environment also save time and money while enhancing our special Florida lifestyle. For more information consult A Guide to Environmentally Landscaping: Florida Yards and Neighborhoods Handbook or visit https://ffl.ifas.ufl.edu/media/fflifasufledu/docs/FFL-Handbook_revisions03062024_web_new_zone_map.pdf

Another good source of landscaping information is provided by the Florida Water StarSM website (https://floridawaterstar.com) that includes a Waterwise plant database and an invasive plants list developed by the Florida Invasive Species Council https://www.floridainvasives.org/

**Multi-Family:** For W5 credits, the landscape of the project site is used to determine compliance. If the project site complies with the credit, the credits are included on all submitted checklists.

## W5.01 No turf or Drought-Tolerant Turf Installed

**Requirement:** All installed turf is drought tolerant, which is limited to Bahia, Zoysia or Bermuda.

**Points:** 2

**Intent:** Turf is generally the largest consumer of water in the landscape. Utilization of the more drought tolerant varieties can, when watered appropriately, reduce consumption.

**Submittals:** Inspection by certifying agent

**Resources:** N/A

## W5.02 60%, 80%, 100% of Plants/Trees from Local Drought Tolerant List

**Requirement:** Use of at least 60% of the plants and trees incorporated into the landscape are from a local drought tolerant list; 2 points are available if 80% are from such a list; and 3 points are available if 100% of the plants and trees are from such a list. A minimum of twelve total plants must be present in the landscape to qualify for the credit. Note that not all native plants are drought tolerant.

**Points:** 1 - at least 60% drought tolerant
2 - at least 80% drought tolerant
3 - 100% drought tolerant

**Intent:** Drought-tolerant plants and trees are able to survive on rainfall with little or no supplemental irrigation.

**Submittals:** Existing Landscape – Requires landscape inspection by an FY&N, Master Gardener, Florida Water Star Certifier, or other approved professional.

New Landscape –- Landscaping plan, drought tolerant plant list and photos of installed landscape.

**Resources:** To obtain a list of drought tolerant plants and trees for your area, contact your local water management district, consult the Waterwise Florida Landscapes database, or consult with an FY&N professional, Master Gardener, or Florida Water Certifier.

The following websites provide additional resources: https://www.sjrwmd.com/water-conservation/waterwise-landscaping/ http://fyn.ifas.ufl.edu

## W5.03 All Plants/Trees Selected to Be Compatible with Their Location in the Landscape

**Requirement:** All plants (including shrubs, groundcovers, vines and trees) are compatible with their location in the landscape

**Points:** 2

**Intent:** Even if preferred native, drought tolerant, and low maintenance plants are selected for the landscape, many times the plants are installed in areas of the landscape where they are not likely to remain healthy due to various sun/shade and soil type requirements. Incompatibility between the plant(s) and their placement results in over watering and over fertilizing.

**Submittals:** **Requires landscape Inspection by an FY&N, Master Gardener, Florida Water Star Certifier, or other approved professional.**

**Resources:** https://ffl.ifas.ufl.edu/about-ffl/9-principles/principle-1-right-plant-/

## W5.04 Turf Less Than 50% of Landscape

**Requirement:** Turf is installed on less than 50% of landscape

**Multi-Family:** For multi-family projects submitted as individual units, 3 points are awarded to each unit if turf is 50% or less of all of the vegetated/landscaped area of the entire project property. The same applies if submitting for whole building for certification.

**Points:** 3

**Intent:** Lawns are generally the largest consumers of water in the landscape. Minimizing the amount of turf in a yard by confining it to play, pet, or entertainment areas will greatly reduce the yard's burden on Florida's limited freshwater resources.

**Submittals:** **Required -Landscape plan, photos.**

**Resources:** N/A

## W5.05 No Turf in Densely Shaded Areas

**Requirement:** No turf installed in areas receiving less than five hours of sunlight a day such as, northwest areas, deep shade under canopy trees, and areas between homes on zero-lot lines. See photos below

**Points:** 2

**Intent:** Most turf will not flourish in densely shaded areas. Homeowners are likely to water more in a futile attempt to overcome this situation. Mulch and/or shade-loving, site-appropriate ground covers are compatible options for these areas.

Photo on left shows new turf installed in too much shade. Photo on right shows filtered shade.

**Submittals:** **Required -Landscape plan, photos.**

**Resources:** N/A

## W5.06 Plants with Similar Sun and Water Requirements Grouped Together

**Requirement:** Landscape is planned and installed with respect for the amount of sun hitting the various areas of the lot. Plants that prefer similar sun and water requirements are grouped together in the appropriate areas of the landscape. For example, because the foundation plants on the north side of the home will be in the shade, plants that thrive in little to no sunlight and which share similar water requirements should be chosen for this location.

**Points:** 2

**Intent:** When plants with dissimilar needs are installed within the same landscape areas or irrigation zones overwatering, excessive fertilization, constant trimming, and loss of plants can occur. Grouping plants with similar requirements benefits both the environment and the homeowner.

**Submittals:** Requires landscape inspection by an FY&N, Master Gardener, Florida Water Star Certifier, or other approved professional.

**Resources**: Waterwise Plant Database - https://floridawaterstar.com/technical-manual/landscape-criteria/plant-compatibility/plant-database/ Florida-Friendly Plant Database - https://ffl.ifas.ufl.edu/plants

## W5.07 Mulch Applied 3-4” Deep Around Plants (NO VOLCANO MULCH)

**Requirement:** Apply 3-4” of mulch around plants and trees (extending out to drip line) and in landscaped beds avoiding volcano mulching.

**Points:** 1

**Intent:** In addition to preventing weed growth, a thick layer of mulch will help retain soil moisture, retard erosion, cool the soil surface, and reduce some soil pests. Mulching around trees also reduces damage from mowers and line trimmers.

It is important to avoid volcano mulching (a cone of piled mulch placed around newly installed plants and trees). This practice can hold moisture against the tree and encourages rot in the trunk.

**Submittals:** Landscape photo showing mulch.

**Resources:** https://ffl.ifas.ufl.edu/ffl-and-you/home-landscapes/

*Figure 1 Incorrect Volcano Mulching*

*Figure 2 Correct Installation*

## W5.08 Non-Cypress Mulch Used

**Requirement:** Mulch installed on the project is non-cypress mulch, any alternative listed below is acceptable.

**Points:** 1

**Intent:** Cypress mulch used to be produced mainly as a by-product of lumber operations but the increasing demand for mulch has led to the use of whole trees for nothing but mulch.

The cypress trees are not being replanted resulting in the loss of the cypress forest, its wetland, and wildlife. Acceptable alternative types of mulch include melaleuca, pine straw, pine bark, recycled, and eucalyptus. Note that Brazilian pepper, Australian pines, and palms should not be used as mulch and are not given credit.

**Submittals**: Landscaping plan with mulch type identified and photo.

**Resources:** N/A

## W5.09 Soil Tested and Amended Where Necessary

**Requirement:** For highly permeable soil, appropriately test and amend where necessary. Testing includes pH, lime requirements, soil fertility, and water infiltration to show that amendment is necessary, and type of amendment chosen.

**Points:** 2

I**ntent**: In some areas of Florida, native soil is very sandy and porous and does not retain water or nutrients well; this often results in the need for excessive irrigation and fertilization to maintain a healthy landscape. The simplest way to avoid these problems in the landscape is to use only plants that are compatible with the site. However, in the case of a vegetable or flower garden a soil amendment such as compost (or other organic matter) may be mixed with the native soil to improve moisture and nutrient retention.

**Submittals:** Landscaping plan, pre- and post-pH testing of soils, and verifying that tilling was performed at least 8” depth by signing off on affidavit.

**Resources:** N/A

# W6 Installed Irrigation

Homeowners in some parts of Florida are becoming accustomed to restrictions that limit irrigation to certain days and times. Still, many are watering too much. Overwatering depletes our water supply, often makes plants pest prone, and adds to stormwater runoff that pollutes our natural waters. By choosing and operating an irrigation system correctly, you can reduce water bills, fungal diseases, preserve the life of the plants and lower maintenance requirements. Coupled with appropriate plant selection, implementing efficient irrigation techniques can reduce outdoor water use anywhere from 20% - 60%.

The St. Johns River Water Management District has developed a Florida Water Star certification program for homes. Irrigation is one component of this program. A stakeholder group knowledgeable in irrigation system design, installation, and efficiency helped the District develop a list of measures that will ensure irrigation systems not only fulfill their intended purpose but do so effectively and efficiently. Some of these items are integrated into the FGBC standards specified below.

**Multi-Family:** For W6 credits, the landscape of the project site is used to determine compliance. If the project site complies with the credit, the credits are included on all submitted checklists.

## W6.01 No Permanent In-Ground Irrigation System

**Requirement:** Site has no permanent in-ground irrigation, regardless of size.

**Points:** 10

**Intent:** The most effective outdoor water conservation strategy to employ is to design the landscape in such a way that it exists primarily on natural rainfall, and no permanent irrigation system is required. A temporary irrigation system may be set up during establishment.

**Submittals:** None required

**Resources:** N/A

## W6.02 Innovative Irrigation Technology

**Requirement:** Soil moisture sensors, wind sensors or other weather-based irrigation are installed and will override the irrigation system.

**Points:** 2

**Intent:** FGBC encourages innovative technologies to conserve water. Technologies such as soil moisture sensors or weather-based controllers are ways of conserving irrigation water. Florida State Law requires a rain sensor for irrigation systems. A rain sensor is not considered innovative technology.

**Submittals:** Cut sheet of innovative equipment.

**Resources:** N/A

*Figure 1 Soil Moisture Sensor*

## W6.03a Landscape Irrigated to FGBC Standards

**Requirement:** Use FGBC guidelines for irrigation as stated below.

**Multi-Family:** For multi-family projects, points are awarded to each unit if the irrigation system for the entire property meets the FGBC requirements.

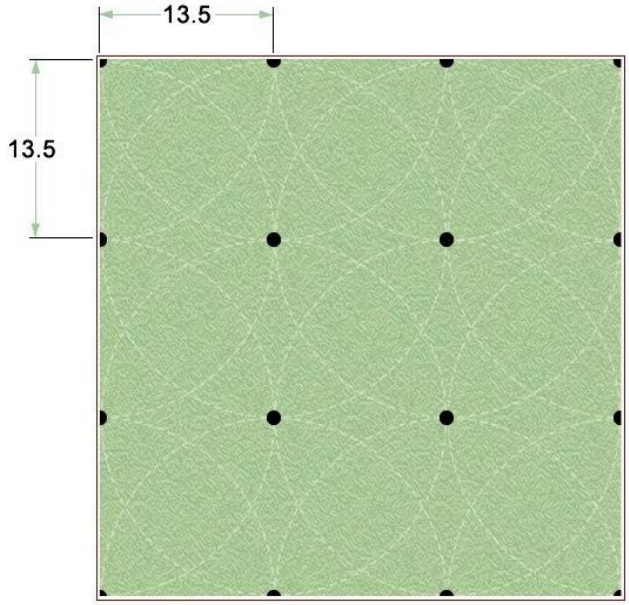
**Points**: 3

To receive points for Installed Irrigation, each system must have the following features:

1. **Separate zones for turf and landscape beds** – multi program controller: In addition to grouping plants with similar maintenance requirements together, it is important to design the irrigation system to deliver the appropriate amount of water for each plant type. It is recommended that the irrigation systems be calibrated to supply less than ¾" of water per zone, per application. Even during the summer, turf areas—which generally require the most water of all landscape features—will not benefit from more than ¾" of water per application. Applying more than ¾" will result in excess water being lost to evaporation, runoff, or percolation through the soil. Over-watering turf also allows weeds such as dollar weed to become established. Other plants can suffer from root rot. Most landscape plants do not require as much water as turf, and their zone can be set for less than ¾" of water per application. An easy way to determine this is to place small containers (i.e., paper cups) throughout each zone and take note of the time it takes the cups to accumulate the desired amount of water. Then, set your irrigation controller to operate for no longer than that time in each zone. The controller must be a multiple program controller that can divide the landscape into zones and operate the different zones for different lengths of time. In this way, high water use zones that require a large amount of water from rotors (application rates of 0.1 – 0.75 inches of water per hour) or spray heads (application rates of 1.0 – 1.5 inches per hour) can be separated from more drought-tolerant plants that require little or no water. In contrast, a single program controller is often set for the watering requirements of the least drought-tolerant landscape feature, and the rest of the landscape ends up being over-watered. The controller must have a battery backup to retain system settings and include a functioning rain sensor in an operable location as required by Florida Statute 373.62.

2. **High volume irrigation does not exceed 60% of the landscape area:** Landscape zones requiring a high volume of water (which is ≥ 0.5 gallons per minute (gpm) or 30 gallons per hour (gph) supplied by rotors or spray heads cannot exceed 60% of the landscape area.

3. **Head-to-head coverage for rotor/spray heads:** Irrigation system designs incorporate spray/rotor head pattern that overlap to ensure complete coverage. In order to minimize over-watering in the overlap zone, one emitter's coverage pattern should not extend past adjacent emitters. Full coverage as depicted in the photo below (courtesy of St. Johns River Water Management District)



Example of head-to-head spacing.

4. **Micro-irrigation only in landscape beds and narrow areas:** Landscape features other than turf can be watered much more efficiently by using micro-irrigation rather than sprayers and rotors. Equipment such as drip emitters, bubblers, micro- spray jets, and soaker hoses deliver water precisely where it is needed. In contrast, much of the water emitted from sprayers and rotors is blown away by wind or evaporates. In addition, turf areas that are less than 4 ft. wide are difficult to irrigate effectively with rotor or spray heads, for most patterns are greater than 4 feet in diameter. Micro-irrigation is a better choice for irrigating narrow turf areas.

5. **Provide owner and FGBC with plan and instructions**: The eventual homeowner should receive a copy of as built plans, operating manuals, and warranties. The package should also include a general irrigation schedule with recommendations and instructions on modifying the schedule for local climatic and growing conditions. Each of the following items should be installed adjacent to the controller or in an easily accessible weather-protected area:

    a. Controller handbook/operating instructions
    b. Zone diagram
    c. Specific zone application rates and maintenance run times
    d. Location of rain sensor or soil moisture sensor probe

   By having this information where the homeowner can easily find and use it, long-term maintenance of the system is encouraged. Surveys have shown that the typical homeowner is actually afraid to touch the controller because instructions are not available or easy to read. Many times, the irrigation contractor does not return to readjust the timer after the establishment period.

**OR**

## W6.03b 100% micro irrigation installed

**Requirement:** Use FGBC guidelines for irrigation as stated below.

1. All irrigation installed must be micro-irrigation (irrigation with ≤ 0.5 gpm) including drip emitters (point source, drip line, and multiple outlet) and micro-spray
2. System must include a rain sensor, controller and be properly managed.
3. Provide owner and FGBC with irrigation plan, management plan and instructions: The eventual homeowner should receive a copy of as built plans, operating manuals, and warranties. The package should also include a general irrigation schedule with recommendations and instructions on modifying the schedule for local climatic and growing conditions. Each of the following items should be installed adjacent to the controller or in an easily accessible weather-protected area:

    a. Controller handbook/operating instructions
    b. Zone diagram
    c. Specific zone application rates and maintenance run times
    d. Location of rain sensor or soil moisture sensor probe

**Multi-Family:** For multi-family projects, points are awarded to each unit if the irrigation system for the entire property meets the FGBC requirements.

**Points:** 5

**Intent:** To facilitate increased efficiency in the irrigation design and promote water conservation.

**Submittal:** **Required - Visual inspection by Certifying Agent, Irrigation system design drawing as installed, irrigation schedule, and operating instructions for homeowner.**

**Resources:** https://floridawaterstar.com/technical-manual/irrigation-criteria/ and Florida Friendly Best Management Practices for Protection of Water Resources by the Green Industries, https://ffl.ifas.ufl.edu/media/fflifasufledu/docs/GIBMP_Manual_Web_English.pdf https://sfyl.ifas.ufl.edu/?topic=home-landscapes

## W6.04 Pressure Compensating or Regulating Irrigation Components

**Requirement:** Install pressure compensating spray heads and or micro-irrigation or pressure regulating valves in spray zones and/or pressure regulator for micro-irrigation

**Points:** 1

**Intent:** Pressure regulating valves reduce the pressure of water through each head to prevent misting. Pressure compensating irrigation allow emitters to maintain the same output at varying water pressures (this helps to compensate for terrain, length of supply tube and varying inlet flows.

“:

**Submittal:** **Required - Visual inspection by Certifying Agent, Irrigation system design drawing as installed, and irrigation schedule.**

**Resources:** https://floridawaterstar.com/technical-manual/irrigation-criteria/ and Florida Friendly Best Management Practices for Protection of Water Resources by the Green Industries, https://ffl.ifas.ufl.edu/media/fflifasufledu/docs/GIBMP_Manual_Web_English.pdf


*Figure 1 Pressure regulating irrigation is identified with a PR" and can be visually inspected as pictured*

## W6.05 In poor drainage (low) areas, heads are installed with check valves

**Requirement:** Check valves need to be installed if there is over an 18-inch difference in elevation.

**Points:** 1

**Intent:** Check valves prevent low-pressure drainage. Low-pressure drainage is a situation in which the system drains to the lowest head and resultant water flows onto or over adjacent property, non-irrigated areas, walks, roadways, or structures. Not only could this be a localized wet spot problem, but it also wastes the water that is in the zone piping each time the system runs.

**Submittal:** **Required - Visual inspection by Certifying Agent plus either an irrigation system design drawing as installed indicating check valve location or photo of sloping area and installed check valve.**


*Figure 1 Photo shows "SAM" which stands for Seal-A-Matic check valve*

## W6.06 High volume irrigated areas have matched precipitation rates

**Requirement:** Each zone irrigated with high volume rotors must have matched precipitation rates. High volume heads are defined as those emitting greater than 30 gallons per hour (GPH).

**Points:** 1

**Intent:** Matching precipitation rates allows for sprinklers with various arcs and radii to be included in the same zone and each deliver the same target application rate. The goal is full and even coverage.

**Submittal:** Visual Inspection by Certifying Agent, FYN or FWS certifier

### W6.07 Pop-up sprinkler heads significantly rise above turf grass height

**Requirement:** Heads pop up sufficiently above the turf per the following:

a. A minimum of 5-inch sprinkler heads for St. Augustine, Zoysia and Bahia grasses

b. A minimum of 4-inch sprinkler heads for Centipede, Bermuda and Seashore Paspalum

**Points:** 1

**Intent:** If heads do not rise adequately above the turf, portions of the spray can be blocked by the turf itself. Under these circumstances, the uniformity of distribution will be compromised resulting in poor coverage.

**Submittal:** Visual inspection by Certifying Agent

**Resources:**

## W7 Meet Additional Water Certification Requirements

**Multi-Family:** For W7 credits, the landscape of the project site is used to determine compliance. If the project site complies with the credit, the credits are included on all submitted checklists.

### W7.01 Meet Florida WaterStar™ or WaterSense® Standards

**Requirement:** Meet the WaterStar™ or WaterSense certification program requirements.

**Points:** 5

**Intent:** Florida WaterStar™ is a voluntary, third-party certification program designed to increase water efficiency in landscapes, irrigation systems and indoor uses. While many certification programs provide general guidelines for water efficiency, Florida WaterStar™ specifically addresses uses relevant to Florida.

WaterSense® labeled new homes will combine WaterSense® labeled products with other water-efficient fixtures and practices to reduce the amount of water used by approximately 20 percent. Homes must meet criteria in three areas: indoor water use, outdoor water use, and homeowner education.

**Submittals:** **Required – WaterStarSM or WaterSense® certificates**

**Resources:** https://floridawaterstar.com/program-criteria/residential/
www.epa.gov/watersense/

### W7.02 Meet Florida Friendly Landscaping™ Program New Construction Certification.

**Requirement:** Obtain Florida Friendly Landscaping™ Program New Construction Certification

**Points:** 2

**Intent:** Florida-Friendly Landscaping™ offers a certification program for new construction throughout the state. The Florida-Friendly Landscaping™ new construction checklist for builders and developers includes design criteria that help drive maintenance of landscapes in a Florida-friendly way; that is through less use of irrigation, fertilizers and pesticides.

The certification criteria embrace the nine principles of Florida-Friendly Landscaping™, which are: Right plant, right place; water efficiently; fertilize appropriately; mulch; attract wildlife; manage yard pests responsibly; recycle yard waste; reduce stormwater runoff; and protect the waterfront. Florida-Friendly Landscapes, as defined in 2009 Florida Statutes, Chapter 373, are landscapes that are: "…quality landscapes that conserve water, protect the environment, are adaptable to local conditions, and are drought tolerant." For more information, contact the county UF/IFAS Extension office. Many of the criteria dovetail with other green certification programs.

**Submittals:** **Required - Copy of certificate.**

**Resources:** https://ffl.ifas.ufl.edu/media/fflifasufledu/docs/checklists/New-Construction-Checklist.pdf
https://ffl.ifas.ufl.edu/ffl-and-you/home-landscapes/

# CATEGORY 3: LOT CHOICE

## LC1.01 House Built within Designated FGBC Green Development

**Requirement:** The home is built within a FGBC certified Green Land Development. Below is a list of the certified land developments. Enter the appropriate percentage "from the % Above Certification" column into the checklist to receive credit.

**Multi-Family:** The home is built within a FGBC certified Green Land Development. Below is a list of the certified land developments. Enter the appropriate percentage "from the % Above Certification" column into the checklist to receive credit.

| FGBC Certified Green Developments | Points for LC1.1 |
|---|---|
| Abacoa | 2 |
| Alys Beach | 2 |
| Babcock Ranch | 6 |
| FishHawk Ranch | 2 |
| Glencairn Cottages | 2 |
| Granada Park | 2 |
| Harmony | 3 |
| Lakewood Ranch | 3 |
| Longleaf | 2 |
| Oakland Park | 2 |
| RiverCreek Preserve | 6 |
| Venetian Golf and River Club | 2 |
| Verandah | 3 |
| Village at Gulfstream Park | 2 |

**Points:** 2-6 points awarded based on the above table

**Submittals:** Name of development.

**Resources:** A database of certified FGBC Land Developments can be found at:
FGBC Land Developments

## LC1.02 Home within a Certified Green Local Government

**Requirement:** Build within certified FGBC Green Local Government.

**Points:** 2

**Intent:** Reward projects constructed in certified green local governments as these regions have taken a collaborative approach to improving the overall sustainability of their community.

**Submittals:** Name of local government

**Resources:** A database of certified FGBC Local Governments can be found at:
FGBC Local Governments

## LC1.03 Built on an Infill Site

**Requirement:** Home is built on a lot in which 75% of the surrounding within ½ mile radius excluding waterways and parks, has been previously developed 5 or more years ago.

**Points**: 2

**Intent:** Infill sites are typically adjacent to existing infrastructure such as utilities, roadways, multi-modal transportation options, etc. Building on infill sites reduces the need to expand infrastructure to support new development.

**Submittals:** **Required-Aerial map of site and surrounding area**

**Resources:** Local Jurisdiction Property Appraisers Website, OR the internet

## LC1.04 Site within 1/8 Mile of Existing Infrastructure

**Requirement:** Build within 1/8 mile of existing water and sewer infrastructure.

**Multi-Family:** For multi-family projects, 1 point is awarded to the unit if the center of the multi-family project's property complies with the above requirement.

**Points:** 1

**Intent:** Reduce the impact on new construction by using existing infrastructure.

**Submittals:** None.

**Resources:** N/A

## LC1.05 Site within 1/4 Mile Walk to Mass Transit

**Requirement:** Home within ¼-mile safe walk (sidewalk or other pedestrian path) to a city bus stop or other mass transit station.

**Multi-Family:** For multi-family projects, 2 points are awarded to the unit if the center of the multi-family project's property complies with the above requirement.

**Points:** 2 – 4

2 Points: 1 route within ¼ mile

3 Points: 2-4 routes within ¼ mile

4 Points: 5+ routes within ¼ mile

**Intent:** Provide access to alternative forms of transportation to reduce vehicle miles travelled.

**Submittals:** None.

**Resources:** N/A

## LC1.06 Site within 1/2 Mile of Public Open/Green Space

**Requirement:** Home within ½ mile of Public Park or recreational area.

**Multi-Family:** For multi-family projects, 2 points are awarded to the unit if the center of the multi-family project's property complies with the above requirement.

**Points:** 2

**Submittals:** None.

**Resources:** N/A

## LC1.07 Site within 1/2 Mile of EXISTING Basic Community Resources

**Requirement:** Locate the home or multi-family building on a site that is within 1/2 mile of and has safe and walkable access to basic services. For each unique type of services receive 1 point. Each type of service may only be counted once, i.e. if there are 3 banks, for the purposes of this checklist that is equal to ONE service.

Services include:

| | |
|---|---|
| Arts and entertainment center | Local Government Facility |
| Bank | Medical or dental office |
| Beauty Shop | Pharmacy |
| Bike Share Station | Place of worship |
| Civic Center | Police station |
| Community Center | Post office |
| Convenience store | Restaurant |
| Daycare center | School |
| Dry Cleaners | Senior Care Facility |
| Fire station | Supermarket |
| Fitness center or gym | Theater |
| Laundromat | Other Neighborhood-serving retail |
| Library | Other office building or major employment center |

**Multi-Family:** For multi-family projects, points are awarded to the unit if the center of the multi-family project's property complies with the above requirement.

**Points:** 1 – 5

1 point is awarded for each unique service

**Intent:** Reduce vehicle miles traveled and encourage the use of alternative forms of transportation by providing daily service within walking or biking distance.

**Submittals:** **REQUIRED - Map showing location of home in relation to services.**

**Resources**: Google Earth Pro or other similar mapping programs that will show the distance of service from the location of the home

## LC1.08 Site Located In Small-Lot Cluster Development

**Requirement**: Home is located on a lot in a development or subdivision/neighborhood that has clustered the houses into lots that are 5000 square feet or less and the development has preserved for the common good over 50% of the total acreage.

**Points:** 2

**Intent:** Increase density to reduce land necessary for dwelling units

**Submittals:** None

**Resources**: N/A

## LC1.09 Brownfield Site

**Requirement**: Home is located on a rehabilitated Brownfield designated site

**Points:** 2

**Intent:** Brownfield is defined by the EPA as abandoned, idled, or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination.

**Submittals:** **Required-Documentation of brownfield status.**

**Resources:** N/A

# CATEGORY 4: SITE

All credits in this category deal only with buildable land. Only land that is legally allowed to be disturbed may count towards the credit points.

Multi-Family: For Site credits, all site credits are available based on the project site compliance – if the project site complies than the credit shall be included on all submitted checklists

## S1 Native Tree and Plant Preservation

### S1.01 Maximize Tree Survivability

**Requirement:** Protect existing trees during construction of home by employing the following techniques to at least 12 inches of tree caliper measured at chest height (i.e., four 3-inch trees, two 6-inch trees, etc.) per acre.

1. Provide a survey of the property that identifies all trees 2 inches in diameter at greater than breast height (4.5 feet) and all native plant communities. Identify areas to be preserved and develop a strategy for avoiding mechanical and chemical damage, grade changes, trenching, and compaction.

2. To avoid accidental cutting of trees, clearly mark the trees to be cut with paint at eye level, and also on the ground to make it easier to see if unmarked trees have been cut. Also, make sure the cut trees will not damage other trees when they fall.

3. Construct barricades around trees or groups of trees to be preserved at their drip line to prevent mechanical damage. Mechanical damage can be caused by heavy equipment, carelessness with tools, soil compaction, and improper cutting of roots. Make sure the barriers are tall enough to be seen by equipment operators. Use hand tools when removing brush and weeds around a tree.

4. Plan for tree survival when making grade changes, for filling can damage trees. Fill may raise the water table or cause surface drainage to puddle over the roots. A light fill of porous or gravel material up to 6 inches in depth will usually do little harm, however heavier or more impervious fills such as clay and marl will harm the tree. It is often advantageous to install an aeration system before the fill is added, to maintain a normal balance of air and water around the roots. Consult with a tree expert or the Florida Division of Forestry for more information regarding construction of an aeration system that generally includes installing tile for drainage and aeration, constructing a drywell, and filling. Minimize damage to roots during excavation:

   a. Cut roots cleanly and re-trim after excavation.
   b. Treat cuts in larger roots (1/4 inch and up) with wound dressing.
   c. Refill the excavation as soon as possible or construct retaining walls.
   d. Avoid leaving air pockets when refilling.
   e. Mix peat moss or other soil amendment with fill soil to promote new growth.
   f. Top-prune to aid in maintaining tree vigor.

g. If cables or piping must be laid through the tree root zone, it is better to tunnel underneath it rather than trench through it.

5. Keep the soil within the drip line undisturbed and free from building materials and harmful runoffs to avoid chemical damage. Do not use areas near trees as dump or storage areas. Do not use herbicides or pesticides, or fertilizers containing herbicides, near any of the vegetation you are trying to preserve

**Points:** 2

**Multi-Family:** For multi-family projects a minimum of 36" of tree caliper must be preserved

**Intent:** Several studies have shown that trees can increase the value of a home anywhere from 5% - 20%. Trees can also offer energy savings by providing considerable shade. In order to protect this investment, it is always more economical to prevent tree damage than to remedy it. Trees are often damaged during home construction by accidental cutting, mechanical equipment, grade changes, excavation, and chemical substances.

**Submittals:** **Required - Tree/native plant identification survey and photo or other documentation of each technique. For multi-family projects, tree protection shall be shown on the site plan or on a tree survey with details on the drawings outlining protection strategies, barricades, fencing, and areas of protection.**

**Resources**: http://www.urbanforestrysouth.org/. Contact info for local arborists can be found here: https://www.treesaregood.org/findanarborist/arboristsearch

## S1.02 Minimize Soil Compaction

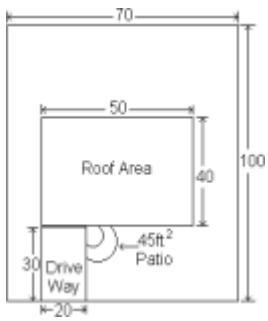
**Requirement:** Restrict all construction equipment movement to either <25% of site (1 point) or to the location of the future driveway (2 points). This point is calculated by taking the area of the lot minus the footprint of the home. 25% of the result of this calculation must be blocked off and left undisturbed.

**Points:** 1 point if equipment restricted to < 25% of site
2 points if equipment restricted to future driveway

**Intent:** Uncompacted soil allows for better percolation and plant and turf growth.

**Submittals:** Photos of barricaded site.

**Resources:** N/A




Example using the sample drawing
Lot = 100 X 70 = 7,000 SF

Less Home Footprint ( 50 X 40 = 2,000) + (Sum of any existing building footprints in SF)
Lot – Home Footprint = 7,000 – 2,000 = 5,000

Area that must remain undisturbed = 0.75 * 5,000

= 3,750 SF of the lot

i.e. only 25% or 1,250 SF of the lot may be disturbed (1 point)

OR 30 X 20 = 600 SF can be disturbed (future driveway) for 2 points

## S1.03 Replant or Donate Removed Vegetation

**Requirement:** Native vegetation removed for construction is taken offsite (i.e., to a plant nursery) and then after construction brought back and planted onsite. Alternatively, transplant the removed material to another site. Qualification for these points requires either transplantation of 10% of the site vegetation or at least 12 inches of tree caliper for sites <1 acre and 12 inches of tree caliper per acre, measured at chest height, for sites ≥1 acre.

**Multi-Family:** For multi-family projects, 2 points are awarded to each unit if the project provides documentation from a landscape professional indicating the removal and donation plan or the replanting strategy indicating a favorable survival rate.

**Points:** 2

**Intent:** Reuse existing vegetation versus disposal or downcycling**.**

**Submittals:** Name and location or nursery or alternate site.

**Resources:** N/A

## S1.04 Preserve or Create Wildlife Habitat/Shelter

**Requirement:** Preserve or create wildlife habitat or shelter onsite, a minimum of 10% of the site, contiguous, is required to achieve this credit. The area may not be irrigated and must have a planted or established native plant community.

**Multi-Family:** For multi-family projects, 1 point is awarded to each unit for each 10% of the total project site that is set aside into permanent conservation that is restored habitat.

**Points:** 1 point for each 10% contiguous area of the site.

**Intent:** Preserve existing native plant communities in their undisturbed state or if there is no existing native plant community, then create one that will survive on natural rainfall, soil nutrients, and pest control.

**Submittals:** Photo or description of effort.

**Resources:** For more information see A Guide to Environmentally Landscaping: Florida Yards and Neighborhoods Handbook (page 21) or visit http://fyn.ifas.ufl.edu/materials/FYN_Handbook_vSept09.pdf

# S2 On-site Use of Cleared Materials

## S2.01 Mill Cleared Trees

**Requirement:** All removed trees greater than 4 inches in diameter that will not be replanted or donated are milled into lumber.

**Points:** 2

**Intent:** Use existing materials in the most valuable repurposed way

**Submittals:** Describe number and size of trees that were milled and describe lumber produced.

**Resources:** N/A

### S2.02 Reuse Cleared Material for Mulch/Landscape

**Requirement:** Home uses mulch that is generated from the cleared site and/or from another site. All stumps and limbs greater than 2" are used for mulch. No credit is given for reusing Palms, Brazilian pepper or Australian pines.

**Points:** 1 point if the mulch is made from materials cleared onsite and reused on site OR if the mulch is made of cleared materials from another site.

2 points if the mulch is made from materials cleared onsite and reused on site AND if mulch from another site is also used.

**Intent:** Reuse all removed stumps, limbs greater than 2 inches in diameter, and trees (that will not be replanted or donated) in the landscape. Examples include grinding for mulch, use as landscape decorations and fences, etc.

**Submittals:** Describe reuse strategy and amount of material reused.

**Resources:** N/A

## S3 Erosion Control / Topsoil Preservation

Trees and plants depend upon nutrients in the soil. Often when a new home is constructed, the entire lot is cleared and then the topsoil is washed away by rain and blown away by wind. Not only is it a valuable resource by leaving it on the site, but it may end up clogging drainage areas and mucking water bodies. Hang on to the soil!

Soil costs $5 to $10/yard. Left unprotected, a significant amount of soil can be washed away from a typical ¼-acre lot with a downpour. This could be worse over an extended period or on lots with slopes.

**Multi-Family:** For multi-family projects to receive credit for S3 points, a site plan showing erosion control, documentation and photos must be submitted for each unit to receive credit.

### S3.01 Develop and Implement an Erosion Control Site Plan

**Requirement:** Develop and implement erosion sedimentation control site plan before the site is cleared or graded including areas where topsoil will be removed, and contours of slopes will be cleared. Plan should also include location and type of erosion control measures, stormwater and sediment management systems, and a vegetative plan for temporary and permanent stabilization. Silt fence without other measures does not meet the intent of the requirement.

**Points:** 2

**Intent:** Minimize loss of soils and contamination of waterways

**Submittals:** **Required - Detailed Plan**

**Resources:** N/A

### S3.02 Stabilize Disturbed Soil

**Requirement:** Use and document the use of Best Management Practices (BMPs) for soil stabilization (keeping good soil in place during the construction process) such as

hydro mulch, non- floatable conventional or alternative mulch, groundcovers, rye grass or millet, and retaining walls. Silt fence without other measures does not meet the requirement.

**Points:** 1

**Intent:** Minimize loss of soils due to erosion

**Submittals:** Photo or other documentation of BMPs employed.

**Resources:** N/A

## S3.03 Stage Disturbance

**Requirement:** Minimize site disturbance with physical barricades. No more than 60% of the site or no more than ¼ acres (whichever is less) can be disturbed at one time. Existing vegetation must remain intact on the undisturbed part until at least 40% of the site is landscaped.

**Points:** 2

**Intent:** When a lot is cleared or extensive landscaping is to be done, staging the work so that only part of the site is disturbed at one time allows existing plants to retain some of the soil that may be lost from erosion during the project construction period.

Create a temporary physical barricade around the section of the site to be protected. If the undisturbed area needs to be disturbed, complete the work on the existing disturbed section and then landscape that section before removing the barricade.

**Submittals:** Photo or other documentation of staging.

**Resources:** N/A

## S3.04 Control Sediment Runoff During Construction

**Requirement:** Use and document the use of Best Management Practices to control sediment runoff/transport during construction such as using a temporary gravel construction entrance/exit, straw bale barriers, silt fences, sediment traps, etc.

**Points:** 1

**Intent:** Use construction-phase remedies to control and minimize the runoff of sediment and other pollutants from the site until it is stabilized and ready for post-construction storm water management. Examples of these remedies include use of a temporary gravel construction entrance/exit, straw bale barriers, silt fences, sediment traps, etc.

**Submittals:** Photo or other documentation of BMPs employed.

**Resources:** N/A

## S3.05 Save and Reuse All Removed Topsoil

**Requirement:** Save, protect and reuse topsoil on site as the final top layer on site following construction. The soil must be covered and protected from weather until used. Organic soils lose their nutrients if left exposed to the elements.

**Points:** 1

**Intent:** Reuse materials on site to reduce the need to transport additional materials to site

**Submittals:** Photo of covered soil.

**Resources:** https://caseagrant.ucsd.edu/sites/default/files/Savingtopsoil.pdf

# S4 Drainage/Retention

More details and example of criteria in this section can be found at:
https://floridadep.gov/sites/default/files/stormwater-management.pdf
https://www.swfwmd.state.fl.us/residents/stormwater-systems-your-neighborhood

Multi-Family: For multi-family projects to receive credit for S4 points, a site plan showing the stormwater retention, documents or photos for catch basins and a comprehensive stormwater retention strategy shall be required for each unit to receive the following credits.

## S4.01 Onsite Designated Retention Area

**Requirement:** Create and designate onsite retention area(s) that will hold the first inch of rainfall. This could be a single retention area or system of berms/swales on the property/lot on which home is being built.

**Points:** 2

**Intent:** Retain stormwater on site to allow for removal of total suspended solids and infiltration of rainwater into the soil.

**Submittals:** Photo or plan layout of strategy.

**Resources:** N/A

## S4.02 Direct Filtered Rooftop Runoff to Planted Area

**Requirement:** Disperse flow from runoff at least 3 feet from building using an infiltration system that spreads runoff over a large area and eliminates focused flow that might cause erosion.

**Points:** 2

**Intent:** Reduce Erosion and keep moisture away from foundation

**Submittals:** Photo or plan layout of strategy.

**Resources:** N/A

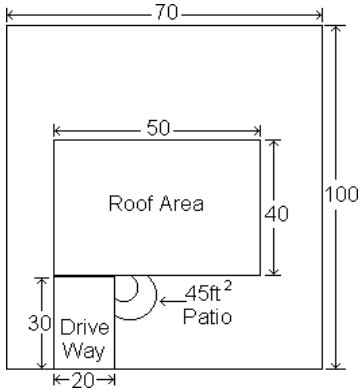
## S4.03 Maintain Pervious Surface Area

**Requirement:** At least 20% of the site should be 100% pervious. For semi-pervious sections, use the following equation to determine equivalent pervious area:

(% perviousness of material/100) x (coverage area) = equivalent pervious area

Add the coverage areas of 100% pervious materials and the equivalent area of the semi- pervious materials and divide by the total lot area. Then, divide this result by 0.2 to obtain the eligible points.

**Points:** 1 point for each 20% of the site that is 100%pervious.




Example (all units are feet unless specified The 100% pervious area would be:

(70 x 100) – (40 x 50) – 45 SF – (20 x 30) = 4355 SF

7000 SF– 2000 SF – 45 SF – 600 SF = 4355 SF

If the driveway is 30% pervious then we add:

0.30 x 600 SF = 180 SF

4355 SF + 180 SF = 4535 SF

Total available points are calculated as follows: Total equivalent pervious area / total area = 4535 SF / 7000 SF = 0.648

0.648 / 0.2 = 3.24 = 3 available points

Round down to the lowest whole number

**Intent:** Encourage the retention of pervious sites

**Submittals:** Submit similar diagram and calculation.

**Resources:** Consult A Guide to Environmentally Landscaping: Florida Yards and Neighborhoods Handbook for more information, or visit https://ffl.ifas.ufl.edu/media/fflifasufledu/docs/FFL-Handbook_revisions03062024_web_new_zone_map.pdf

# CATEGORY 5: HEALTH

**Health Credits for Multi-Family Projects:** For multi-family projects each unit must comply with the credit with the following exceptions. Credit 2.1, 2.2, 2.3 apply to the entire building, if the entire building complies then each unit may claim the credit.

## H1 Combustion

This section primarily deals with techniques used to prevent dangerous products of combustion from entering into the conditioned environment of the home. Combustion takes place in gas appliances as well as automobiles, which are often running in the garage of the home.

### H1.01 Detached or Air Sealed Garage or Carport or "NO" Garage

**Requirement:** Home has detached garage that does not share any common walls or enclosed passageways with the primary living space or carport OR attached garage is constructed with air barrier between garage and living space (including the barrier between the attic).

**AND**

No air handler/return ducts in garage or sealed and insulated closet may be built around equipment if it must be in the garage. The sealed closet must meet the following requirements:

1. Insulate the four walls of the closet.
2. Finish the walls and ceiling with drywall.
3. Seal all holes and air leakage pathways through the walls, floor, and ceiling that can connect the closet to the garage (plumbing, gas lines, wiring, and bottom plate).
4. Install a non-louvered door that is weather-stripped and equipped with a properly adjusted threshold.
5. Seal the ducts to the ceiling. The closet must not be depressurized by more than 3 Pa with respect to the garage.

**Points:** 3

**Intent:** Often times, toxic fumes from automobiles and chemicals stored in the garage can be transferred into the living space of a home when it has an attached garage.

An air barrier must be created to restrict air exchange between the garage and conditioned living space. This can be accomplished by caulking and sealing of the top and bottom wall plates of the shared garage-living space walls, constructing an airtight partition between the garage attic space and the attic space over the living area, and weather stripping the garage door. An automatic door closer should also be added for the door that connects the living space to the garage. Sealing of walls and attic partition can be accomplished with open cell expanding foam insulation.

Keeping a home's air handler and return ducts out of a garage alleviates potential for fumes and other contaminants to be pulled into the air conditioning system via leaks.

**Submittals:** Photo or floor plan showing garage/carport or detail of air barrier.

**Resources:** N/A

## H1.02 Garage (attached or detached) - Exhaust Fan on Motion Sensor and Timer

**Requirement:** Install exhaust fan on motion sensor with timer or CO sensor in garage capable of fully exchanging the garage air with the outside air in 15 minutes or less and if the air handler /return ducts are not located in the garage. A typical 20ft x 20ft x 8ft garage would require a 220 cubic feet per minute (cfm) fan. The fan must run on a timer or when activated via a motion sensor, for a sufficient amount of time to fully exchange the garage air every four hours to exhaust carbon monoxide fumes from automobiles. Fan must exhaust to the outside.

**Points:** 1

**Intent:** Maintain and or improve indoor air quality

**Submittals:** Photos, cut sheet of fan, or plan detail.

**Resources:** N/A

## H1.03 Fireplace

**Requirement:** Interior fireplaces must be direct vent sealed combustion, properly vented to the outside and have a dedicated outside air intake. Fireplace must have an electronic ignition. Factory built wood burning fireplaces and homes with no fireplace may also claim this credit

**Points:** 1

**Intent** Maintain and or improve indoor air quality

**Submittals**: Photo, plan detail, or cut sheet of fireplace.

**Resources:** N/A

## H1.04 Water Heater Location

**Requirement:** Gas water heaters are either sealed combustion or located in a combustion closet (requirements listed below) isolated from the conditioned area of the home. Note that Points are NOT awarded if the furnace is located outside the conditioned space such as the garage).

1. Insulate the four walls of the closet.
2. Finish the walls and ceiling with drywall.
3. Seal all holes and air leakage pathways through the walls, floor, and ceiling that can connect the closet to the garage (plumbing, gas lines, wiring, and bottom plate).
4. Install a non-louvered door that is weather-stripped and equipped with a properly adjusted threshold.
5. Seal the ducts to the ceiling. The closet must not be depressurized by more than 3 Pa with respect to the garage.

**Points:** 1 point for combustion hot water or electric
2 points for combustion space heating or electric

**Intent:** Sealed combustion appliances minimize the threat of harmful combustion by-products entering the home due to the fact that they contain their own air supply directly vented into the appliance for combustion and a sealed vent for exhausting the combustion gases to the exterior of the home.

**Submittals:** Cut sheet of furnace, photos or plan detail of closet.

**Resources:** N/A

## H2 Moisture Control

By managing moisture properly, the potential for growth of mold, mildew, and dust mites will be reduced. The durability of the home will also improve. Some other important moisture control strategies can be found under Materials – Durability.

### H2.01 Drainage Tile on and Around Top of Footing

**Requirement:** Install drainage tile on and around top of footing such as perforated PVC with a fabric cover. Crushed stone of approximately 6” should be installed under the pipe with then more stone being used to cover the pipe after installation. The pipe should then be drained to a retention area away from the home.

**Points:** 1

**Intent:** By draining water away from the foundation of the home, moisture intrusion will be minimized. The necessity of this criterion depends on soil type in your area and the foundation type of your home. It is most appropriate for basements and crawl spaces located in North Florida.

**Submittals:** Photo or plan detail of drainage strategy.

**Resources:** N/A

### H2.02 Drainage Board for Below Grade Walls

**Requirement:** Install drainage board for below grade walls.

**Points:** 1

**Intent:** Drainage board for below grade walls is not common to Florida. Basements are limited due to the high-water table. It is most appropriate for homes located in North Florida. If used, it should be used in conjunction with drain tile. This will allow water to drain down the drain board on top of the drain tile, which will then take the water away from the home.

**Submittals**: Photo or plan detail of drainage strategy.

**Resources:** N/A

### H2.03 Gravel Bed Beneath Slab on Grade Floors

**Requirement:** Install a gravel bed beneath slab on grade floors that is a minimum of 6”, preferred depth is 12”. The gravel should be placed under the complete slab including footings. All footings should be dug larger to allow for the gravel placement. It is also recommended that several drain tile pipes (4-inch PVC) be installed under the slab

and extend to the exterior of the slab to allow water that has accumulated to drain to the exterior of the slab. The specific criterion will vary depending on the soil type in your area.

**Points:** 1

**Intent:** Installing a gravel bed beneath slab on grade floors will be very beneficial to the reduction of moisture trapped beneath the slab and reduce capillary action of water into the slab.

**Submittals:** Photo or plan detail of drainage strategy

**Resources:** N/A

## H2.04 Seal Slab on grade Penetrations

**Requirement:** Seal all slab penetrations with an elastomeric or flexible polyurethane sealant.

**Points:** 1

**Intent:** After the slab has substantially cured, any penetration through the slab such as saw cuts, piping or conduit should be sealed around its perimeter to reduce moisture and pests from entering the home.

**Submittals:** Photo or plan detail of drainage strategy.

**Resources:** N/A

## H2.05 Capillary Break Between Foundation and Framing

**Requirement:** Install a complete framed wall width sill gasket, EPDM-type rubber, or other suitable membrane, metal bottom plate also comply with this credit.

**Points:** 1

**Intent:** A capillary break should be installed between a concrete foundation and sill plate for all wood framed exterior walls to prevent moisture from wicking through the foundation into the framing.

**Submittals:** Photo or plan detail of drainage strategy.

**Resources:** N/A

## H2.06 Central Dehumidification System

**Requirement:** The home shall be equipped with a central dehumidification system that is installed by a local HVAC contractor, and which works in conjunction with the home's HVAC system.

**Points:** 3

**Intent:** In addition to controlling humidity and comfort, most central dehumidification equipment also permits the intake of fresh, outside air, thereby improving ventilation in the home. Points are awarded for outside air under the Ventilation section.

**Submittals:** Photo or cut sheet of equipment

**Resources:** N/A

## H2.07 No Vapor Barrier on the Inside of Assemblies

**Requirement:** All materials installed on the inside of any exterior wall must have a perm rating > 1 perm.

**Points:** 1

**Intent:** Vapor barrier materials include some foil and some Kraft insulation facing, vinyl wallpaper, and vinyl floor covering. Carpet padding with the plastic top coating sometimes referred to as "pet proof" is also a vapor barrier. Vapor barriers prevent moisture that has penetrated the exterior of the assembly to pass through the assembly where it can be removed by the home's air conditioner.

Vapor barriers on slab under laminate and wood flooring can and do cause mildew/mold growth under the vapor barrier if a penetrating sealer has not been applied to the concrete. Although moisture sensitive flooring materials that require a vapor barrier to remain viable are better suited to suspended floors on a 2nd story or where a vapor barrier would not be necessary, a thorough installation of a penetrating concrete sealer will prevent most moisture from wicking up from the slab. Because moisture contained in a concrete slab will cure for years, even older concrete should be sealed prior to installing a vapor barrier.

For extra protection against hydrostatic pressure on slab glue-down wood installations, some companies offer a combination sealer / adhesive.

**Submittals:** None required – visual inspection by Certifying Agent.

**Resources:** N/A

## H2.08 Moisture Control

**Requirement:** Seal shower walls

**Points:** 1

**Intent:** Due to hairline cracks in grout and/or the porous nature of grout itself, moisture intrusion behind shower tile is a common occurrence culminating in significant damage and renovation costs. In the interest of avoiding this scenario, 1 point is awarded for meeting the follow criteria:

Treated Gypsum Board: Sometimes called “green board” or “purple board”, is not acceptable. That type of board is only moisture resistant or mildew resistant.

Cement Board: Because cement board is a porous product, all seams must be taped, and all shower walls sealed with an elastomeric waterproofing sealer prior to installing tile.

OR

Other Systems that Seal: Use of other shower wall products/system that accomplish sealing of the walls prior to tile installation. (e.g., 1-piece tub and shower enclosures, such as fiberglass.) Edges must be sealed properly with waterproof caulking.

**Submittals:** Photo of sealed product painted over cement board and cut sheet of sealer. Photo of other type of sealed system with cut sheet(s) confirming the waterproof nature of the components.

**Resources:** N/A

## H2.09 Seal Entire Slab on grade

**Requirement:** Seal entire slab contained within the conditioned area, including under partition walls from moisture intrusion.

**Points:** 1

**Intent:** Decrease moisture intrusion through concrete slab

**Submittals:** Photo of installed product applied to slab and product information

**Resources:** N/A

# H3 Source Control

Volatile organic compounds (VOCs), especially formaldehyde, and other chemical substances contained within building materials can be injurious to lung health and can be odorous. The best strategy is to select materials with low to zero quantities of such chemicals to minimize the source of emission. In selecting low-VOC materials, good rules of thumb are to choose water- based products and products with a low odor.

Pet dander, dust mites and other allergens can be of concern for sensitive persons, and persons with asthma. Regular cleaning practices with effective equipment and the minimization of materials where such contaminants can accumulate can alleviate potential problems.

## H3.01 No Exposed Urea-Formaldehyde Products

**Requirement:** The conditioned space of the home contains no materials that use urea formaldehyde such as plywood, MDF, or particleboard.

**Points:** 1

**Intent:** Formaldehyde is commonly used in particleboard, plywood, and MDF because of its preservative and adhesive properties. Because formaldehyde is a type of volatile organic compound (VOC), it is readily emitted into the air. Common replacements for these products in cabinets include solid wood, engineered stone, solid-surface and granite.

Wire shelving can replace particleboard in closets and other shelving areas.

In addition to avoiding the use of particleboard, plywood, and MDF within the home, projects may choose varieties of these products made with no added urea-formaldehyde (NAUF), phenol-formaldehyde resin, soy resin, and/or all raw edges of manufactured wood products that contain urea-formaldehyde can be sealed with a laminate or other suitable sealer.

**Submittals:** None required – visual inspection by Certifying Agent.

**Resources:** N/A

## H3.02 Zero VOC Paints, Stains, and Finishes

**Requirement:** All, 100%, paint, stains, and other finish coatings used in the interior of the home are certified as having ZERO VOCs.

**Points:** 2

**Intent:** Use of zero VOC paints only pertains to paint used on the interior of the home.

Depending on the goals of the project, one may want to select points for recycled content paints listed under the Materials category rather than this healthy paint criterion. Points are not available for both criteria.

**Submittals:** Cut sheet of all finish coatings used.

**Resources:** N/A

## H3.03 Low VOC Paints, Stains, and Finishes

**Requirement:** All, 100%, paint, stains, and other finish coatings used in the interior of the home are certified as having low VOCs to comply with the below table.

**Points:** 1 point is available if 100% of all paints, stains, and other finish coatings meet the specifications in the following table.

**Intent:** Used of low VOC paints only pertains to paint used on the interior of the home.

Depending on the goals of the project, one may want to select points for recycled content paints listed under the Materials category rather than this healthy paint criterion. Points are not available for both criteria.

| Item | Maximum Allowed VOC Content | Reference |
|---|---|---|
| Paints applied to interior walls | Flats: 50 g/l Nonflats: 100 g/l | Green Seal Standard GS-11, Paints & Coatings, 3rd Edition, August 17, 2011 |
| Anticorrosive and antirust paints | 250 g/l | Green Seal Standard GS-11, Paints & Coatings, 3rd Edition, August 17, 2011 |
| Clear Wood Finishes | Varnish: 350 g/l Lacquer: 550 g/l | South Coast Air Quality Management District Rule 1113, Architectural Coatings |
| Floor Coatings | 100 g/l | |
| Sealers | Waterproofing: 250 g/l Sanding 275 g/l All others: 200 g/l | |
| Shellacs | Clear: 730 g/l Pigmented: 550 g/l | |
| Stains | 250 g/l | |

**Submittals:** Cut sheet of all finish coatings used.

**Resources:** https://ww2.arb.ca.gov/our-work/programs/coatings/architectural-coatings/table-voc-limits

## H3.04 Low VOC Sealants and Adhesives

**Requirement:** 100% of all sealants used are ≤ 250 g/l and adhesives ≤ 70 g/l. If adhesives and sealants do not comply with these numbers but comply with the table from H3.3, then the point is available.

**Points:** 1

**Intent:** Used of low VOC Sealants and Adhesives only pertains to paint used on the interior of the home.

Certain types of Sealants and Adhesives emit VOCs that can contribute to poor indoor air quality.

**Submittals:** Cut sheet of all sealants and adhesives used.

**Resources:** California EPA Rule 1168: Adhesives and Sealants Application

## H3.05 Minimize Carpet Use

**Requirement:** Home has less than 50% carpet installed in interior spaces, bonus point if no carpet installed.

**Points:** 1 point if carpet < 50%

2 points if no carpet

**Intent:** Certain types of carpet, carpet pad, tack strips, and carpet glues emit VOCs that can contribute to poor indoor air quality. Carpets also have been found to accumulate various allergens unless frequently vacuumed with high efficiency equipment.

**Submittals:** None required – visual inspection by Certifying Agent.

**Resources:** A good reference on carpet can be found on The Carpet and Rug Institute. https://carpet-rug.org/testing/green-label-plus/

## H3.06 Healthy Flooring

**Requirement:** 80% of all finished flooring is green certified, or is hard surface flooring as listed below:

- Carpet and cushion with Carpet and Rug Institute (CRI) green seal of approval and low-VOC or no adhesives are used for installation.
- Flooring certified under the Floor Score® program
- Linoleum or cork tile/sheet with water-based adhesive.
- Ceramic tile.
- Hard surface flooring (wood, bamboo, etc.) that is mechanically fastened or attached with a water-based adhesive. Engineered wood flooring or bamboo must be a no added formaldehyde product.
- Laminate flooring (wood, cork, etc.) with no urea-formaldehyde and glueless or water-based glue installation.
- Concrete (stamped, stained, etc.)

**Points:** 1

**Intent:** Provide a healthy indoor environment

**Submittals:** Listing of types of flooring, installation methods, and accessories (glues, etc.) used for installation.

**Resources:** https://carpet-rug.org/carpet-for-homes/selecting-the-right-carpet/

## H3.07 Healthy Insulation

**Requirement:** 100% of insulation installed must meet criteria below.

- Water sprayed foam insulation
- Formaldehyde-free fiberglass insulation
- Expanded Polystyrene (XPS)
- GREENGUARD certified insulation
- Cotton insulation

**Points:** 1

**Intent:** Some insulation is harmful to health. The intent is to reduce risk to health.

**Submittals:** Listing of types of insulation used.

**Resources:** http://www.greenguard.org


## H3.08 Protect Ducts, Range Hood and Bath Exhaust Fans During Construction

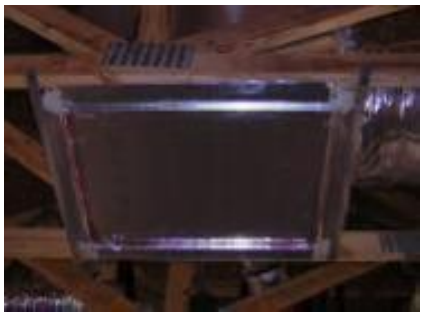
**Requirement:** All duct register boxes, supply plenums, and liner boxes are sealed off with cardboard, rigid ductboard, or other suitable method directly following mechanical rough in. The temporary tape used to seal the registers during a smoke test does not comply. Ducts must remain sealed until HVAC system start-up. This step prevents construction dust and pollutants from accumulating in the duct system and being released into the air when the system is turned on. If interior finish work (painting, etc.) continues after HVAC start up, ducts must be re-sealed until work is complete.

**Points:** 1

**Intent:** Prevent accumulation of pollutants and the damper and/or the blower fan from becoming clogged from spray-on ceiling textures, etc.

**Submittals:** **Required - Photos**

**Resources:** N/A



## H3.09 Integrated Pest Management

**Requirement:** Work with a skilled pest control professional to develop an Integrated Pest Management Plan that addresses the following four items:

- Monitoring and prevention of pest populations.
- Application of pesticides only “as needed” after prevention and physical controls have been implemented.
- Selecting the least hazardous pesticides for control of targeted pests.

- Precision targeting of pesticides to areas not contacted or accessible to the occupants.

**Points:** 3

**Intent:** Integrated Pest Management (IPM) is an environmentally friendly, common-sense approach to controlling pests. Traditional pest control involves the routine application of pesticides. IPM, in contrast, focuses on pest prevention and uses pesticides only as needed. This provides a more effective, environmentally sensitive approach. IPM programs take advantage of all appropriate pest management strategies, including the judicious use of pesticides. Preventative pesticide application is limited because the risk of pesticide exposure may outweigh the benefits of control especially when non- chemical methods provide the same results.

**Submittals:** The following are required to comply with the FGBC IPM Credit.

List the integrated multiple control methods that will be used as a part of the Integrated Pest Management process based on site information, circumstantial pest prevention goals and eradication needs.

The plan must identify the following as a part of the implementation approach.

1. Identify Pest and Monitor Progress
   Identify the pest addressed by the IPM plan, the frequency of monitoring, and the party responsible for monitoring the success of the IPM program. Monitoring shall include pest populations, vulnerable areas, and the efficacy of prevention and control methods. The IPM shall be updated on an annual basis to reflect site specific needs.

2. Set Action Thresholds
   State an action threshold, including size, scope, and intensity, of the pest population level at which the pest's presence is a nuisance, health hazard, or economic threat.

3. Prevent
   IPM focuses on prevention by removing conditions that attract pests, such as food, water, and shelter. The IPM must address and FGBC Certifying Agents will verify the following:

   - Sealing areas where pests enter the building (weatherization)
   - Installing pest barriers
   - Removing standing water
   - Educating building occupants on IPM – Section in Homeowner's Manual
   - Reducing clutter
   - Removing trash and overgrown vegetation
   - Maintaining clean dining and food storage areas

4. Control
   Document how, if pest action thresholds are exceeded, pest controls such as pest trapping, treatment, or other modifications have been made to improve prevention and address reestablishing acceptable thresholds.

**Resources:** U.S. Department of Housing and Urban Development

U.S. Centers for Disease Control and Prevention

Experts in the fields of pest management, facilities services, cleaning services, and healthy housing

U.S. EPA Integrated Pest Management in Buildings

## H4 Cleanability

A home that is easily cleaned is not only less maintenance for the homeowner, but the indoor air quality can be improved due to less accumulation of allergens and pollutants. This section contains suggestions on use of effective cleaning equipment, along with design issues that will improve the effectiveness of cleaning.

### H4.01 Central Vacuum System

**Requirement:** Home contains the piping (rough in for a central vacuum system), or an additional point is available if the central vacuum system with the vent from the dust canister exhausting to the outside of the conditioned space is installed. The points can be obtained if the unit vents inside the home through a HEPA filter.

**Points:** 1 for rough in of piping
2 if complete system is installed with correct filtration

**Intent:** A central vacuum system will improve the air quality of the home by providing effective removal of dust, dirt, and pollen. A regular vacuum cleaner releases some portion of the dust and other allergens it collects back into the air, whereas a central vacuum system deposits 100 percent of vacuumed substances into the central canister (usually located outside of the conditioned space in the garage). In addition, a central vacuum system is more powerful than a traditional vacuum

**Submittals:** Photo or cut sheet of system.

**Resources:** N/A

### H4.02 Useable Entry Area

**Requirement:** Provide a well-defined entry area in the garage and/or main entry where shoes and outerwear can be removed and stored. This area should include, at a minimum, a track off mat, a bench, and shoe and outerwear storage. Appropriate furniture may be used in addition to built-in storage. The area shall be purposeful and useful in providing a location for outerwear. Alternately, the shoe and outerwear storage can be located in a nearby closet.

**Points:** 1

**Intent:** Dust and pollen tracked indoors on shoes and outerwear is a major source of allergen.

The best strategy is to prevent it from entering the home, or keep it contained to a particular area that can be cleaned frequently.

**Submittals:** **Required: Photo showing dedicated drop zone**

**Resources:** N/A

# H5 Universal Design

The intent of the universal design concept is to simplify life for everyone by making products, communications, and the built environment usable by more people at little or no extra cost. Universally planning the home will create a safer space for all users. Many universal design features are no-cost options. They may only require different product choices or design decisions. Some general guidelines on features to include are listed below.

## H5.01 Universally Designed Living Area

**Requirement:** At least one bathroom on the first floor conforms to the following specifications:

Group 1

- Ample clear floor space (5 x 5 foot turning radius) to ensure maneuverability at lavatories, toilets, and tubs/showers. In addition to the 5 feet diameter turning radius option, clear floor space at lavatory may include ADA “T-Shaped” turning space.
- Cabinetry may be open under lavatory or have doors that open and provide clear floor space under lavatory.
- The bathroom walls must be reinforced for grab bars that are installed at commode, tub, and shower (FGBC recommends following the ADAAG for height and size specifications).
- 32-inch minimum door width; 36 inches preferred
- 24-inch space on latch side of doors or automatic door opener
- Light switches 48 inches above the floor
- Lever handles on doors or doors without latches
- Rocker or touch switches
- Include at least one of the following options
    - Standard tub with a fold-up seat
    - Tub with a transfer seat – transfer deck shall be minimum of 6 inches. Alternatively, the tub may be under-mounted with a minimum transfer deck 12 “deep, 15” recommended.
    - Whirlpool tub
    - 3 x 3-foot transfer shower
    - 5 x 5-foot roll-in shower (minimum 30” clear access width)
    - Accessible route to bathroom
    - Hall width at door to bathroom, minimum 42 inches wide with door opening into bathroom. (Doors shall not have a closer).
    - If bathroom has a separate toilet room or other space for bath fixtures, accessibility requirements apply to each space.
    - A separate toilet, or other (for instance – tub or shower), room require turning radius.
    - Controls for lavatory (sink) shall be of lever type or automatic.
    - Toilet shall be comfort height and/or ADA complaint.
    - Shower head shall have head height that is adjustable.

Group 2 - the above bathroom specs are met and at least one bedroom on the first floor must conform to the following specifications:

- 32-inch minimum door width; 36 inches preferred
- 24-inch space on latch side of doors
- Light switches 38 inches above the floor
- Electrical outlets 15 inches above the floor
- Lever handles on doors or doors without latches
- Rocker or touch switches

Group 3 - the above bathroom and bedroom specs are met and the entire first floor living space conforms to the following specifications:

- 32-inch minimum door width; 36 inches preferred
- 24-inch space on latch side of doors
- 32-inch-wide circulation path
- 42-inch clearance in hallway
- 5 x 5 foot turning radius in activity areas. Alternatively, a 5 feet diameter “T-Shaped” turning space is acceptable.
- Light switches 44-48 inches above the floor
- Electrical outlets 18 inches above the floor
- Lever handles on doors or doors without latches
- Rocker or touch switches
- Windowsills with 36 inches or less sill height at living and bedrooms, minimum of one (1) at each space. (French or sliding glass doors are acceptable alternatives).

**Points:** 1 point for Group 1
2 points for Group 1 & 2
3 points for Group 1, 2 & 3

**Intent:** Allow for accessibility and Aging in Place

**Submittals:** Photo and detailed plan

**Resources:** N/A

## H6 Ventilation

Tight construction of new homes can be beneficial in terms of energy efficiency, for less exchange occurs between the conditioned air inside the home and unconditioned air outside of the home. From a health aspect however, tighter homes do not allow enough air exchange to provide adequate ventilation and removal of various indoor air pollutants such as VOCs, allergens, etc. A home must be designed and constructed to not only permit enough air exchange, but in addition, the exchange must take place in a controlled fashion, either through mechanical or natural means. For health and durability concerns, it is imperative that air entering the home should travel through a desired, predefined pathway. This will ensure that the air remains clean, and depending on the strategy, often be conditioned for temperature and humidity concerns

## H6.01 Controlled Mechanical Ventilation

**Requirement:** Install a mechanical ventilation system specifically designed for the home that positively pressurizes the conditioned area of the home with respect to the outdoors while the home's air handler is running, and any continuous forced exhaust systems are running. At a minimum, such a system must contain a fresh air duct to the outside of the home with a backdraft damper that also allows for full shut off in the event of unfavorable outside conditions (forest fire, etc.) and therefore if the damper is manual it must be easily accessible to the homeowner. The damper must have a gasket, allowing a complete seal in the off position. Alternately, delivery of the outside air can be controlled by the home's HVAC system, by another device such as an energy recovery ventilator, or a central dehumidification system.

**Points:** 4 points – Install and provide full design details

2 points – Install and provide schematic or plan detail

**Intent:** The most effective way to ensure that enough air exchange takes place within a home is to institute a controlled, mechanical ventilation strategy. Positive ventilation is preferable over whole house exhaust in a humid climate, for it causes the house to be under positive pressure with respect to the outdoors, minimizing the uncontrolled intrusion of outside air.

It is strongly recommended that the outside air be filtered before entering the duct. Bathroom exhaust fans and kitchen range hoods are considered temporary exhaust devices rather than continuous.

**Submittals:** **Required for 2 points**

**-Schematic or plan detail of system**

**Required for 4 points (all are required)**

**-Design flow, if not continuous, include schedule, and**

**-Basis for design flow, a short explanation, and**

**-Indication of implementation of designed flow, schematic or plan detail of system**

**Resources:** N/A

## H6.02 Floor Drains Sealed

**Requirement:** All floor drains, at ground level, (tub, shower, etc.) must be sealed with any non-asphalt based or equally flexible moisture resistant sealer.

**Points:** 1

**Intent:** All areas around drains must be completely and permanently sealed to prevent any intrusion of foreign gases or vapors from beneath the slab.

**Submittals:** Photo and cut sheet for sealing product used.

**Resources:** N/A

## H6.03 Properly Installed Energy Star® Bathroom Exhaust Fans with Timer or Humidistat

**Requirement:** Properly install EnergyStar® exhaust fans (high efficiency, low noise bathroom exhaust fans) with timers or humidistats in each bathroom throughout the home. Fans must vent to the exterior and must move 1 cfm of air per 0.30 Watts (e.g., a 50-cfm fan must use less than 15 Watts, a 70-cfm fan must use less than 21 Watts) and be Home Ventilating Institute (HVI) certified to produce less than 1.0 sones. Proper installation includes:

1. Avoid elbows and bends whenever possible. When bends are necessary (and they often are), make the best of the situation by allowing a 2–3 foot straight run out of the fan before the first elbow. This approach allows airflow to be uniform before passing through the elbow. Conversely, an installation with a 90-degree elbow immediately after the fan exhaust port will cause air to flow back into the fan, both reducing performance and increasing noise.
2. Use a wide-radius angle (not a sharp turn) to help ensure optimum performance and minimum noise. The goal is to achieve optimal fan performance, which means aiming for a smooth, inner surface duct with the least number of elbows.
3. Although rigid metal duct is the best choice, flex duct is often used due to reduced cost and ease of installation. The flex duct should be extended fully to reduce as much airflow friction as possible.

**Points:** 1

**Intent:** Encourage removal of moisture generated within the bathrooms through proper installation of quiet, efficient exhaust fans.

The left photo is an example of very poor installation. Simply turning the fan around would have eliminated the need for the extreme bend in the ductwork. The photo to the right shows a well-thought-out installation.

In addition to utilizing efficient fans, advanced controls are important for often times fans are not left on long enough to remove sufficient moisture, and other times fans are inadvertently left on for long periods due to their quiet operation. If the bath fan is not controlled by a built-in humidistat, it must be placed on a timer.

**Submittals:** Cut sheet of fan and control and photographs of properly installed fans.

**Resources:** https://www.energystar.gov/productfinder

*Figure 1 Poor installation (U bend)*

*Figure 2 Good Installation*

*Figure 3 Timer*

## H6.04 Kitchen Range Hood Vented to Exterior

**Requirement:** Home equipped with a range hood vented to the exterior of the home. Non-vented or ductless range hoods are not eligible for the point. Hood ducting must be of building code-approved materials and completely sealed to prevent leakage. Exterior of vent must also contain building code approved termination cover.

**Multi-Family:** For multi-family projects, 3 points are awarded if each units hood is vented to the exterior of the building.

**Points:** 1 point for Single Family
3 points for Multi-Family

**Intent:** Improve indoor air quality by exhausting humidity and odors. FGBC recommends use of a quiet, energy-efficient model, but does not require it.

**Submittals:** Cut sheet of hood.

**Resources:** N/A

## H6.05 Whole House Filtration

**Requirement**: Install high efficiency whole house filtration system with a minimum efficiency of 95% at removing pm 0.025 (particulate matter greater than 0.025 microns in diameter). The system must have at least one dedicated intake from the interior of the home and can supply filtered air through a dedicated supply vent or utilize the HVAC supply system.

The system should have its own fan, and not rely on the fan in the home's HVAC system. Additional points are available if the filtration system is equipped with UV

lighting that provides a minimum UV dose of 1,500 $\mu Ws/cm2$, designed for 500fpm moving airstream, irradiance zone of two (2) feet and a UV exposure time of 0.25 seconds.

**Points:** 3 Points Whole House Filtration

5 Points Whole House Filtration with UV

**Intent:** Improve air quality in the home by providing improved filtration.

**Submittals:** Cut sheet of system.

**Resources:** Examples include Broan-Nutone© or Ultra-Aire dehumidification systems with filtration add on.

## H6.06 Efficient HVAC Filter

**Requirement:** Home has installed filters with at least a minimum efficiency reporting value (MERV) of 8, and 2 points for a filter with at least a MERV 13. If the home contains more than 1 HVAC system, a qualifying filter must be installed on each unit. Filters must be maintained as per manufacturer's specifications. Passive electrostatic filters may not be used.

**Points:** 1 point MERV 8 Minimum

2 points MERV ≥ 13

**Intent:** Certain 1" pleated media filters qualify for this credit. Pleated media filters greater than 1" are available, however can lead to excessive pressure drop across the filter. Such filters are also more expensive and more difficult to find. Contact a local HVAC contractor for recommendations. Pleated media filters are available at most local home improvement stores and have a longer life than standard HVAC filters.

**Submittals:** Cut sheet of filter.

**Resources:** N/A

## H6.07 HVAC Filter Easily Accessible

**Requirement:** HVAC filter is installed in a location easily accessible by the homeowner. The homeowner must be able to change the HVAC filter without the use of any tools, or ladders.

**Points:** 1

**Intent**: HVAC filter maintenance is important to not only maintain the equipment itself, but also for maintaining a healthy living environment.

**Submittals:** None – visual inspection by Certifying Agent.

**Resources:** N/A

## H6.08 Install Screens on All Windows and Doors

**Requirement:** Home must have installed screens for all windows and doors, excluding the front door, to allow for adequate passive ventilation as needed. A screen enclosure surrounding a pool will suffice for windows and doors contained in this space

**Points:** 1

**Intent:** Reduce energy demand by allowing passive cooling.

**Submittals:** None required – visual inspection by Certifying Agent.

**Resources:** N/A

## H6.09 Manual D Duct Design

**Requirement:** Correctly sizing and laying out the duct system using ACCA Manual D to deliver the proper room-by-room cubic feet per minute (cfm) as calculated by ACCA Manual J.

**Points:** 1

**Intent:** Improve indoor air quality and comfort of the home

**Submittals:** **Required - Calculations, layout plan for entire duct system, and observation by the Agent. The Agent should compare the Manual D design to the actual installation during the rough-in inspection confirming the layout was followed.**

**Resources:** N/A

# CATEGORY 6: MATERIALS

The criteria in this section give examples on the use of resource efficient materials and techniques. Such materials include characteristics such as rapidly renewable content, recycled content, ease of recyclability, and minimal waste production. Also included are examples to improve the durability of the structure.

**Multi-Family:** For multi-family projects each unit must comply with the credit with the following exceptions. Credit 2.2, 2.3, 3.6, 3.7 apply to the entire building, if the entire building complies then each unit may claim the credit. If submitting using Option 2 or Option 3 the credits may not be claimed unless ALL the units in the submittal package comply with the credit.

## M1 Components

### M1.01 Recycled Content Roof Material

**Requirement:** Roofing must be made of 100% recycled rubber and plastic or 100% recycled polymer and rubber or 100% recycled wood and plastic. Roofing may also be metal with 70% recycled content or fiber cement with recycled content.

**Points:** 1

**Intent:** Reduce use of virgin materials and encourage recycled product use.

**Submittals:** Material cut sheet.

**Resources:** N/A

### M1.02 Certified Sustainable Lumber

**Requirement:** 80% of all lumber used in the home is certified by a sustainable forestry certification agency such as the Forest Stewardship Council and Sustainable Forestry Initiative.

Home must have at least 1 story with wood frame exterior walls. If exterior walls are not wood frame 80% of all lumber used in the home must be certified.

**Points:** 2 if home is NOT wood framed and 80% of all lumber is certified sustainable

3 points if 80% of lumber is certified sustainable for wood frame homes

**Intent:** Certified sustainable lumber originates from a sustainably managed forest. To receive the points, wood must be certified.

**Submittals:** **Required- Documentation of forestry certification.**

**Resources:** http://www.fsc.org/, http://www.sfiprogram.org/

### M1.03 Engineered/Alternative Material for Outdoor Living

**Requirement:** Use minimum of 100 sf or 50% of all outdoor structures, whichever is greater, shall be of a product using 50% or more recycled content material

**Points:** 1

**Intent:** Engineered or alternative materials such as recycled plastic lumber utilizes less virgin lumber and are generally more durable than wood products.

**Submittals:** Photo or material cut sheet.

**Resources:** N/A

## M1.04 Concrete with Fly Ash

**Requirement:** All concrete poured on site must have a minimum of 20% fly ash or blast furnace slag in lieu of the cement in the concrete mix design.

**Points:** 1

**Intent:** Encourage the use of recycled materials

**Submittals:** **Required - Material cut sheet.**

**Resources:** N/A

## M1.05 Recycled Content Siding or Soffit Material

**Requirement:** Use siding or soffit material with a minimum of 20% recycled content.

**Points:** 1

**Intent:** Encourage the use of recycled materials

**Submittals:** **Required: Material cut sheet.**

**Resources:** N/A

## M1.06 Eco-Friendly Insulation

**Requirement**: Use 100% eco-friendly insulation product as listed below or provide cut sheet verifying insulation environmental benefits.

- Recycled cellulose insulation
- Recycled cotton denim insulation
- Recycled mineral wool insulation
- Recycled perlite composite board

**Points:** 1

**Intent:** Some insulation is harmful to health. The intent is to reduce risk to health.

**Submittal:** Listing of types of insulation used.

**Resources:** N/A

## M1.07 Recycled Content Drywall

**Requirement:** All drywall used contains pre- and or post-consumer recycled content. Drywall to contain at least 90% combined pre- and post-consumer recycled content.

**Points:** 1

**Intent:** Sources of recycled drywall are becoming available in Florida. Such manufacturers recycle scrap drywall into new product. The usefulness of this criterion may depend on the home's proximity to a source of recycled product.

**Submittal:** Material cut sheet and vendor.

**Resources:** N/A

## M1.08 Steel Interior Studs

**Requirement:** 80% of all non-load bearing interior studs are made from recycled steel

**Points:** 1

**Intent:** Encourage the use of recycled and recyclable materials. Steel studs are recyclable again after they have been used.

**Submittal**: Photo or plans indicating use of steel studs.

**Resources:** N/A

## M1.09 Eco-Friendly Flooring

**Requirement:** 80% of all finished flooring used meets any of the following criteria:

- Domestically produced hardwood materials from sustainably managed forests.
- Bamboo flooring.
- Reuse of salvaged wood.
- Floor tiles made from recycled glass or other 100% recycled content material
- Cork flooring.
- Natural linoleum.
- Concrete (stamped, stained, etc.)
- Recycled content carpet/carpet pad and rugs: Carpets/rugs must have a minimum recycled content of 80% with 60% post-consumer recycled content or be 100% PET plastic. Carpet pads must have 80% total recycled content. Examples include 80% post-consumer tires, 80% nylon, 100% recycled newsprint and 80% textile waste.
- Natural content carpet/carpet pad and rugs: Carpets/rugs must be composed of 100% natural materials such as wool, sisal, jute, and hemp. Carpet pad must also be of a natural material such as 85% recycled burlap bags made from fibrous jute plants.

**Points:** 1

**Intent:** Minimize environmental impacts of flooring selection

**Submittal:** Listing of types of flooring and accessories (glues, etc.) used and installation methods.

**Resources:** N/A

## M1.10 Eco-Friendly Ceiling Materials

**Requirement:** 80% of the ceiling material meets any of the following criteria:

- Domestically produced hardwood materials from sustainably managed forests
- Material consisting of 60% recycled content of mineral wool and cellulose fiber
- Material consisting of 25% recycled content glass
- Salvaged wood.

**Points:** 1

**Intent:** Encourage the use of eco-friendly materials

**Submittal:** Listing of all ceiling materials used.

**Resources:** N/A

## M1.11 Locally Produced Materials

**Requirement:** 80% of all new windows are from within a 700-mile radius of the site project and are operable and/or one point is available if 80% of the structural materials used to build the house, on a cost basis, such as concrete, concrete block, trusses, drywall, ICFs, panelized walls, modular systems, etc., are from a Florida manufacturer.

**Points:** 1 point for windows OR structural materials
2 points for windows AND structural materials

**Intent:** Reduce environmental impacts associated with the transportation of materials.

**Submittal:** Name and address of manufacturers.

**Resource:** N/A

## M1.12 Reduce Heat Island Effect – Roof

**Requirement:** Use high-reflectance AND high emissivity roofing.

**Low Slope Roof:** initial reflectance of at least 0.65 and three-year-aged reflectance of at least 0.5 when tested in accordance with ASTM E903 and emissivity of at least 0.9 when tested in accordance with ASTM 408

**Steep Slope Roof:** initial reflectance of at least 0.25 and three-year-aged reflectance of at least 0.15 when tested in accordance with ASTM E903 and emissivity of at least 0.9 when tested in accordance with ASTM 408).

Alternatively roof materials may have a LRV ≥ 50; OR Install a “green” (vegetated) roof for at least 20% of the roof area. Combinations of high albedo and vegetated roof can be used.

**Points:** 2 points

**Intent:** Reduce heat islands generated by using light and reflective surfaces

**Submittal:** Provide photos of installed roofing and submittal showing compliance.

**Resource:** https://coolroofs.org/resources

# M2 Waste Reduction

## M2.01 Resource Efficient Wall System with Integral Insulation

**Requirement:** Install a minimum of 80% of the first floor living area exterior walls must be Autoclaved aerated concrete (AAC), Insulated concrete forms (ICF), or Structural Insulated Panels (SIP) or a combination thereof

**Points:** 3

**Intent:** AAC is composed of cement, sand, lime, and an aerating agent, which is baked in an autoclave oven. The result is a very lightweight insulated concrete product. Blocks and panels are stacked similar to bricks and held together with adhesive.

ICF are a family of exterior wall systems that provide the strength of structural concrete walls with the thermal performance of integral insulation and high thermal mass.

Generally, a Styrofoam form is filled with poured concrete, or concrete is used to surround a Styrofoam core.

SIPs generally consist of two (outer) layers of structural sheet material and foam core, ranging from 2 to 12 inches thick. They can be used to build exterior walls, roofs, and floors. To receive points SIP walls must be elevated minimum 24” above soil grade.

**Submittal:** **Required Photo, detailed plans, or material cut sheets.**

**Resources:** N/A

## M2.02 Develop A Construction and Demolition Waste Management Plan

**Requirement:** Contractor must submit a written plan that consists of the following items:

- Estimated amount of waste and types of materials from project.
- Names/locations of waste disposal companies, recyclers, reuse centers for waste materials from project located within the project's county or neighboring county.
- Estimated costs of hauling and disposal, recycling, and revenues from reuse and recycling for major waste materials from project.
- Goals for waste diversion by amount (weight or volume) and types of materials.

**Points:** 2

**Intent:** Encourage minimization and recycling of construction waste

**Submittal:** **Required Detailed waste management plan.**

**Resources:** www.toolbase.org/Best-Practices/Construction-Waste/residential-construction-waste

## M2.03 Implement Job Site Waste Management

**Requirements:** Implement at least two of the following job site waste management techniques and one individual must be designated as jobsite "environmental manager" to inspect job-site roll-offs and other materials handling strategies to prevent commingling, damage, other waste creation activities.

a) Contractor writes into specifications/contracts with sub-contractors and vendors to be responsible for and remove materials and systems packaging upon either delivery or installation of products.
b) Contractor writes into specifications/contract with drywall sub-contractor a price by the square foot of finished drywall wall/ceiling area.
c) Clean drywall waste is used as soil amendment on-site where allowable and in proper quantities as approved by county extension service and/or landscape architect.
d) Clean and dry drywall scraps are securely placed in interior wall cavities where additional soundproofing may be desirable.
e) A covered area or container is provided, with adequate separation from the ground, labeled as wood off-cuts for reuse in project.
f) Individually labeled roll-offs are placed on site for separation of C&D waste materials, for at least 2 different materials, for example, metals, cardboard, concrete, brick, wood, and solid waste recyclables such as cans, plastic bottles.
g) Job-site trailer or office implements paper, plastic bottle, and can recycling bins.
h) Materials to be stored on site are kept off the ground and protected from weather, machinery, dust, and vehicle routes.
i) Job-site fabrication stations or areas implement ground covering, magnets, bins or other means to collect nails, screws, plates, clips, off-cut rebar, electrical wiring, sheet metal off-cuts for metals recycling.
j) Use of job site framing plan and cut list.

k) Use of concrete formwork that has been used at least once before or is reused / reusable by contractor.
l) Separation and removal of leftover paint to local paint recycling facility.
m) Use of concrete washout system
n) Use of dumpster content recycling service
o) Use of panelized wall systems

**Points:** 2 points for 2 of the above items
3 points for 3 – 5 of the above items
4 points for 6 or more of the above items

**Intent:** Reduce construction waste

**Submittal:** Indicate which options chosen and provide name and contact of designated job-site environmental manager.

**Resources:** N/A

## M2.04 Compost Bin/Built-In Collection of Recyclables

**Requirement:** Home must provide the homeowner with a prefabricated compost bin (includes wire mesh type) or if the home has built in (i.e., permanent) recycle bins. Points for built-in recycle bins are only awarded if the home is served by municipal curbside recycling.

**Points:** 1

**Intent:** Reduce waste

**Submittal:** Photo.

**Resources:** N/A

## M2.05 Pre-Engineered Roof and/or Floor Components.

**Requirement:** Install pre-engineered roof and floor components

**Points:** 1 point for roof OR floor

2 points for roof AND floor

**Intent:** Pre-engineered trusses produce less waste than those built on site.

**Submittal:** Photo or material cut sheets.

**Resources:** N/A

## M2.06 Finger Jointed or Laminated Products

**Requirement:** A minimum 80% of the following building components are finger-jointed or laminated materials, or a combination thereof: studs, top plate, headers, rim joists, beams, and columns.

**Points:** 1

**Intent:** Finger-jointed material is lumber that is made of short lengths of off-cuts from truss and other manufacturing processes that is finger jointed and glued together to make usable lengths of lumber. Finger-joint lumber may only be used for structural applications when used vertically such as stud framing. Laminated veneer lumber is composed of thin layers or veneers of wood glued together and sawn to make dimensional lumber; it can be used in any position.

**Submittal:** Listing of types of materials used for listed applications.

**Resources:** N/A

## M2.07 Eco-Friendly Trim

**Requirement:** A minimum of 80% of the interior trim is finger jointed (finger jointed trim is generally paint grade only) or recycled plastic material.

**Points:** 1

**Intent:** Reduce the use of virgin materials

**Submittal:** Indicate where finger jointed trim has been used.

**Resources:** N/A

## M2.08 Perimeter Based on 2 ft. Dimensions

**Requirement**: The exterior layout of the home adheres to 2 ft. dimensions for a minimum of 80% of exterior walls.

**Points:** 1

**Intent:** Adhering to 2-ft dimensions reduces waste and allows for easier future addition.

**Submittal:** Floor plan with dimensioned wall lengths.

**Resources:** N/A

## M2.09 Interior Floor Plan Adheres to 2 ft. Dimensions

**Requirement:** Each interior wall adheres to 2-foot dimensions for minimum of 50% of the interior walls

**Points:** 1

**Intent:** Adhering to 2-ft dimensions reduces waste and allows for easier future addition.

**Submittal:** Floor plan with dimensioned wall lengths

**Resources:** N/A

## M2.10 Stacked Framing Requirement: uses a stacked framing scheme

**Points:** 1

**Intent:** Stacked framing is a structural framing scheme where first floor, second floor, and roof framing line up horizontally which often reduces the overall amount of lumber used.

For example, sometimes single top plates can be used instead of double top plates.

**Submittal:** Framing plan

**Resources:** N/A

## M2.11 Two Stud Corners with Drywall Clips Requirement: Uses two stud corners in all possible locations.

**Points:** 1

**Intent:** Two-stud corner framing eliminates non-structural studs and allows for full corner insulation through the use of drywall clips, horizontal nailers, or other means to support drywall.

**Submittal:** Framing plan

**Resources:** N/A

## M2.12 T-Walls with Drywall Clips

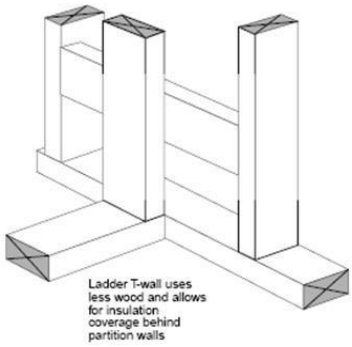
**Requirement:** Use advanced ladder T-wall framing in all possible locations.

**Points:** 1

**Intent:** The intersection of exterior and interior walls shall eliminate non-structural studs and allow for full exterior wall insulation through the use of advanced ladder T-wall framing or other technique.

**Submittal:** Framing plan

**Resources:** N/A



# M3 Durability

## M3.01 3 in 12 ≤ Roof Slope ≤ 6 in 12

**Requirement:** Roof slope shall be greater than or equal to 3 in 12. but less than or equal to 6 in 12.

**Points:** 1

**Intent:** Roof slopes following outside the 3 in 12 to 6 in 12 range allow strong winds to pass over them at high velocities, creating uplift forces that damage the roofs, especially if windows and doors have been damaged. Roof slopes of 5 in 12 may be best suited for uplift resistance, reduce wasted material in the attic and help “throw” water further away from the building walls than higher sloped roofs. Roofs with less than 3/12 slopes or no slopes do not shed rainwater well, which can lead to leaks in storms.

**Submittal:** Photo or detailed plan.

**Resources:** N/A

## M3.02 Large Overhangs (Eave and Gable)

**Requirement:** Overhangs are 1 ft on gable ends and at least 2 ft everywhere else.

OR

Overhangs are 1 foot and have gutters with downspouts terminating 3 feet from foundation.

**Points:** 1

**Intent:** Large overhangs, and gutters with downspouts, help shed rainwater away from the walls and foundation.

**Submittal:** Photos or detailed plans.

**Resources:** N/A

## M3.03 Air Admittance Vents

**Requirement:** All plumbing penetrations through the roof are replaced with the use of air admittance vents.

**Points:** 1

**Intent:** Air admittance valves are pressure-activated, one-way mechanical venting ports, used in a plumbing system to eliminate the need for conventional pipe venting and roof penetrations. Wastewater discharges cause the AAV to open, allowing air to circulate for proper drainage. Otherwise, the valve remains closed, preventing the escape of sewer gas and maintaining the trap seal. Using air admittance vents can significantly reduce the amount of venting materials needed for a plumbing system, increase plumbing labor efficiency, allow greater flexibility in the layout of fixtures, and reduce long-term maintenance problems where conventional vents break the roof surface.

**Submittal:** Photo or equipment cut sheet.

**Resources:** https://www.iccsafe.org/building-safety-journal/bsj-technical/codenotes-installation-of-air-admittance-valves/

## M3.04 All Exterior Walls Use Rain Screen Techniques

**Requirement:** All exterior walls use rain screen techniques. Drainage plane must be 2 layers of 15lb felt or housewrap installed shingle style. Top and bottom of air cavity (3/8" minimum) not sealed – general furring strips or other spacers are installed over drainage plane to accommodate moisture drainage (or weeping) and air flow before the installation of siding cladding.

**Points:** 1

**Intent:** Providing an air gap cavity (air gap or air space) between the cladding (siding or brick veneer) and the drainage plane (housewrap/building paper) will reduce water intrusion, allow water to drain down the wrap drainage plane and out at the bottom more effectively, and allow drying out of the wall, producing a more durable structure.

**Submittal:** Photo or detailed drawing.

**Resource:** https://buildingadvisor.com/materials/exteriors/rain-screen-wall/

## M3.05 Siding and Exterior Trim Primed All Sides

**Requirement:** All siding material and exterior trim is pre-primed before installation on all sides, including cut edges.

**Points:** 1

**Intent:** Priming all sides of siding and exterior trim will retard moisture penetration into the material.

**Submittal:** Photo or visual inspection by Certifying Agent.

**Resources:** N/A

## M3.06 Plants/Turf Minimum of 2 ft. from Foundation

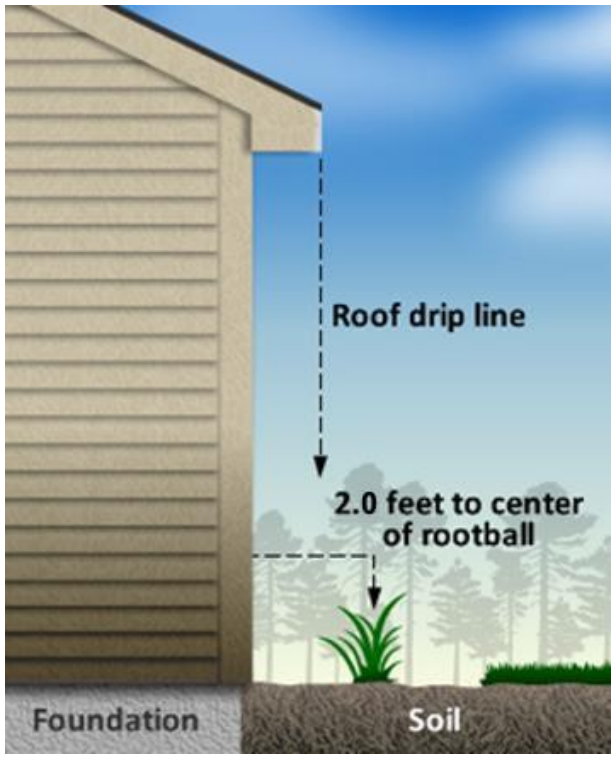
**Requirement:** All plants (root ball), trees and sod are kept at least 2 ft away from the foundation.

**Points:** 1

**Intent:** Inorganic ground covers such as stones or rocks are sometimes a better landscape choice beside the foundation for irrigated plant material can lead to water accumulating near the foundation.

**Submittal:** Photo or visual inspection by Certifying Agent.

**Resources:** N/A




## M3.07 Sprinklers and Emitters Minimum of 2 ft. from Foundation

**Requirement:** All sprinklers and emitters are installed at least 2 ft away from the foundation.

**Points:** 1

**Intent:** Moisture encourages mold growth as well as termite and other insect infestation.

Installing sprinklers and emitters further from the foundation reduces the amount of water coming in contact with the home. Points are awarded only when an irrigation system is installed.

**Submittal:** Photo or visual inspection by Certifying Agent.

**Resources**: N/A

## M3.08 Access Panel to Each Non-Accessible Plumbing Fixture Installed

**Requirement:** Provide access to all plumbing by providing a plumbing access panels installed for each shower and tub.

**Points:** 1

**Intent:** Typically, when there is a problem, access to piping that supplies water to tubs and showers must be accessed by creating a hole in the wall. Installing an access panel provides for easier repair and monitoring.

**Submittal:** Photo of access panel.

**Resources:** N/A

### M3.09 Laundry Room Below Living Floor or Drain Installed

**Requirement:** A floor drain in all laundry rooms located above the ground floor and if all laundry rooms located on the ground floor contain a drain or the level of the laundry room floor is below the level of the living space floor.

**Points:** 1

**Intent:** Reduce potential water damage from washing machine

**Submittal:** None – visual inspection by Certifying Agent.

**Resources:** N/A

## CATEGORY 7: DISASTER MITIGATION

**Multi-Family:** For multi-family projects each unit must comply with the credit with the following exceptions. Credit 2.1, 2.2, 2.3 apply to the entire building, if the entire building complies then each unit may claim the credit. If submitting using Option 2 or Option 3 the credits may not be claimed unless ALL the units in the submittal package comply with the credit.

### DM1 Hurricane (wind, rain, storm surge)

### DM1.01 Safe Room

**Requirement:** Install a safe room constructed in accordance with the guidelines set forth in the Safe Rooms for Tornadoes and Hurricanes: Guidance for Community and Residential Safe Rooms. https://www.fema.gov/sites/default/files/documents/fema_safe-rooms-for-tornadoes-and-hurricanes_p-361.pdf

**Points:** 2

**Intent:** These shelters are designed to provide near absolute protection from the high winds expected during tornadoes and hurricanes and from associated flying debris, such as wood studs.

**Submittal:** Detailed plans of safe room.

**Resources:** https://www.fema.gov/emergency-managers/risk-management/building-science/safe-rooms/resources

### DM1.02 Unvented or No Attic

**Requirement:** Home is built with an unvented attic or no attic at all.

**Points:** 2

**Intent:** An unvented attic minimizes the risk of air infiltration, which has been proven to increase the risk of roof uplift during a hurricane. Creating an unvented attic can be achieved by extending a home's air and thermal barrier to the underside of the roof deck creating an attic that is sealed from the outside environment, with no venting.

This design also allows all of the HVAC duct systems to be housed in “conditioned” space.

**Submittal:** Photos of attic.

**Resources:** N/A

## DM1.03 Window and Skylight Protection or Impact Resistant Type

**Requirement:** All windows, skylights, sliding glass doors, and other doors in the home, which are comprised of at least 60% glass, are protected with impact-resistant glass, shutters or screens.

**Points:** 2

**Intent:** Improve durability and safety of home

**Submittal:** Photos of shutters or screens or window cut sheets.

**Resources:** A list of approved shutter and impact resistant products can be found at www.buildingcodeonline.com. If unsure whether a particular product is approved, just ask the manufacturer. Strengthening of existing skylights may include repair of surrounding roof.

## DM1.04 Attached Garage and Exterior Door Protection or Impact Resistant Type

**Requirement:** All exterior doors of the home are protected with a Dade County, NOA, or Florida approved shutter or screen product or are classified by Dade County, NOA, or Florida as impact resistant. At least one door must be impact resistant, and not have a shutter or screen, to provide a means of egress from the house.

**Points:** 1

**Intent:** It is best to have at least two means of egress from the home, which may mean also installing at least one impact resistant window rather than shuttering them all. In addition, all attached garage doors must be classified as impact resistant or be reinforced (braced) according to Dade County, NOA or Florida specifications. If the home has a detached garage, points are still available for exterior door bracing.

**Submittal:** Photos of shutters or door cut sheets.

**Resources:** N/A

## DM1.05 Exterior Structures Properly Anchored

**Requirement:** Exterior structures, such as pool equipment and other pumps, generators, sheds, etc. are properly anchored to a foundation or the building itself. The anchoring must be specified or certified by an engineer (i.e., during wind load calculations).

**Points:** 1

**Intent:** Increase durability of the home.

**Submittal:** Copy of certifications/specifications for the specific anchored structures.

**Resources:** N/A

## DM1.06 Secondary Water Protection Installed on Roof

**Requirement:** Install secondary water protection on the roof. Secondary water protection can be achieved if the entire roof has self-adhering polymer bitumen roofing underlayment (thin rubber or asphalt sheets with peel and stick underside installed beneath the roof covering and on top of the sheathing). Alternately, joints may be sealed with a self-adhering polyethylene or rubberized asphalt tape that has a minimum width of 4 inches prior to installation of felt or other type of roof underlayment. Two layers of #30 felt underlayment attached with button cap nails 6" on center along the laps and 12" no center spacing vertically. Felt must overlap 19" on the horizontal seams and 6 " on the vertical seams.

**Points:** 2

**Intent:** Wind damage accounts for only a fraction of the destruction in homes hit by hurricanes.

The greatest destruction is caused by water infiltration. Should the shingles or other roofing material fail during a hurricane, secondary water protection will offer defense against bulk water intrusion.

**Submittal:** Photos or cut sheets for sealing materials used.

**Resources:** https://fortifiedhome.org/wp-content/uploads/2020-FORTIFIED-Home-Standard.pdf?v=1732033783477

## DM1.07 Adhesive Applied to Roof

**Requirement:** Spray-on adhesive with a minimum uplift capacity of 260 psf for a 4x8 ft panel is applied continuously to the underside of the roof sheathing to within at least one foot of the eaves.

**Points:** 2

**Intent:** A spray-on adhesive, when applied to the underside of the roof sheathing from the attic, creates a positive bond between the joists and the sheathing. This step provides added protection from uplift caused by high winds.

**Submittal:** Photos or cut sheet of adhesive used.

**Resources**: N/A

## DM1.08 Roof Deck

**Requirement:** Increase the roof deck durability by decreasing roof truss spacing to a maximum of 16 inches on center.

**Points:** 1 point for 16" OC truss spacing

**Intent:** Provide severe weather resistance

**Submittal**: Photos, roof submittal, construction document derails

**Resources:** N/A

## DM1.09 Drip Edge

**Requirement:** Overlap drip edge a minimum of 3 in. at joints. Drip edge flange shall extend 1/2 in. below the bottom of the sheathing and extend back on the roof a minimum of 2 in. Install fasteners 4” on center

**Points:** 1

**Intent:** Provide severe weather resistance

**Submittal:** Photos, roof submittal, construction document derails

**Resources:** N/A

## DM1.10 Roof Shingles

**Requirement:** Select and install roof shingles that are rated a minimum of 20 mph greater than the wind zone. For example, if you are in a 100 mph wind zone the home must have a Class G (120 mph) shingle installed.

**Points:** 2

**Intent:** Provide severe weather resistance

**Submittal:** Photos or elevations

**Resources:** N/A

## DM1.11 Soffits

**Requirement:** Space support members a maximum of 12” apart

**Points:** 1

**Intent:** Provide severe weather resistance

**Submittal:** Photos, roof submittal, construction document derails

**Resources:** N/A

## DM1.12 Raised Slab or Pier Foundation

**Requirement:** Homes constructed with a raised foundation, on piers or pilings. The Finished Floor Elevation and all mechanical equipment must be a minimum of 24” above the 100-year flood plain.

**Points:** 2

**Intent:** Provide severe weather resistance

**Submittal:** Photos or elevations

**Resources:** N/A

## DM1.13 Comply with Fortified Home Standards

**Requirement**: Home earns a certification under the Fortified Home Standard, a program of the Insurance Institute for Home & Home Safety.

**Points:** 10

**Intent:** The Institute for Business & Home Safety's mission is to reduce the social and economic effects of natural disasters and other property losses by conducting research and advocating improved construction, maintenance and preparation practices.

**Submittal:** **Required - Copy of certification.**

**Resources:** For more information, visit. http://fortifiedhome.org

# DM2 FLOOD

## DM2.01 Flood Resistant Design

**Requirement:** Incorporate all of the following criteria

1. **Finished floor level at least 12" above 100-year flood plain**: The finished floor level must be at least 12" above the 100-year flood plain
2. **The Finished Floor Elevation must be 8 inches above the finished graded lot. Lot must be graded for proper drainage and visibly slope away from the building:** The top of the slab must be at least 12" above the highest point of the graded lot. This strategy may help with flooding and termite inspections. Please check with appropriate civil engineer to verify if this strategy is appropriate for the given foundation and home.
3. **Garage floor and driveway properly sloped to drain out. Garage floor at least 4" lower than living floor:** The garage and driveway must have a slope of 1" per twenty feet minimum, and the average height in the garage must be 4" lower than the lowest location on the first floor.

**Multi-Family:** For multi-family projects the entire building must comply for all units to receive the credit, the exception is 2nd or 3rd story units, if all units are being submitted as individual checklists may claim the credit if the 1st floor units do not comply, assuming that 2nd or 3rd floor units with attached garages comply with the co requisite.

**Points:** 3

**Intent:** Improve overall durability of the home

**Submittal:** Exterior elevation or survey with clearly dimensioned distance(s), FEMA flood zone information, foundation plans, landscape plans

**Resources:** N/A

## DM2.02 Durable water connections to fixtures and appliances

**Requirement**: All water using appliances (clothes washer, refrigerator, faucets, toilets, etc.) use PEX, armored, or metal hoses. Copper service lines are NOT allowed.

**Points:** 1

**Intent:** Water consuming fixtures and appliances typically use unarmored hoses for their water supply. Poly pipe, copper, and rubber hoses have a finite life, and are likely to eventually fail, potentially causing flooding and unnecessary water use, especially if not discovered immediately.

**Submittal:** None – visual inspection by Certifying Agent.

**Resources:** N/A

## DM3 FIRE

**Multi-Family:** The entire building must comply for units to receive credit

### DM 3.01 Fire Resistant Design

**Requirement:** Incorporate all of the following criteria

1. **Fire resistant exterior wall claddi**ng: An exterior cladding other than wood or vinyl must be used on all exterior walls. Examples include stucco, unfinished CBS, brick, aluminum, stone and fiber-cement.

2. **Fire resistant roof covering or sub-roof**: Install roofing such as metal, concrete, fiber cement or tile. Asphalt shingles may be used if they have a Class A fire rating. Fire resistant sub roof such as concrete or metal decking also comply.

3. **Fire resistant soffit and vent material:** A soffit and vent material other than wood or vinyl must be used. When these parts of the home are compromised, embers from nearby fires can enter into the attic. Examples include aluminum and fiber- cement.

**Points:** 3

**Intent:** Improve overall durability of the home

**Submittal:** Photos or material cut sheets.

**Resources:** N/A

### DM 3.02 Fire Sprinkler System

**Requirement:** Install a permitted fire sprinkler system in the home to cover 100% of the living area of the home.

**Points:** 3

**Intent:** Fire sprinklers help mitigate against structure loss due to fire. These systems can reduce or eliminate damaged building components, which, when repaired or replaced, can end up in landfills. Sprinkler systems can help minimize losses to the homeowners, reduce homeowner displacement costs, and reduce homeowner insurance rates.

**Submittal:** **Required - Design plan and photos of installed system or copy of signed permit.**

**Resources:** http://www.homefiresprinkler.org/,
https://www.usfa.fema.gov/prevention/home-fires/prepare-for-fire/home-fire-sprinklers
http://www.disastersafety.org/,
http://www.nahb.org/

## DM4 Lightning & Electronics Protection

### DM 4.01 Installed Surge Suppression or Lightning Protection System

**Requirement:** **Lightning Protection:** A lightning protection system must be installed by a UL and LPI (Lighting Protection Institute) certified company. The company needs to be listed on the LPI site as a dealer/contractor, not simply as a member.

**Surge Protection System:** The surge protection devices (SPD) that include phone, coax when appropriate, and a whole house protection device installed per manufacturer's instructions either inside or outside where the electrical utility enters the home. The SPD should be stamped with an Underwriters Laboratories (UL) label to verify the unit meets the latest safety standards. If installed outdoors the unit should be Type 1 listed by UL, and if installed indoors the unit should be listed either Type 1 or Type 2.

- **Type 1**- These are permanently connected SPDs intended for installation between the secondary of the service transformer and the line side of the service equipment overcurrent device as well as the load side (including watt- hour meter adapters). Previously known as surge arresters, these devices are intended to be installed without an external overcurrent protective device.

- **Type 2-**These are permanently connected SPDs intended for installation on the load side of the service equipment overcurrent device, including SPDs located at the branch panel.

**Multi-Family:** This credit is specific to the individual unit.

**Points**: 1 point for Surge Protection
2 Points for Lightning Protection

**Intent:** Florida is the lightning capital of the US. The number one cause of house fires in our state is lightning. The cost of a lightning protection system can be less than an LCD TV and increases the home's protection from wildfires and reduces the amount of damaged electronic equipment ending up in the landfill. No electrical protection system is considered 100% effective; however, a lightning protection system can stop a direct hit, making it the most effective form of fire and electrical protection.

Although a thorough surge protection system that includes phone, coax when appropriate, and a whole house protection device does not provide the same degree

of defense as a lightning protection system, it can stop some damage to household appliances, etc.

**Submittal:** Photos or material cut sheets.

**Resources:** https://lightning.org/technical/#installation-process

Protection Systems/2011 Edition NFPA-780 Standard for the Installation of Lightning Protection Systems, 2011 Edition: http://www.nfpa.org/ https://code-authorities.ul.com/wp-content/uploads/2014/04/LightningProtectionAG.pdf

## DM5 Termites

**Requirement:** Implement one of the following (DM5.1, DM 5.2, or DM 5.3)

AND

Meet the following 3 requisites (from other areas of the checklist)

- Seal slab penetrations (Category 5: Health/Moisture Control)
- Plants/turf minimum of 2 feet from foundation (Category 6: Materials/Durability)
- Sprinklers and emitters are 2 feet from the house (Category 6: Materials/Durability)
-

**Multi-Family:** The entire building must comply for units to receive credit

**Points:** 5 points for DM5.1 and co requisites **OR**

5 points for DM5.2 and co requisites **OR**

6 points for DM5.3 and co requisites

**Intent:** Improve durability of the home

**Submittal:** **Required - Details of foundation protection, alternative methods used, or detailed plans, showing construction materials and materials list.**

**Resources:** N/A

### DM5.01 Chemical Soil Treatment Used

**Requirement:** Incorporating the following requirements

- **Exterior cladding installed to prohibit intrusion**: The exterior cladding of the home must terminate at least 8” above grade. This will help prevent termites from entering the home undetected.

- **Rain gutters installed or meet the “Large Overhangs” requisite under Materials/Durability**: Rain gutters must be installed to collect water from all roof slopes and carry it away from the building foundation. Alternatively, credit can be obtained for incorporating the “Large Overhangs” criteria listed under Materials/Durability. Keeping moisture away from the foundation discourages termite nesting in that vicinity.

- **Water from irrigation system shown not to hit the building**: If installed, irrigation/sprinkler system located 2 or more feet from building, water shown not

to hit building while operating: This criterion will again reduce moisture levels near the building foundation, discouraging termites from nesting there.

- **If present, downspouts must discharge 3 or more feet from building:** If rain gutters have been installed, the downspouts must discharge 3 or more feet from the building to keep moisture away from the building's foundation.

- **Condensate line(s) discharge a min of 2' from home & are located 5' or more from dryer vent:** High humidity, temperature and moisture all contribute to potential termite infestation. By keeping condensate lines and dryer vents apart, the likelihood of termite problems may be decreased.

- **Damage replacement warranty issued and available for annual renewal**: Florida law requires that a contract be issued whenever a termite treatment is conducted. A "full" or "unlimited" warranty requires the pest control company to restore any property damaged by wood-destroying organisms during a specified period after the treatment. Generally, for this to be in effect with new construction, the first warranty issued (with the pre-construction treatment) must be a full or unlimited warranty that can be renewed by the homeowner. The duration of post-construction contracts and warranties can vary from one year to five years depending on the policy of the pest control company. Normally, the annual renewal fee will remain the same during the term of the contract. If a "limited" guarantee or warranty is issued, the pest control company promises only to provide additional treatment if an infestation occurs during a specified period after treatment. A full or unlimited warranty is required for this credit.

**OR**

## DM5.02 Chemical Soil Treatment Avoided

**Requirement:** Avoid the pretreatment of soil with Chemicals

**AND**

Alternative Florida Building Code approved method of foundation protection employed. https://www.floridabuilding.org/fbc/publications/termite_rev030105.pdf

**OR**

## DM5.03 All Wood Products Serving Structural AND Wood Serving Exterior Finish Purposes Are Borate or ACQ Treated

**Requirement:** Avoid the pretreatment of soil with Chemicals AND

The total surface area of all structural wood components in the home are borate or ACQ treated to increase resistance from drywood as well as subterranean termites.

**Intent:** Florida is one of a handful of states where drywood as well as subterranean termites are an issue. Drywood termites fly and most frequently enter the attic. These insects go undetected until the infestation and damage is significant. Tenting the home and introducing the only insecticide still on the market that will kill humans and animals is the current method for dealing with the problem. Speculation within the termite industry suggests this highly toxic insecticide will eventually be eliminated. The best way to deal with drywood termites is prevention via construction with products that are not a food source and/or product that are treated with a termite inhibitor.

### DM5.04 Borate Treated Insulation

**Requirement:** 80% of the cellulose insulation in walls, ceilings, and floors to be borate-treated.

**Points:** 1

**Intent:** Provide additional termite barrier to homes built with wood products, especially trusses, without having to treat all the wood.

**Submittal:** **Required – Photo of packaging or copy of invoice with cut sheet.**

**Resources:** N/A

## DM6 Mold and Leak Damage Prevention

### DM6.01 Mold Prevention – ASTM D3273

**Requirement:** All wood products including framing lumber, plywood, Oriented Strand board, engineered wood products, parallel strand lumber, Laminated veneer lumber, and wood I-beams, must have a factory or field applied antimicrobial treatment that complies with ASTM D3273. All wood components must be treated. Antimicrobial treatments may be used in combination with other treated wood such as borate treated, and pressure treated lumbers.

**Points:** 2

**Intent:** Reduce moisture impacts of wood in structure

**Submittal:** **Required-Documentation indicating product purchase or contract for application, photos of applied product.**

**Resource:** https://www.epa.gov/mold/mold-and-health

https://19january2017snapshot.epa.gov/sites/production/files/2016-08/documents/wood_preservation_and_associated_antimicrobial_pesticide_data_requirements.pdf

### DM6.02 Water Leak Detection and Shut Off Systems

**Requirement:** Install a whole house water sensor/shutoff system is installed that detects any sign of water leakage anywhere inside the conditioned space and cuts off the main water supply to the house. At a minimum, sensors must be installed in the vicinity of a clothes washer and tank water heater. Earn additional points if the leak detection system and/or shut off systems are tied to a mobile smart application.

**Points:** 1 Point Leak detection with Automatic Shut Off
2 Points Leak Detection System Installed tied to Mobile Smart Application
3 Points Leak Detection AND Automatic Shut Off Systems Installed tied to Mobile Smart Application

**Intent:** If water-using appliances such as clothes washers and water heaters are installed inside the conditioned space, leaks and failures can cause severe damage due to flooding.

**Submittal:** Cut sheet of sensor/shutoff system.

**Resources**: N/A

## DM6.03 Gas Leak Detection and Shut Off Systems

**Requirement:** Install a whole house gas leak detection and shut off systems are installed and tied to a mobile smart application.

**Points:** 2 Points

**Intent:** Reduce moisture impacts of wood in structure

**Submittal:** Documentation indicating product purchase or contract for application, photos of applied product.

**Resource:** https://www.statefarm.com/simple-insights/residence/natural-gas-detectors

https://www.forensicsdetectors.com/blogs/articles/methane-leak-detector-home?srsltid=AfmBOoqoMV9c2KSa_HEY7AOEyFSdj5TZBs8-8upo_HHW8DzquDlBeYzT

# DM7 Radon

## DM7.01 Radon/Soil Gas Vent System Installed for homes in Zone 2 and lower.

**Requirement:** Install a radon/soil gas vent system in the home as appropriate for the homes construction type and location.

**Multi-Family:** Install, at a minimum, a capped 4” PVC pipe that runs from the air handler closet to the exterior of the unit AND a junction box in the air handler closet that can accommodate a future fan to exhaust air from the home.

**Points:** 1

**Intent:** Slab on grade: The least expensive way of venting for radon gases under a slab on grade would be to install a series of passive vent stacks (2 – 3 per home) that, in the event radon gas is present, will allow any trapped gas to vent through the path of least resistance, using 3” PVC piping vented through the roof. This is accomplished by installing the pipes prior to slab pour, in a dry well made of crushed stone. The end of the pipe must be capped with a well point or screen then buried in the stone. PVC should extend vertically above slab level and be temporarily capped to prevent being plugged by construction debris. Once home has been framed and is in the rough plumbing stage, the pipe should be extended thru the roof and finished in the same manner as a plumbing vent stack.

Slab with stem walls: See slab on grade method above

Foundation and Basement or Crawl space: Can be accomplished in the same manner as slab on grade but ensuring that pipe still extends completely thru roof. Basements and crawl spaces should also be ventilated in the sidewalls using windows, foundation vents, or some type of mechanical ventilation system.

It is recommended that the installation be performed by licensed plumber.

**Submittals:** Specs of system installed.

**Resources:** N/A

# CATEGORY 8: GENERAL

There are a variety of items that either do not apply to any one category or apply across many categories. These points have been grouped under this category

## G1 Small House Credit

### G1.01 Conditioned House Size

**Requirement:** **Single Family:** Build a small efficient home
**Multi-family:** Submitting Each Unit: Use the specific square footage of each unit on the individual checklists

Whole Building Certification: Use weighted average of dwelling units to determine the square footage for the small house credit.

**Points:** FGBC awards 0 – 25 points based on the following table.

| Conditioned House Size (square feet) | Single Family Points (Square feet) | Multi Family Points (weighted average square feet) |
|---|---|---|
| < 600 | | 20 |
| 600 - < 999 | 25 | 15 |
| 1000 - 1299 | 20 | 10 |
| 1300 -1599 | 15 | 5 |
| 1600 - 1799 | 10 | |
| 1800 - 1899 | 5 | |

**Intent:** Small homes use less material for construction, less energy for heating and cooling, and occupy a smaller footprint than similar larger homes.

**Submittal:** Indication of home's square footage.

**Resources:** N/A

## G2 Adaptability

### G2.01 Roof Trusses Designed for Addition

**Requirement:** Roof trusses designed in such a way that a room can be added to the attic space. To qualify for the two points, minimum room size must be 100 square feet with an average finished height of at least seven feet.

**Points:** 2

**Intent:** Allow homes to grow and adapt with family needs, modifying an existing home uses less resources than building a new bigger home.

**Submittal:** Photo or detailed plans.

**Resources:** N/A

## G2.02 Unfinished Rooms

**Requirement:** Home design includes a minimum of 100 square feet of unconditioned, unfinished space that is built such that it can easily be finished at a later time. The space should be easily accessible and include a minimum 8-foot ceiling height.

**Points:** 1 point for 100 – 199 SF
2 points for 200 SF or more

**Intent:** Allow homes to grow and adapt with family needs, modifying an existing home uses less resources than building a new bigger home.

**Submittal:** Photo or detailed plans.

**Resources:** N/A

## G2.03 Install A Minimum of 2 Upgraded Automation Systems

**Requirement:** Home must have a minimum of 2 upgraded automation systems installed. Systems such as web accessed lighting, mechanical systems, or other systems that allow remote access and control of home systems.

**Points:** 1

**Intent:** Improve controllability and efficiency of the home.

**Submittal:** Photo or detailed plans.

**Resources**: N/A

## G2.04 Pre-Plumb for Solar Hot Water

**Requirement:** Install plumbing for future installation of a solar hot water system running from the hot water tank location up through the roof. Penetration should be properly sealed, and plumbing must be copper pipe or CPVC. Not available if E2.16 is claimed.

**Points:** 1

**Intent:** Besides providing south-facing roof area, the next step in preparing for a future solar hot water system is to install plumbing. This point is not available if a system is

installed. Installed solar water heating systems are given credit in the HERS rating system and in the Energy category.

**Submittals:** Photo or plumbing plan.

**Resources:** N/A

## G2.05 Zero Energy Ready Home

**Requirement:** Comply with the following

1. The home must have a minimum of 500 square feet of available roof area that faces West, South or East. Please note square footage needed will vary based on roof orientation and energy consumption of home.
2. Verify that the roof, as designed can support an additional 6lbs/sf of dead load for future solar system.
3. Install a 1” metal conduit for the DC wire run from the designated PV array location to the designated inverter location, cap and label both ends.
4. Install a 1” metal conduit from the designated inverter location to the electrical
5. service panel, cap and label both ends
6. Designate and provide appropriate blocking or support for a 4’ X 4’ area for
7. mounting an inverter and system components.
8. Install a 70-amp dual pole circuit breaker in the electrical service panel for use by the V system, labeled appropriately.
9. Provide the homeowner with a set of plans identifying the free roof area, location of panel blocking and location of breaker

**Points:** 3 points

**Intent:** Besides providing south-facing roof area, the next step in preparing for a future solar hot water system is to install plumbing. This point is not available if a system is installed. Installed solar water heating systems are given credit in the HERS rating system and in the Energy category.

**Submittals:** Copy of plans, photos of installed conduit and photos of breaker.

**Resources:** N/A

## G2.06 Provide Future Connection to Public or Private Utilities

**Requirement:** Provide stub-outs to simplify the connection to future utilities.

**Points:** 2 Points

**Intent:** Minimize invasive nature of future modification

**Submittals:** Plans indicating stub-outs

**Resources:** N/A

## G2.07 Electric Vehicle Charging

**Requirement:** Single Family: Install a 220-240 VAC, 60Hz, ground branch circuit with a double pole 50 Amp circuit breaker. Provide a NEMA 14-50 plug or J1772 compliant charger accessible in the garage or, if no garage, in a location adjacent to car parking.

Multi-Family: Provide electric vehicle charging capacity at 1.5% or 3% of the provided parking spaces. Install a 220-240 VAC, 60Hz, ground branch circuit with a double pole 50 Amp circuit breaker. Provide a NEMA 14-50 plug or J1772 compliant charger

**Points:** 1 Point Provide a minimum NEMA 14/50 plug in the garage or available for car charging. Conduit **and breaker space**

2 Points for providing conduit and installing breaker

2 Points 1.5% of Parking on Multi-Family Projects

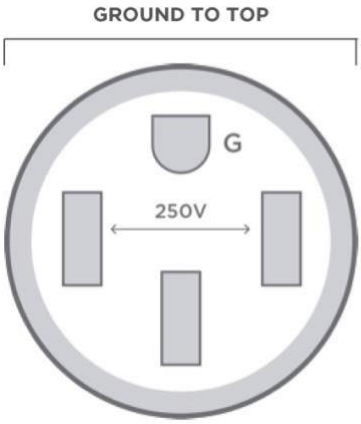
3 Points 3% of Parking on Multi-Family Projects

**Intent:** Minimize invasive nature of future modification

**Submittals:** Plans indicating construction details and photos of installed measures

**Resources:** N/A

**SAE J1772 AC Level 2 Charging Coupler**




## NEMA 14-50 OUTLET DETAILS

- **Circuit Breaker**: 50 amps
- **Voltage**: Single phase, 208-250 volt AC supply, 60 hertz
- **Four Wire Configuration**: Line 1 - Line 2 - Ground - Neutral
- **Conductors**: 6 AWG copper wire for circuits up to 150 feet
- **Outlet**: Use a high quality, industrial grade outlet
- **Ground Pin Orientation**: Top position of outlet
- **Ventilation**: Not required

## G3 Renewable Power Generation

## G3.01 Reduce Peak Demand or Annual Load

**Requirement**: Install a minimum of 2KW of renewable power systems (photovoltaics, fuel cell, micro turbine, geothermal power systems, etc.) at the site that meet loads not specifically described and credited under different categories (e.g., outside lighting, pool prerequisite).

**Points:** 1 point for each 2 KW (max 5 points)

**Multi-Family:** For multi-family projects, use the average number of kW/unit (calculated by dividing the total kW installed by the number of units). For example, if there are 10 kW of installed PV and 4 multi-family units, 10/4=2.5 and each unit is awarded 1 point. If there are 16 kW installed on the same 4-unit multi-family building 16/4=4kW and 2 points would be awarded (1 point for each 2 kW.)

**Intent:** Reduce demand on fossil fuels

**Submittal:** **Required - Spec sheet of system size and usage.**

**Resources:** N/A

# G4 Remodel – Credits

## G4.1 – G4.5 are ONLY available for EXISTING homes

Credit G4.1 trough G4.4 are only available to projects involving remodeling of an existing structure and **MUST** be implemented.

## G4.01 Remodeling of an Existing Structure

**Requirement:** Home must be at least 12 months old and achieve a HERS Index of 80 or below.

**Points:** 10

**Intent:** Anyone who performs remodeling is saving resources by not building new and by overcoming barriers put in place many years before.

**Submittal:** **Required - Proof of age of home such as property appraiser report and signed HERS rating guide.**

**Resources:** N/A

## G4.02 Water Closets 1.6 gpf & Showers 2.5 gpm or Less

**Requirement:** In home older than 1992 all toilets must be 1.6 gallons per flush or less, and all showerheads must be 2.5 gallons per minute or less. – note additional points are available in the water section if lower flow fixtures are installed.

**Points:** 3

**Intent:** Reduce home water consumption

**Submittal:** Manufacturers specs.

**Resources:** N/A

## G4.03 Upgrade Existing Installed Irrigation with Rain Gauge, Timer and Code Irrigation Heads.

**Requirement:** If the home has an installed existing irrigation system the system must be upgraded to include a rain sensor, timer-based controller, and code irrigation heads.

**Points:** 2

**Intent:** Reduce water consumption of the home

**Submittal:** Manufacturers specs.

**Resources:** N/A

## G4.04 Existing Homes with Pools – Upgrade Pump to Variable Speed or Dual Speed

**Requirement:** Any pool pump that is ≥ 1 hp and is ≥7 years old MUST, at a minimum, update their motor to a dual speed motor with the same flow rate. (Replacement of the pump is not required).

**Points:** 2

**Intent:** New pool code effective January 1, 2011 require that a homeowner making any change to pool equipment is required to bring the entire system up to code. Reduce water and energy consumption from the use of a pool.

**Submittal:** Manufacturers specs.

**Resources:** N/A

## G4.05 Improve Roof to Wall Connections

**Requirement:** Home must have roof-to-wall connections upgraded to code minimum in instances where the majority of trusses (1.) are toe-nailed to top plate (frame walls), OR (2.) have hurricane clips missing (frame or masonry walls), OR (3.) have hurricane single / double straps with more than 1 inch space between truss and bond beam (masonry walls).

**Points:** 2

**Intent:** Strengthening the roof-to-wall connection lowers home insurance premiums and prevents roof detachment in hurricane/high winds leading to destruction of home.

Unfortunately, this mitigation is only mandated by the Florida Building Code (FBC) if the house undergoing re-roofing is valued more than $300,000.

**Submittal:** N/A

**Resources**: N/A

# G5 Additional Credits

## G5.01 Home Builder/Designer/Architect/Landscape Architect Member of FGBC

**Requirement:** Design/construction team are members of FGBC, the Certifying Agent(s) cannot be counted

**Points**: 1 point for each member (2 points max).

**Intent:** FGBC members are aware of a variety of issues and solutions to problems that may occur in building green.

**Submittal:** Names of persons on the construction team that are FGBC members.

**Resources:** N/A

## G5.02 Homeowner's Manual, Including Information, Benefits, and Operations

**Requirement:** Homeowner has received a manual that includes the 3 co-requisite items plus 4 additional items from the following list.

**Requisites:**

- Green certificate
- List of green features included in the home. This list can be their final checklist
- Provide green lifestyle tips for water and energy conservation as well as improved indoor air quality contributing to:
    - Reduced operating cost of the house
    - Environmental benefits
    - A healthier indoor environment for the occupants

**Plus select at least 4 of the following:**

- Information on Energy Star appliances

Points: 2

- Product manufacturer manuals for installed major equipment, fixtures, and appliances.
- An explanation of green features and products included in the home along with the benefits of each.

- Offer an explanation of energy-efficient lighting options included in the home, how to select the proper bulbs, and where to purchase replacement bulbs.
- Directions to local transportation options and bike/walking trails
- Outline of household recycling opportunities offered by the county or city
- A photo or video record taken just prior to insulation, showing installed mechanical, wiring, and plumbing in the walls and ceilings.
- Maintenance checklist
- Evacuation routes
- Hurricane preparedness instructions
- Shelter locations indicating those that take animals
- Landscape plan including care and feeding of the installed plants
- List of turf maintenance companies offering natural, non-chemical care options.
- List of local organizations / companies that recycle various products such as used tennis shoes, computers, batteries, paint, eye glasses, cell phones/small electronics, etc.
- List of local farmers markets and CSAs (Community Supported Agriculture)
- List of sources for purchase of pasture-raised and finished meat, poultry, eggs and dairy originating from local farms. If none available, provide a list of online options from the closest sources.
- List of local restaurants serving predominantly local and organic produce and, if not a vegan restaurant, local, pasture-raised meat, dairy, poultry and eggs.

**Points** 2

**Intent:** The homeowner's manual is designed to help the new owner understand the benefits of a green home, how to operate the house, and how to take care of the landscape,

**Submittal:** **Copy of homeowner's manual Table of Contents and the portion of the manual showing required informational content.**

**Resources:** N/A

## G5.03 FGBC Green Homeowner Checklist

**Requirement:** Providing each homeowner with a "green maintenance" checklist. All applicable items on the checklist must be discussed with the homeowner.

**Points:** 2

**Intent:** Providing onsite training to the homeowner will help them understand how to operate the house and take care of the landscape so that the intended benefits of a green home are realized for the customer and the earth.

**Submittal:** **Location of training, point of contact for the homeowner (warrantee, subcontractor, and vendor information if applicable), length of training, and or a copy of the checklist provided to the homeowner.**

**Resources**: N/A

## G5.04 Plan for Edible Landscape/Food Garden

**Requirement:** A minimum of 50 square feet is dedicated to edible landscape plants. For multi-family projects, provide a minimum of 250 SF of garden space PLUS and additional 10 SF for each additional unit in the project. (For example, a 10-unit project should have a minimum of 350 SF of garden space). The 50 sq. ft can be a combination of garden space, area under fruit/nut tree drip lines, and shrubs. To estimate area under tree drip line, measure the distance from the outer leaves to the trunk. This is the radius of the tree. For immature trees, use the 1/5 of the mature tree radius (1/2 the published diameter or "width" as given in plant directories). This is the effective radius. Then calculate the area using the actual radius or the effective radius, whichever is greater:

Area under tree = 3.1413 x radius x radius

Homeowner also must be in possession of, or receive at closing, a one-page handout on growing fruit/vegetables organically, available from the local extension service or other suitable source, in order to claim credit.

**Points:** 1

**Intent:** Homeowner food production is often organic, requiring less fertilizer and pesticide use, and is free from pollution associated with transporting the produce.

**Submittal:** Landscaping plan, copy of handout.

**Resources:** N/A


## G5.05 Guaranteed Energy Bills

**Requirement:** Home must have its energy bills guaranteed by the builder or another entity not to exceed a maximum amount for at least two years.

**Points:** 2

**Intent:** In most guarantee programs, the entity guaranteeing the bills agrees to pay the difference for any energy bill that exceeds the predetermined maximum amount.

**Submittal:** **Required: Copy of written guarantee.**

**Resources:** N/A

## G5.06 FGBC Certified Professional

**Requirement:** Builder or designated employee is an FGBC Certified Green Professional

**Points:** 2

**Intent:** To reward builders for becoming certified

**Submittal:** **Required - completed FGBC Certified Green Professional Course and receive passing score and certificate.**

**Resources:** N/A

## G5.07 Energy Star Qualified Home

**Requirement:** Conduct an Energy Star inspection and collect all Energy Star checklists and associated data, for submission to achieve Energy Star Certification. Note that the Thermal Bypass Inspection credit is not available to homes that are Energy Star Qualified.

**Points:** 5

**Intent:** Reduce energy consumption in homes and improve building quality. Energy Star homes are by definition 15% more energy efficient than Florida Code requires. The current version of Energy Star requires the completion of multiple checklists by the Energy Star Rater, the Builder and the HVAC Contractor, all of whom have to be Energy Star Partners. This ensures more accountability (third party verification) as well as a more durable and better performing home.

**Submittals:** **Required - Energy Star Certificate.**

Resources: To find out more about Energy Star Homes, visit the EPA website dedicated to this initiative: http://energystar.gov. This website contains multiple resources and listings of Energy Star Raters, Builders, and HVAC Contractors.

## G5.08 Innovative Credits

**Requirement:** Submit written explanation of environmental contribution that deserves credit and credit being requested.

**Points:** up to 5

**Intent:** To reward builders, homeowners, and project team for innovative thinking

**Submittal:** **Required - Completed Green Home Standard Modification Request Form for each innovative credit request.**

**Resources:** N/A