



Florida Green High-Rise Residential Building Standard Reference Guide

Version 3

Effective January 1, 2018

Required January 1, 2019

Revised 10/18/17

This Reference Guide is intended to serve two purposes:

- To provide information on green high-rise residential construction, operation, and maintenance considerations.
- To provide details on how to earn points for obtaining certification under the Florida Green High-Rise Residential Building Standard.

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

Instructions	3	
Category 1: Project Management	6	
Category 2: Energy	9	
Category 3: Water	21	Deleted: 19
Category 4: Site	29	Deleted: 26
Category 5: Health.....	40	Deleted: 36
Category 6: Materials	54	Deleted: 49
Category 7: Disaster Mitigation and Durability	59	Deleted: 54
Category 8: Environmental Innovation	63	Deleted: 58

Florida Green High-Rise Residential Building Standard

Version 3

Effective: January 1, 2018

Instructions

THE PROCESS:

The certification process consists of two stages: (1) The initial project registration of a planned project and (2) submittal of the Final Application and its accompanying supporting documents.

A "Final Application" must be submitted within five (5) years from the date of project registration with FGBC. Projects not submitting the final application within 5 years shall be determined abandoned and not eligible for certification review.

Initial Registration

1. Appoint a project team member to serve as the "Designated Professional." The "Designated Professional" shall be the projects contact person for FGBC and all other project team members, and shall be responsible for submitting the application package.
2. Complete the information in the "Project Registration & Team Tab" and submit it to FGBC along with a non-refundable, minimum deposit of \$1,500.
3. FGBC will assign a "Project Evaluator" to your project, whose role is to clarify questions the Designated Professional might have regarding the Standard requirements and to review the project's Final Application for compliance with the Standard.

Final Application

1. Be sure the Project Registration & Team tab has been completed. It is designed to auto-fill the Final Application page.
2. Complete all category pages of the Checklist in the Excel file by using the drop-down menus in the BLUE cells in the Achieved, Possible or NA columns.
3. Submit the completed Checklist, all supporting documents, and final payment to the FGBC. The final payment shall be equal to the stated application fee in this document, less any deposit paid.
4. SUPPORTING DOCUMENTATION shall include:
 - a. A signed letter of compliance with a brief narrative explaining how the credit was achieved for each credit claimed.
 - b. The submittal for each claimed credit shall also include the documentation specified in the submittal sections of the Reference Guide and Checklist.
5. The Project Evaluator will review the application and contact the Designated Professional if additional information is needed.
6. The submitted Final Application shall be deemed non-compliant and shall expire if the Designated Professional or building owner has been non-responsive for six (6) months to questions and documentation requested from the Project Evaluator or FGBC.

IMPORTANT GUIDELINES:

1. The FGBC High-Rise Building Standard version in effect on the date of the project's registration with FGBC, is the version the project must use for Final Application submittal, EXCEPT, that a project may

elect to use a more current version of the Standard that has an effective date on or after the project's permit date.

2. Each building must comply with the prerequisites in order to be eligible for certification.
3. Select items to obtain the minimum number of points listed for each category (category minimums).
4. The sum of the minimums totals 52 points. Accumulate at least an additional 48 points of your choice to obtain the required 100 total points to qualify for certification. NOTE: If any category minimums are not achieved, those point deficiencies are added to the total minimum required score of 100, creating an "adjusted minimum required points" (the points YOUR project must achieve for certification).
Example: Applicant elects to achieve only 5 points from a category with a minimum of 10. Applicant may still qualify for certification if: Total points equal or exceed 105: 100 + [15-10] = 105). "
5. There are 382 possible points although all are not likely to be applicable to each project. To assure comprehensive environmental benefit from the project, there are maximum points allowed in any one category. Note that category maximums cannot be exceeded at any time. The Checklist automatically calculates maximum allowed points.
6. Documentation must be submitted to support every claimed credit.
7. If the Excel file is altered in any way, the application will not be accepted. Altered files will be returned unprocessed.
8. The maximum allowable unfinished commercial or leasable space may not exceed 25% of the total conditioned square footage of the building. High Rise 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 individual units. For example, if the project is pursuing the Low VOC credit, then the units and common areas must both use Low VOC products.

- Formatted: Font:Calibri, 11 pt, No underline
- Formatted: Font:Calibri, 11 pt, No underline
- Formatted: Normal
- Formatted: Font:Calibri, 11 pt, No underline
- Formatted: Font:Calibri, 11 pt, No underline
- Formatted: Font:Calibri, 11 pt, No underline
- Formatted: No bullets or numbering

CERTIFICATION LEVELS:

The FGBC Florida Green High-Rise Residential Building Standard uses a tiered rating system. Certification is awarded at different levels according to points achieved over the project's adjusted minimum point requirement.

Level	Points Over Project Adjusted Required Minimum
Bronze	0 - 30
Silver	31 - 60
Gold	61 - 90
Platinum	91 >

CERTIFICATION FEES:

FEE	Building Size (SF):		
\$5,000	0	< =	50,000
\$6,500	50,001	< =	150,000
\$8,000	150,001	< =	250,000
\$9,500	250,001	< =	500,000
\$12,000		>	500,000



FGBC Member Discount

A 5% discount is available if the Designated Professional is a business category member of the FGBC. An additional 5% discount is available if the building owner, architect, or general contractor on the High-Rise project is a business category member of the FGBC. Maximum discount available is 10% of the total application fee.

INSTRUCTIONS FOR SUBMISSIONS:

Electronic Submission (preferred)

[Pay online](#) or complete the credit card authorization on the Final Application Form. (Note: Payment by check is acceptable - see mailing instructions below).

Send the completed Excel file containing the Final Application and Checklist, along with all supporting documents to FGBC on a jump drive, CD, or via the FGBC FTP link below. Maximum file size for FTP is 2 GB. Consider zipping groups of files before sending.

FGBC FTP Link: <https://dropbox.hightail.com/certifications>

Mailing Instructions

Mail check or credit card authorization (see Final Application Form) to FGBC at the address below. Include a printed copy of the Final Application Form. Send a Jump Drive or CD containing electronic files for the Excel Checklist and all supporting documents. Mail to:

FGBC
25 E. Central Blvd.
Orlando, FL 32801

For Additional Information contact your Project Evaluator or FGBC at PH: 407-777-4914. All documents are available for download on the FGBC website: www.FloridaGreenBuilding.org



CATEGORY 1: PROJECT MANAGEMENT

REQUIRED CATEGORY MINIMUM 5 POINTS

PM Prerequisite 1: Green Project Meeting

Requirement: Owner and project team decision makers must participate in a 4 hour green design charrette where an FGBC Designated Professional details each line item and requirements of the FGBC High Rise Standard Checklist. The training must be project specific, general green education courses do not comply.

Points: Prerequisite - Required

Intent: Familiarize the project team decision makers with the FGBC checklist requirements and identify a path to pursue certification.

Submittals: Provide copy of the meeting agenda, outline of notes, dated sign in sheet, and a copy of the FGBC Checklist that resulted from the Charrette. If participants attend via video conferencing, also include a screen shot of the training content and attendee list.

PM Prerequisite 2: Green Designated Professional

Requirement: The project team includes a certified FGBC Green Designated Professional.

Points: Prerequisite - Required

Intent: The FGBC Green Designated Professional is familiar with the credits, credit requirements, intent and submittals associated with the Green High Rise Standard. The FGBC Green Designated Professional shall act as a liaison between the project team and the FGBC.

Submittals: Copy of FGBC Green Designated Professional Certificate.

PM1.01 Comprehensive Design Charrette/Design Team Training

Requirement: Owner and design team decision makers must participate in an 8 hour green project training no later than the design development phase of the project. Attendees must include a participant from all disciplines currently under contract for the project.

Points: 2

Intent: Reduce costs associated with redesign by introducing the design team to the credit requirements prior to completing the building design.

Submittals: Provide copy of the training outline and dated sign in sheet

PM1.02 Construction Team Training

Requirement: Owner, design team representatives, general contractor and subs currently under contract for the project participate in a minimum of 2 hour green project training is administered prior to work on the jobsite. A minimum of the subcontractors associated with the following activities must be trained prior to commencing work on the site: General Contracting, MEP, HVAC, irrigation, and interior finishes. Multiple trainings may be required to properly educate the construction team.

Points: 2

Intent: Clearly identify the credits the project is pursuing towards certification, identify credits that require contractor input, sub bids, documentation during construction, additional training, or participation to minimize any cost associated with construction delays or misinterpretation of targeted credits.

Submittals: Provide copy of the training outline and dated sign in sheet(s)

PM1.03 Staff Training

Requirement: Operational staff, including facility manager, leasing agent, sales staff, or any individual that works over 20 hours a week in a capacity managing or maintaining the building must attend a 2 hour green training. Training must include an explanation of the certification, criteria pursued/achieved, and information regarding green operation and maintenance of the building.

Points: 1

Intent: Maintain the integrity of the green certification by educating staff regarding proper operation and maintenance of their high performance building.

Submittals: Provide copy of the training outline and dated sign in sheet

PM1.04 Homeowner Training

Requirement: Providing a homeowner with “green maintenance” training lasting at least 1 hour. Builder must have an established procedure, completed by a knowledgeable jobsite superintendent, sales representative, customer service individual, or other appropriate individual. The training may be any combination of office instructions or home walk through with hands-on training.

Points: 1

Intent: Maintain the integrity of the green project by educating the homeowners regarding proper operation and maintenance of their high performance building.

Submittals: Provide copy of the training outline and bio of the approved trainers.

PM1.05 Green Website

Requirement: Provide information on the project website regarding the FGBC green certification of the project, a link to the project score sheet, information on green operation and maintenance for homeowners, and helpful links for homeowners regarding FGBC, energy efficiency, water efficiency, and healthy homes.

Points: 1

Intent: Maintain the integrity of the green project by educating the homeowners regarding proper operation and maintenance of their high performance building.

Submittals: Provide the web address and copies of the content.

PM2 Building Information Modeling (BIM)

Requirement: Design team and construction teams use BIM process to optimize the efficiencies related to design, estimating, materials ordering, and construction.

Points: 1 point for Architect

~~3~~ points for Architect, Structural, and MEP

Deleted: 2

5 points for Architect, Structural, MEP, Contractor and Mechanical, Electrical, Plumbing and Fire Subs

Intent: Reduce costs associated with design and construction conflicts by identifying issues prior to construction.

Submittals: Provide a minimum of 6 examples of 3D renderings and conflict reports, Meeting minutes discussing conflict resolution may be submitted in lieu of conflict reports.

PM3 Cost Benefit Analysis

Requirement: FGBC project team member shall document the cost impact of each energy and water credit the project is pursuing for certification. Analysis shall include a minimum of two building alternatives considered to achieve the credit, the cost associated with each alternative and calculated annual kWh, gallons of water, and cost savings.

Points: 5

Intent: Provide cost data so that the project owner may make informed decisions regarding energy and water efficiency.

Submittals: The project must submit a copy of the FGBC Checklist from:

1. The team kickoff meeting
2. 100% Construction Document Phase
3. Final FGBC Submittal

Include assumptions regarding interest rates, life of materials, and any other assumptions made for the analysis. A short narrative must accompany each credit explaining the options reviewed, environmental benefits, and reasoning for final selection for inclusion in the project.

PM4 Small Unit Credit

10 Points for weighted average < 1500 SF

15 Points for weighted average < 1200 SF

20 Points for weighted average < 900 SF

Requirement: Design and construct small units. Points are awarded based on the weighted average unit size for the project.

Points: 10-20

Intent: Small multi-family units use less total resources than larger single family units.

Submittals: Architectural drawings showing floorplans and units, a list of the types of units, square footage of the units, and a weighted average calculation.

CATEGORY 2: ENERGY

REQUIRED CATEGORY MINIMUM 15 POINTS, ALLOWED CATEGORY MAXIMUM 75 POINTS

E Prerequisite 1: Owner Project Requirements (OPR)

Requirement: Owner designated representative must develop a list of owner project requirements related to each of the categories of the high-rise residential standard. The OPR should indicate minimum goals for each category and any specific credits the Owner wishes to target.

Points: Prerequisite - Required

Intent: Document the owner project requirements so that the design team can refer to the owners project goals throughout the design process.

Submittals: Submit a narrative explaining the OPR for the project clearly indicating the minimum project goals for each of the FGBC categories.

E Prerequisite 2: Basis of Design (BOD)

Requirement: Design team representatives develop and document how the design will achieve the Owner Project Requirements. The Basis of Design should include specifically how the performance desires of the Owner will be achieved by the proposed design.

Points: Prerequisite - Required

Intent: Provide a document detailing the design so that the commissioning agent can verify that the owner intent is being addressed and so that the construction team can verify design intent is met with the construction documents.

Submittals: The design team must submit a narrative that explains how the design decisions support the Owner project requirements. The BOD must include a description from the design team as to how each of the FGBC category specific owner goals will be achieved .

E Prerequisite 3: Testing and Balancing of Installed Equipment

Requirement: Mechanical Electrical Plumbing (MEP) Engineering Firm works with the Architect or design team leader to verify field installed equipment meet OPR, BOD and is installed and operating correctly. Testing and verification must include at a minimum, Heating, Ventilation, Air Conditioning and Refrigeration (HVAC&R) systems & controls, lighting systems and controls, renewable energy systems, hot water system, and energy and water measurement devices as determined by the project engineer of record. Testing and verification shall be performed by a licensed engineer or a professional certified by the National Environmental Balancing Bureau (NEBB), the Associated Air Balance Council (AABC), or other nationally accredited organization.

Points: Prerequisite - Required

Intent: Verify performance of mechanical systems to ensure proper performance.

Submittals: The design team shall provide a copy of the testing and balancing report.

E Prerequisite 4: CFC Reduction in HVAC Equipment

Requirement: Requires that all building HVAC&R systems be free of CFC's and Halons

Points: Prerequisite - Required
Intent: Requires that all building HVAC&R systems be free of CFC's and Halons:
Submittals: Mechanical engineer will submit a signed letter declaring that the building's new HVAC&R systems do not use CFC-based refrigerants and a mechanical schedule showing HVAC equipment.

E1 Performance Improvement

E1.01 Energy Performance Improvement

Requirement: The designed building will receive credit for energy performance that is more efficient than the current Florida Energy Code. Refer to the Florida Energy Code Calculations and their provided summary comparing the baseline and design buildings.

Points: 3 points for each percent lower than code –Maximum 60 points.

Intent: Improve the overall efficiency of the building

Submittals: A copy of the Florida Energy Code calculations and input summary. Note the following inputs into the Energy Code calculations will be verified with the field installed design/equipment. The lighting, wall construct and insulation, window solar heat gain coefficient and u-factors, roof construct and insulation, system types and efficiencies, water heaters and exterior lighting.

Deleted: 2

E1.02 Pump Motors

Requirement: All three phase pump motors 1 horsepower or larger shall meet or exceed efficiency standards for NEMA Premium™ 3 motors. Note: Motors that are packaged as an integral component of mechanical equipment, fire pump motors, and booster pump motors are exempt from this requirement

Points: 1

Intent: Improve the overall efficiency of the building

Submittals: Plumbing plans highlighting location of pumps, cut sheets and photos of complying pumps

E1.03 Lighting Power Density

Requirement: Design and construct such that the average lighting power density for the building, which includes conditioned space and enclosed spaces defined as enclosed with doors, windows and roof (for instance fire truck bay) and which excludes the structures exterior and parking area shall be < 0.8 W/SF.

Points: 1 – 5

1 point: < 0.8W/SF

2 points: < 0.7W/SF

3 points: < 0.6W/SF

4 points = 0.5W/SF

5 points = 0.4W/SF

Intent: Reduce energy consumption associated with lighting.

Submittals: Signed approved lighting submittal, photos of installed lighting and Watt per square foot calc. You may also include the Energy Gauge Summit "Total Building Performance Method

Formatted: Highlight

Deleted: 0.8W/sf

Deleted: E1.03.01 - Individual Units -

for Commercial Buildings” full report, including all input and output reports with lighting power densities (Form 506-2010) or its equivalent , signed by lighting designer or MEP

Resources: - <http://www.energygauge.com/>

E2 Prescriptive Energy Features

E2.01 Energy Star Refrigerator

Requirement: Install Energy Star qualified Refrigerators in each unit

Points: 2

Intent: Improve the overall efficiency of the building

Submittals: Copy of the appliance package approved submittal, cut sheet identifying model number and photo of installed appliance

Resources: http://www.energystar.gov/index.cfm?fuseaction=find_a_product.

E2.02 Energy Star Dishwasher

Requirement: Install Energy Star qualified dishwashers in each unit

Points: 2

Intent: Improve the overall efficiency of the building

Submittals: Copy of the appliance package approved submittal, cut sheet identifying model number and photo of installed appliance

Resources: http://www.energystar.gov/index.cfm?fuseaction=find_a_product

E2.03 Energy Star Clothes Washer

Requirement: Include this point if each individual unit has an Energy Star clothes washer. Alternatively, points may also be awarded for clothes washers with an Integrated Modified Energy Factor (IMEF) ≥ 2.38 (top load), IMEF ≥ 2.06 (front load), IMEF ≥ 2.07 (washers ≤ 2.5 cubic feet (CF)) OR if the central laundry facility is on site and includes Energy Star clothes washers. Alternatively, points may also be awarded for commercial clothes washers with a Modified Energy Factor (MEF) ≥ 2.2 .

Points: 2

Intent: Appliances labeled with the EPA ENERGY STAR® label use less energy and water than other products, save money on utility bills, and help protect the environment. Although energy-efficient models sometimes cost more to purchase initially, any extra up-front cost can often be made up with savings on your utility bill.

ENERGY STAR® clothes washers use superior designs that require less water to get clothes thoroughly clean. These machines use sensors to match the hot water needs to the load, preventing energy waste. ENERGY STAR® washers use nearly 50% less water and over 40% less energy per load. The washer design also causes less wear and tear on clothes. In addition, better water extraction means less drying time, which yields further energy savings. There are two designs, top-loading and front-loading. They are described in more detail as follows:

Front-loading ENERGY STAR® models are similar in design to washers used in laundromats. These horizontal-axis or tumble-action machines repeatedly lift and drop clothes, instead of moving clothes around a central axis.

Deleted: Requirement: - Design the installed lighting in each unit such that the total Watt per square foot does not exceed 0.8. ... 11

Deleted: 1

Deleted: 1

Top-loading ENERGY STAR® washers use sensor technology to closely control incoming water temperature. To reduce water consumption, they spray clothes with repeated high-pressure rinses to remove soap residues rather than soaking them in a full tub of rinse water.

Submittals: Copy of the appliance package approved submittal, cut sheet identifying model number and photo of installed appliance

Resources: For more information, visit the ENERGY STAR® web page at:
http://www.energystar.gov/index.cfm?c=clotheswash.pr_clothes_washers
<http://www.energystar.gov/productfinder/product>

E2.04 Energy Star Ceiling Fans

Requirement: Install Energy Star qualified ceiling fans in the main living area and each bedroom of each unit

Points: 2

Intent: Improve the overall efficiency of the building

Submittals: Copy of the electrical plan showing fan locations and type, appliance package approved submittal, cut sheet identifying model number and photo of installed fixture

Resources: http://www.energystar.gov/index.cfm?fuseaction=find_a_product

Deleted: Requirement: - Install Energy Star qualified clothes washers in each unit - ... [2]

Deleted: 1

E2.05 Energy Star Common Area Appliances

Requirement: Install all Energy Star appliances in common areas, defined as amenity spaces for residents use, to include: refrigerator, dishwasher, clothes washer, and vending machines.

Points: 1

Intent: Improve the overall efficiency of the building

Submittals: Copy of the appliance package approved submittal, cut sheet identifying model number and photo of installed appliance

Resources: http://www.energystar.gov/index.cfm?fuseaction=find_a_product

E2.06 Automated Lighting Controls

Requirement: Earn one point for each 25% of the building amenity space and common area square footage that include areas with occupancy sensors. Occupancy sensors shall be equipped to automatically turn lighting off within 15 minutes of all occupants leaving a space and allow "manual off" control. In addition, all occupancy sensor controls shall be either "manual on" or use bi-level switching coupled with manual-on control ("automatic on" programmed to a low light level combined with multi-level circuitry and "manual on" switching for higher lighting levels). Where occupancy sensors and daylighting sensors are utilized, the occupancy sensor shall work in conjunction with the daylighting controls.

Points: 1-4

1 point ≥ 25% & < 50% of amenity and common area square footage equipped with occupancy sensors

2 points ≥ 50% & < 75% of amenity and common area square footage equipped with occupancy sensors

3 points ≥ 75% & <100% of amenity and common area square footage equipped with occupancy sensors

4 points 100% of amenity and common area square footage equipped with occupancy sensors

Intent: Reduce energy demand from the building by incorporating occupancy sensors that turn off lighting when an area is not in use.

Submittals: Electrical plan showing the location of occupancy sensors and identifying the square footage of coverage. Provide the approved submittal for the sensors and photos of the installed sensors

E2.07 Exterior Lighting

Requirement: Meet or exceed the efficiency requirements of the 2018 IECC Chapter 4 Commercial Energy Efficiency for Exterior Lighting C405.4.2.

Points: 3

Intent: Reduce energy consumption associated with lighting.

Submittals: Signed approved lighting submittal, photos of installed lighting and Watt per square foot calc. You may also include the Energy Gauge Summit "Total Building Performance Method for Commercial Buildings" full report, including all input and output reports with lighting power densities (Form 506-2010) or its equivalent, signed by lighting designer or MEP

Resources: - <http://www.energygauge.com/>

Deleted: Requirement: - All non-apartment spaces, except those intended for 24-hour operation or where automatic shutoff would endanger the safety of any building occupants, must have occupancy sensors or automatic bi-level lighting controls. .

... [3]

Formatted: Font:Not Bold

LIGHTING ZONE	DESCRIPTION
1	Developed areas of national parks, state parks, forest land, and rural areas
2	Areas predominantly consisting of residential zoning, neighborhood business districts, light industrial with limited nighttime use and residential mixed-use areas
3	All other areas not classified as lighting zone 1, 2 or 4
4	High-activity commercial districts in major metropolitan areas as designated by the local land use planning authority

TABLE C405.4.2(2)
LIGHTING POWER ALLOWANCES FOR BUILDING EXTERIORS

	LIGHTING ZONES			
	Zone 1	Zone 2	Zone 3	Zone 4
Base Site Allowance	350 W	400 W	500 W	900 W
Uncovered Parking Areas				
Parking areas and drives	0.03W/ft ²	0.04 W/ft ²	0.06 W/ft ²	0.08 W/ft ²
Building Grounds				
Walkways and ramps less than 10 feet wide	0.5 W/linear foot	0.5 W/linear foot	0.6 W/linear foot	0.7 W/linear foot
Walkways and ramps 10 feet wide or greater, plaza areas, special feature areas	0.10 W/ft ²	0.10 W/ft ²	0.11 W/ft ²	0.14 W/ft ²
Dining areas	0.65 W/ft ²	0.65 W/ft ²	0.75 W/ft ²	0.95 W/ft ²
Stairways	0.6 W/ft ²	0.7 W/ft ²	0.7 W/ft ²	0.7 W/ft ²
Pedestrian tunnels	0.12 W/ft ²	0.12 W/ft ²	0.14 W/ft ²	0.21 W/ft ²
Landscaping	0.03 W/ft ²	0.04 W/ft ²	0.04 W/ft ²	0.04 W/ft ²
Building Entrances and Exits				
Pedestrian and vehicular entrances and exits	14 W/linear foot of opening	14 W/linear foot of opening	21 W/linear foot of opening	21 W/linear foot of opening
Entry canopies	0.02 W/ft ²	0.25 W/ft ²	0.4 W/ft ²	0.4 W/ft ²
Loading docks	0.35 W/ft ²	0.35 W/ft ²	0.35 W/ft ²	0.35 W/ft ²
Sales Canopies				
Free-standing and attached	0.04 W/ft ²	0.04 W/ft ²	0.6 W/ft ²	0.7 W/ft ²
Outdoor Sales				
Open areas (including vehicle sales lots)	0.02 W/ft ²	0.02 W/ft ²	0.35 W/ft ²	0.05 W/ft ²
Street frontage for vehicle sales lots in addition to "open area" allowance	No allowance	7 W/linear foot	7 W/linear foot	21 W/linear foot

E2.08 Insulate Hot Water Pipes

Requirement: Piping carrying liquid with temperatures greater than 105°F must have a minimum of 1" of insulation. Pipes over 1.5" in diameter must have a minimum of 1.5" of insulation. Extent and location to be determined by ASHRAE 90.1-2007 Section 7.4.3 or local code. All pipes greater than 3/4" in diameter conveying hot water must be insulated.

Points: 1

Intent: Improve the overall efficiency of the building

Submittals: Photos of insulated hot water pipes or approved submittal of selected insulation

E2.09 Ductwork Sealed With Mastic

Requirement: Seal all duct connections with mastic. This includes rigid duct connections to air handlers AND flex duct connections to junction boxes and supply vents.

Points: 2

Intent: Minimize the leakage of conditioned air increasing the comfort in the units and improving the overall energy efficiency of the building.

Submittals: **Photos of installed ducts and air handlers with mastic.** Submit a representative number of photos (3+) from a minimum of 10 units.

E3 Performance Verification/Testing

E3.01 Commissioning

E3.01.01 Basic Commissioning

Requirement: Fundamental Building Systems Commissioning: Implement or have a contract in place to implement all of the following fundamental best practice commissioning procedures
Commissioning includes verifying installation, functional performance testing, training and documentation for EACH of the commissioned system or components as compared to the design intent, training of owner designated O&M professional and completion of the operation and maintenance manuals.

The minimum requirements for serving as the commissioning agent are:

1. Must have served as the commissioning agent of record on at least two (2) projects certified by a state or nationally recognized green certification program, OR
2. Participated in the commissioning of at least two (2) green certified projects and have a letter of recommendation from the project's commissioning agent of record, OR
3. Possess one of the following designations:
 - a. CPMP - Commissioning Process Management Professional Certification (ASHRAE)
 - b. CEM - Certified Energy Manager (AEE - Association of Energy Engineers)
 - c. PE - Professional Engineer
 - d. ACG Commissioning Agent - (ACG - AABC Commissioning Group)

Deleted: Requirement: - Fixtures must include automatic switching on timers, photocells, or motion sensor controls, OR provide > 95 lumens/watt, OR be solar powered - except fixtures intended for 24-hour operation, required for security, or located on apartment balconies. -

... [4]

The commissioning agent (CxA) be an independent party hired by the owner, reporting to the owner. If the CxA is contracted as part of the design or construction team, the CxA must have in their contract that they report directly to the owner with respect to performance verification and they must disclose any involvement with the design team to verify unbiased ability to verify OPR and BOD.

Points: 4

Intent: Verify that the OPR and BOD have been met, identify equipment shortcomings and verify corrections to failures of equipment start-up or inadequate operations

Submittals: Submit a copy of the CxA signed contract (black out fees), OPR, BOD, Commissioning Plan and Commissioning Report. The commissioning Plan should include an overview of the commissioning process, a list of systems and features, the commissioning participants and their roles, a communication and management plan, an outline of the scope of commissioning tasks, and a schedule. Where possible, include copies of the completed startup checklists. The commissioning report should contain the analysis of whether each commissioned system or component meets the design intent, specifications, was properly installed, passed the functional performance tests, was properly documented in the O&M manuals, and was covered in the operator training.

Resources: <http://www.wbdg.org/project/buildingcomm.php>

E3.01.02 Advanced Commissioning

Requirement: Advanced Building Systems Commissioning: In addition to fundamental commissioning, retain a CxA prior to completing the design phase of the project.

The minimum requirements for serving as the commissioning agent for advanced commissioning are serving as the commissioning agent of record on at least two (2) projects certified by a state or nationally recognized green certification program.

Points: 5

Intent: Provide a design review of the design documents including feedback to the MEP regarding design and compliance with the OPR and BOD. Verify appropriate measures are incorporated into the CD's for compliance with the projects efficiency goals. Identify equipment shortcomings and verify corrections to failures of equipment start-up or inadequate operations

Submittals: Submit all documentation for Basic Commissioning and a copy of the list of recommendations provided to the owner and design team during the Design Document review.

Resources: <http://www.wbdg.org/project/buildingcomm.php>

E3.02 Midpoint Inspections

E3.02.01 Thermal Bypass Inspections

Requirement: Complete and submit the approved thermal enclosure checklist (thermal enclosure checklist may be found in the Application & Checklist V3). A thermal enclosure checklist must be completed for a minimum of two units on each residential floor (1 exterior and 1 interior) of the project. The form must be signed, dated, and supported by representative photos for each unit inspected. Where deficiencies are

noted, follow up by the project DP is required either by an affidavit or further supporting photos showing corrections.

Points: 2

Intent: The Thermal Bypass Checklist is a 16-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: A thermal enclosure checklist along with a summary of deficiencies, photos, corrective actions and corrected photos

Resources:

E3.02.02 Ductwork Smoke Testing for leakage

Requirement: Perform smoke testing of HVAC ductwork at rough for two units per floor (1 exterior and 1 interior unit) and submit ductwork smoke leakage test form (see RHC smoke testing template for a sample of the required form) showing areas of leakage and corrections made. Submit sample photos of before and after repairs.

Points: 2

Intent: Identify and correct any leaks associated with ductwork prior to the installation of drywall to improve the overall building efficiency. Smoke testing ductwork at rough-in allows otherwise invisible leaks to be identified and sealed while it is still accessible. This process provides visual and procedural education for the HVAC installers potentially resulting in improvement on future jobs. Note that inspector must have correctable vision. Leaks are NOT quantified at this stage because you need leakage from the boots temporary covers to have a path for the fog to flow through the system plus there may be other leakages in the system after the rough in. Other leaks, which are recommended for additional sealing, are drywall to boot interface and leakages associated with the air handler cabinet, along with what other trades may have damaged by their work around the ducts during rough in.

Submittals: Photos of duct testing in progress and a summary report of findings and corrections.

Resources:

E3.02.03 Duct Testing/Leakage

Requirement: Test the duct leakage using the RESNET approved sampling protocol: test 1st 7 units, if all 7 units achieve Qn total of .08 or less go on to the next seven units. If any further sampling of 1 out 7 does not achieve the above Qn then every unit in that batch of seven must be tested. (For example, : 100 unit project would require a minimum of 20 successful Duct Blaster tests to capture these 4 points.) Alternately Perform Duct Blaster test for one complete floor and upon achieving the above noted Qn, 2 points may be awarded.

Points: 4 points RESNET approved sampling protocol
2 points Testing 1 floor for educational purposes

Intent: Improve the energy efficiency of the units

Submittals: Duct blaster testing form as referenced in Fl. Code R402.4.1.2

Resources: RESNET.us

- Formatted: Font:Calibri, 11 pt
- Formatted: Font:Calibri, 11 pt, No underline
- Formatted: Font:Calibri, 11 pt
- Formatted: Font:Calibri, 11 pt, Not Highlight
- Formatted: Font:Calibri, 11 pt

- Formatted: Font:Calibri, 11 pt
- Formatted: Font:Calibri, 11 pt, Not Superscript/ Subscript
- Formatted: Font:Calibri, 11 pt

E3.03 Blower Door Test Units

Requirement: Post-construction, multi-point blower door testing of units must be tested by a RESNET or BPI energy rater following the RESNET sampling protocol for the entire project. Alternatively perform blower door testing on two complete floors to establish the worst ACH50 .

Points: 5 points for ACH50 < 5
4 points for ACH50 < 6
3 points for ACH50 < 7
2 points for testing 2 floors

Points are awarded based on worse-case test results.

Intent: Improve the overall efficiency of the building
Submittals: Approved blower door testing form as referenced in Fl. Code R402.4.1.2
Resources: RESNET.us

E3.04 Complete Testing and Balancing in All Residential Units

Requirement: Mechanical Electrical Plumbing (MEP) Engineering Firm works with the Architect or design team leader to verify field installed equipment meet OPR, BOD and is installed and operating correctly. In addition to the required prerequisite testing and verification, testing and verification of **ALL** of the residential units shall be performed by a licensed engineer or a professional certified by the National Environmental Balancing Bureau (NEBB), the Associated Air Balance Council (AABC), or other nationally accredited organization.

Points: 5
Intent: Verify performance of mechanical systems to ensure proper performance.
Submittals: Copy of the testing and balancing report
Resources:

E4 Design

E4.01 Washer and Dryer Outside Conditioned Space

Requirement: Locate washer and dryer outside of conditioned space —garage, unconditioned utility room, etc. The location must be separated from the main conditioned space of the building. The unconditioned utility room must meet the following requirements:

- Insulate the walls between the utility room and conditioned space (shared walls).
- Finish the shared walls and ceiling (if below conditioned space) with drywall.
- Seal all holes and air leakage pathways through the walls, floor, and ceiling that can connect the utility room to the conditioned space (plumbing, gas lines, wiring, and bottom plate).
- Install a non-louvered door that is weather-stripped and equipped with a properly adjusted threshold.

Points: 1

Intent: Washers and dryers emit large quantities of heat under operation. If located within the conditioned space, they represent an additional load on the home's air conditioning system. If the washer and dryer are located within the conditioned space, points can be achieved under Health-Ventilation by providing a makeup air source.

Submittals: Floorplan identifying location of laundry room

Resources:

E4.02 Light Colored Interior Finishes

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 light colored walls/ceiling in main living areas
 2 points for walls, ceiling, and floors

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

Submittals: Photo of completed project interior, paint selection and LRV

Resources:

MOVED COMPACT HOT WATER TO WATER SECTION

E5 Renewable Energy

E5.01 Renewable Energy Production

Requirement: Supply a fraction of the building's total energy use (as expressed as a fraction of annual energy cost) through the use of on-site renewable energy systems.

Points: 1 point per 1% of the building power provided. Maximum 20 points.

Intent: Encourage improved efficiencies and reduce reliance on non-renewable energy sources

Submittals: Plan detail highlighting installed renewable energy system and photos

Resources:

E5.02 Green Power

Requirement: Provide a percentage of the building's electricity from renewable sources by engaging in at least a one-year renewable energy contract to purchase green power. Earn one point by purchasing green power for 50% of the building total annual energy demand from certified green power generator for one year, 2 points is available for purchasing 100% for 1 year and 3 points available for purchasing 100% for 2 years.

Points: 1 point: 50% for 1 year
 2 points: 100% for 1 year
 3 points: 100% for 2 years

Earn 1 bonus point for Certified Green Power which is provided by renewable generation in Florida.

Deleted: 1 point for light colored walls in bedrooms

Formatted: Not Highlight

Formatted: Highlight

Moved down [1]: E4.03 - Compact Hot Water Distribution [5]

Deleted: 3

Intent: Encourage the development and use of grid-source, renewable energy technologies on a net zero pollution basis. Renewable sources are as defined by the Center for Resource Solutions (CRS) Green-e products certification requirements. Green power may be procured from a Green-e certified power marketer, a Green-e accredited utility program, or through Green-e certified Tradable Renewable Certificates.

Submittals: Provide an executed copy of the contract for the purchase of renewable energy indicating the types of renewable purchased and the total kWh of energy production capacity.

Resources:

E5.03 Solar Hot Water

Requirement: Each unit is serviced by a solar hot water system

Points: 1

Intent: Encourage the use of renewable energy

Submittals: Plan detail highlighting design, equipment cut sheet and photos of installed equipment.

Resources:

E5.04 Solar Pool Heat

Requirement: Install Solar Pool Heater

Points: 1

Intent: Encourage the use of renewable energy

Submittals: Plan detail highlighting design, equipment cut sheet and photos of installed equipment.

Resources:

CATEGORY 3: WATER

REQUIRED CATEGORY MINIMUM 10 POINTS

Exterior

W1 Installed Landscape

W 1.01 Plants/trees from 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. Plants shall be listed with high or moderate drought tolerance by Florida Friendly Landscape, WaterWise (water management district) or local drought tolerant list.

Points:
1 Point - 60% drought tolerant
2 Points - 80% drought tolerant
3 Points - 100% drought tolerant

Intent: Decrease the water resources used to irrigate landscape

Submittals: Plant list identifying drought tolerant vegetation, landscape plan, and percentage of drought tolerant vegetation calculation.

Resources: -<http://www.sjrwmd.com/waterwiselandscapes/>, <http://fyn.ifas.ufl.edu>, <http://www.floridawaterstar.com/floridawaterstar/>.

W 1.02 Turf

Requirement: If sod is installed, do not install turf in densely shaded areas (<60% shade on June 21) and only use Bahia, Zoysia, or Bermuda grass.

Points:
1 point: Install only drought tolerant turf < 50%
2 points: Install only drought tolerant turf < 40%
3 points: Install only drought tolerant turf < 30%
4 points: Install only drought tolerant turf < 20%
5 points: Install only drought tolerant turf < 10%

Intent: Turf is generally the largest consumer of water in the landscape, and most types will not flourish in shady areas. Use of drought tolerant plants in shaded areas. Excluding turf from the landscape saves both potable and non potable water.

Submittals: Landscape plan, and photos of the completed project.

Resources: -

W 1.03 Non-Cypress Mulch

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

Points: 2

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 plans and photos of installed vegetation

Resources: -

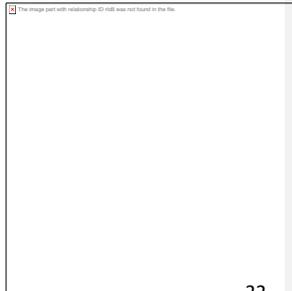
W2 Installed Irrigation

W 2.01 Properly Installed Irrigation

Requirement: Comply with the requirements below:

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 $\frac{3}{4}$ " 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 $\frac{3}{4}$ " of water per application. Applying more than $\frac{3}{4}$ " 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 $\frac{3}{4}$ " 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 (greater than 30 gph (gallons per hour) 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

Comment [SBC1]: 70% proposed rate rejected 2/19/13. Leave at 60%; Need to clarify that the "30 gph" is per emitter, not total area application.



depicted in the photo below (courtesy of St. Johns River Water Management District)

Comment [SBC2]: Photo Added

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

Comment [SBC3]: Section Moved from #7 to #5

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.

Intent: To facilitate increased efficiency in the irrigation design and promote water conservation.
Points: 5
Submittal: Copy of the irrigation design, photos of installed irrigation, copy of field testing of system, and a copy of the instructions.
Resources: <http://floridawater.com/floridawaterstar/irrigation.html> and Florida Friendly Best Management Practices for Protection of Water Resources by the Green Industries, <http://www.floridayards.org/professional/index.php>.

W 2.02 Only Drip Irrigation Is Used On Site

Requirement: Install only drip irrigation systems to service installed landscape
Points: 3
Intent: Reduce water used for irrigation
Submittals: Copy of the irrigation design, and photos of installed irrigation.
Resources: -

W 2.03 No Permanent in-Ground Irrigation System

Requirement: Install only drip irrigation systems to service installed landscape
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: Provide a signed letter from the project owner.

Resources: N/A

W 2.04 Soil Moisture Sensors

Requirement: Soil moisture sensors or other weather-based irrigation is installed appropriately to control irrigation at ground level and for outdoor amenities.

Points: 2

Intent: FGBC encourages innovative technologies to conserve water. Recent technologies such as soil moisture sensors or weather-based controllers are ways of conserving irrigation water

Submittals: Cut sheet of sensor and photos of installed sensors

Resources: -

W3 Water Source Conservation

W 3.01 Reclaimed Water for Irrigation

Requirement: Project is supplied with municipal reclaimed water for irrigation

Points: 1

Intent: Reduce potable water used for irrigation

Submittals: Letter from municipality indicating reclaimed water is supplied and used on the project.

Resources: -

W 3.02 Rainwater

Requirement: Install rainwater harvesting collection and storage system. The minimum requirement for this credit is a simple collection system, which for all intents and purposes would be for demonstration. Achieve additional points, per the break down below, as the rainwater collection system increases in functional use to replace both potable and non-potable water.

1. Simple Collection: Used to supplement irrigation and for demonstration purposes.
2. Dedicated use for irrigation: Harvested Rainwater is used to supply irrigation to landscape.
3. Rainwater is collected and used in lieu of potable water for flushing toilets and urinals: Rainwater is collected and fed to dual piping system as greywater to reduce potable water demand inside the building.
4. Collected and treated to potable standards for whole building use: Water is treated to potable standards and supplements whole building water use

Points: 1 point: **Simple Collection**

3 points: Collection with dedicated use for irrigation. Collected rainwater must supply a minimum of 25% of the water necessary for irrigation.

5 points: Collection for toilet/urinal flushing. Collected rainwater must supply a minimum of 25% of the water required for toilet/urinal flushing.

10 points: Rainwater is collected and treated to potable standards for use throughout the building. Rainwater collected must provide a minimum of 25% of the buildings annual water use.

Intent: Decrease both potable and non potable water use by collecting and using rainwater
Submittals: Construction drawings indicating design and location of system
Resources:

W 3.03 Greywater

Requirement: Greywater system is installed to reduce demand on potable water. System must have a specific collection source and a dedicated use. Greywater system is installed to reduce demand on potable water. System must have a specific collection source and a dedicated use

Points: **3 points:** Collection with dedicated use for irrigation. Collected and treated greywater must supply a minimum of 25% of the water necessary for irrigation.
5 points: Collection for toilet/urinal flushing. Collected and treated greywater must supply a minimum of 25% of the water required for toilet/urinal flushing.
10 points: Greywater is collected and treated to potable standards for use throughout the building. Greywater collected must provide a minimum of 25% of the buildings annual water use.

Intent: Reduce the consumption of potable water by using alternative sources. For example, air conditioner condensate could be used to refill site water features, used for irrigation, or as make-up water chillers

Submittals: Construction drawings indicating design and location of system
Resources:

Interior Water

W4 Fixtures

W4.01 Low Flow Toilets

Requirement: All installed toilets must comply with the low-flow criteria AND have a minimum MaP (Maximum Performance) rating of 600 OR are WaterSense certified. For dual flush toilets to receive one point, ONE of the two flush options must be ≤ 1.1 gpf.

Points: **Water closets in the individual units**

1 point	all toilets ≤ 1.28 gallons per flush (gpf)
1 point	all dual flush with one flush option ≤ 1.6 gpf and one ≤ 1.1 gpf
2 points	all dual flush (one flush option must be < 1.1 gpf) or single-flush toilets with ≤ 1.1 gpf
3 points	all toilets are single flush < 1.1 gpf

1 Bonus point is available if all water closets in the common areas are low flow

Intent: Toilets represent the largest source of indoor water use in buildings, accounting for up to 30%-40% of water demand. The Florida building code and National Energy Policy Act of

Formatted: Indent: First line: 0"

Comment [RC4]: Conflict between 2 pt and 3 pt for sgl flush toilets

Comment [RC5]: Don't we mean "less than"here? Otherwise conflicts with the 2 pt criterium.

Comment [SBC6]: 1/6/15 – change 3points to "less than 1.1 gpf, not less than or equal to.

Comment [SBC7]: Per Committee votes:
W1.1-Toilets - Approved 4/7/15
On a motion by Mr. Ritter, seconded by Mr. Conn, the committee unanimously approved the following point allocations for criteria **W1.1-Toilets** in the Water Category:
1 point .all toilets ≤ 1.28 gallons per flush (gpf)
1 point .all dual flush with one flush option ≤ 1.6 gpf and one ≤ 1.1 gpf (**Added 5/5/15**)
2-points — all dual flush (one flush option must be ≤ 1.6 gpf and one ≤ 0.8 gpf)
2 points .all dual flush (one flush option must be < 1.1 gpf) or single-flush toilets with ≤ 1.1 gpf (**Approved 9/1/15**)
3 points .all toilets are single flush ≤ 1.1 gpf

The Home Standard requires:
All Toilets installed in the home flush at volumes less than or equal to 1.28 gallons/flush
2 points

Deleted: 1 point: ≤ 1.28 gpf ... [6]

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's 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're about 20 percent more water-efficient.

Submittals: Photo of installed low flow fixtures and cut sheets

Resources: For a list of high efficiency commodes that have earned the WaterSense® label, visit <http://www.epa.gov/watersense/pp/het.htm>. For MaP ratings of commercial residential (flushometer) toilets, select "Reports" from <http://www.veritec.ca> (Veritec Consulting, Inc.). For MaP and Water-Sense combined results for Toilets (commercial and non), visit http://www.cwwa.ca/freepub_e.asp.

W4.02 Low Flow Lavatory Faucets in Units

Requirement: All installed lavatory fixtures must comply with the low flow requirements.

Points: 2 points all lavatory faucets are ≤ 1.5 gpm
3 points all lavatory faucets are ≤ 0.5 gpm

1 Bonus point is available if all of the lavatory faucets installed in the common areas are ≤ 1.5 gpm or Motion Sensor self closing faucet (0.25 gal/metering cycle Max)

Intent: Reduce potable water used inside the building

Submittals: Photo of installed low flow fixtures and cut sheets

Resources:

W4.03 Low Flow Kitchen Faucets in Units

Requirement: All installed kitchen fixtures must comply with the low flow requirements.

Points: 1 point: ≤ 2.0 gallons per minute (gpm)
2 points: ≤ 1.5 gpm OR WaterSense Certified
1 Bonus point is available if all of the kitchen faucets installed in the common areas are ≤ 2.0 gpm

Intent: Reduce potable water used inside the building

Submittals: Photo of installed low flow fixtures and cut sheets

Resources:

W4.04 Low Flow Shower Heads in Units

Requirement: All installed showerheads must comply with the low flow requirements. A maximum of 1 showerhead per 15sf of shower compartment is allowed

Points: 2 point: ≤ 2.0 gallons per minute (gpm)
1 Bonus point is available if all of the showerheads installed in the common areas are ≤ 2.0 gpm

Intent: Reduce potable water used inside the building

Submittals: Photo of installed low flow fixtures and cut sheets

Formatted: Indent: Left: 0", First line: 0"

Deleted: 1 point: ≤ 1.5 gallons per minute (gpm) ... [7]

Resources:

W5 Appliances and Equipment

W5.01 High Efficiency Water Saving Clothes Washer

Requirement: All installed clothes washers must comply with the stated Water Factor requirement.

Points: 2 Point for Water Factor ≤ 6

3 Points for Water Factor ≤ 4

1 Bonus point is available if all of the clothes washers installed in the common areas have a Water Factor ≤ 6

Intent: Reduce water consumption

Submittals: Photo of installed high efficiency clothes washer and cut sheets

Resources:

W5.02 Tankless, Boiler, or Recirculating Hot Water Heaters

Requirement: Install on demand tankless hot water heaters or hot water recirculation system

Points: 2

Intent: Reduce water consumption

Submittals: Photo of installed tankless water heaters and cut sheets or schematics of recirculation system

Resources:

W5.03 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. 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 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 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: Floorplan showing location of hot water heaters/distribution system

Resources:

W6 Water Certifications

W6.01 Florida WaterStar Certification

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

Points: 5

Moved (insertion) [1]

Deleted: E4

Formatted: Highlight

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: Copy of WaterStar Certification

Resources: <http://floridaswater.com/floridawaterstar/residential.html>
www.epa.gov/watersense/

Deleted: Requirement: ..Project achieves Florida WaterStar Certification .. [8]

W6.02 Florida Friendly Landscape Recognition

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: <http://fyn.ifas.ufl.edu/materials/new%20construction%20checklist.pdf>
http://fyn.ifas.ufl.edu/materials/FYN_Handbook_vSept09.pdf

Deleted: Requirement: ..Project achieves Florida Friendly Landscape Recognition .. [9]

CATEGORY 4: SITE

REQUIRED CATEGORY MINIMUM 5 POINTS

S Prerequisite 1: Copy of Stormwater Pollution Prevention Plan (SWPPP) and Florida Department of Environmental Protection (FDEP) Notice of Intent (NOI) onsite

Requirement: Keep copy of SWPPP & FDEP National Pollutant Discharge Elimination System (NPDES) Notice of Intent (NOI) onsite for contractor to implement & maintain SWPPP Best Management Practices (BMP) as designed by civil engineer or SWPPP designer.

Points: Prerequisite - Required

Intent: Reduce the quantity and improve the quality of stormwater discharge that leaves the jobsite.

Submittals: Details of stormwater pollution prevention plan and photos of installed stormwater pollution prevention measures.

Resources:

S Prerequisite 2: Erosion and Sedimentation Control

Requirement: Design a sediment and erosion control plan, specific to the site that conforms to United States Environmental Protection Agency (EPA) Document No. EPA 832/R-92-005 (September 1992), Storm Water Management for Construction Activities, Chapter 3, OR local erosion and sedimentation control standards and codes, whichever is more stringent. The plan shall meet the following objectives:

- Prevent loss of soil during construction by stormwater runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse.
- Prevent sedimentation of storm sewer or receiving streams and/or air pollution with dust and particulate matter.

Points: Prerequisite - Required

Intent: Reduce the quantity and improve the quality of stormwater discharge that leaves the jobsite.

Submittals: Copy of erosion control plan, site details and photos

Resources:

S1 Site Selection

S1.01 Select Appropriate Site

Requirement: Do not develop buildings, roads, or parking areas on portions of sites that meet any one of the following criteria:

- Prime farmland as defined by the United States Department of Agriculture.
- Land which elevation is lower than 5 feet above the elevation of the 100-year flood as defined by FEMA.

- Land that is specifically identified as habitat for any species on Federal or State threatened or endangered lists.
- Within 100 feet of any wetlands as defined by 40 CFR, Parts 230-233 and Part 22, and isolated wetland or areas of special concern identified by state or local rule OR greater than distances given in state or local regulations as defined by local or state rule or law, whichever is more stringent.
- Land that was public parkland prior to acquisition for the project, unless land of equal or greater value is accepted as parkland in trade by the public landowner (Park Authority projects are exempt).

Points: 1

Intent: Avoid development of environmentally sensitive sites.

Submittals: Site survey and Google earth map

Resources:

S1.02 Within an FGBC Certified Green Local Government

Requirement: Build within an FGBC certified 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: www.floridagreenbuilding.org/index.cfm/go/public.certifiedProjects

Deleted: 1

S1.03 Within an FGBC Certified Green Land Development

Requirement: The high rise is built within a FGBC certified Green Land Development. Below is a list of the certified land developments. Enter the appropriate points based on the certified land development.

Florida Green Building Coalition				
Calculating Bonus Points for Building in an FGBC Certified Development				
Development	FGBC Version	Score	Required	(LC1.1)
				% Above Certification Requirement
Abacoa	2	210	203	3%
Alys Beach	6	212	200	6%
FishHawk Ranch	5	221	206	7%
Glencairn Cottages	4	203	202	0%
Granada Park	1	206	200	3%
Harmony	4	231	204	13%
Lakewood Ranch	3	233	200	17%
Longleaf	4	210	201	4%
Oakland Park	3	213	212	0%
RiverCreek Preserve LLC	3	340	200	70%
Venetian Golf and River Club	1	210	204	3%
Verandah	1	241	208	16%
Village at Gulfstream Park	5	203	201	1%

Points: 2-6

Additional 1 bonus point (the higher the green development score) for each 10% the community scores beyond the adjusted minimum compliance of the FGBC Land Development Standard. A maximum of 6 points is available for this item.

Submittals: Name of development.

Resources: A database of certified FGBC Land Developments can be found at: www.floridagreenbuilding.org.

S1.04 High Density

Requirement: Project has a minimum of 30 dwelling units per acre

Points: 1

Intent: Encourage compact development

Submittals: Number of units per acre

Resources:

S1.05 Greyfield/Redevelopment of an existing site

Requirement: Locate the building on a site that has existing hardscape or other structure that must be replaced. To achieve this credit, the site must have utility connections available within 1/8 mile boundary.

Points: 3

Intent: Encourage redevelopment, increase density and reduce the need for additional infrastructure.

Submittals: Copy of a site plan with the existing conditions at the time of permit application.

Resources: Many economic development boards have a list of existing sites ready for redevelopment.

S1.06 Brownfield Redevelopment

Requirement: Development of any EPA or Federal/State/Local Government Classified Brownfield and provide remediation as required by EPA's Sustainable Redevelopment of Brownfields Program.

Points: 5

Intent: Rehabilitate and use damaged sites

Submittals: Provide a copy of the Phase II Environmental Site Assessment OR a letter from a local, state or federal regulatory agency confirming that the site is classified as a brownfield.

Resources: <http://epa.gov/brownfields/>

S1.07 Access to Basic Services (Connectivity)

Requirement: Locate the building on a site that is within 1/2 mile of and has safe and walkable access to basic services (this can be measured as the crow flies). Each type of service may only be

Deleted: Requirement: .. Build within an FGBC certified Green Land Development ... [10]

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	
Library	Other Neighborhood-serving retail
Other office building or major employment center	

Points: **1-5**

1 point awarded for each 3 unique services

Intent: Reduce vehicle miles traveled by locating building close to basic services.

Submittals: Aerial context map with building location, and location and type of basic services within ½ mile.

Resources:

Formatted: Indent: First line: 0"

S1.08 Access to Public Transportation

Requirement: Site is located within 1/2 mile of an existing or funded rail node OR within 1/4 of mile safe and walkable access to mass transit of at least one active bus stop, trolley or ride share (this can be measured as the crow flies).

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: Reduce traffic, greenhouse gas emissions, need to expand roadways and overall pollution from automobile use.

Submittals: Regional/local drawing or transit map highlighting the building location and the fixed rail stations and bus lines, and indicate the distances between them. Include a scale bar for distance measurement.

Resources: Local jurisdiction website.

S2 Site Enhancement

S2.01 Tree Preservation

Requirement: Protect existing trees during construction of project by employing the following techniques to at least 36 inches of tree caliper measured at chest height (i.e. nine 4-inch trees, three 12-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: 1

Intent: Preserve site features

Submittals: 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:

S2.02 Minimize Site Disturbance

Requirement: The maximum square footage of the site that may be disturbed, excluding the building footprint, must be less than or equal to the building footprint.

Points: 1

Intent: Minimize site disturbance.

Submittals: Copy of project site indicating building footprint, square footage of building footprint and outlining site cleaning operation boundaries and staging areas. Provide photos of site demonstrating minimal site disturbance.

S2.03 Site Open Space

Requirement: Exceed minimum zoning requirements for open space by 25%. Stormwater retention/detention areas may be included in the open space calculations if they are specifically designed for dual use/function, for example, recreation areas that function as dry detention may be included in the calculation. Earn additional points for shaded open space: a minimum of 50% of the open space must be shaded by structures or vegetation within 10 years.

Points: 2 points: Increased Open Space

4 points: Increased Shaded Open Space

Intent: Provide natural open space with shade to reduce the heat islands around the building, provide building occupants with outdoor spaces, and enhance the environment with trees.

Submittals: Provide a site plan with the building footprint, square footage of building footprint (or a copy of the local zoning open space requirements) that shows the designated open space and landscape plan. Also provide a list of trees and their projected canopies after 10 years.

Resources:

S3 Transportation

S3.01 Bicycle Storage

Requirement: Project must provide securing locations for bicycles for 5% of total occupants. Bike parking must be located within the same or closer proximity than traditional parking.

Points: 1

Intent: Reduce pollution and land development impacts from automobile use.

Submittals: Provide site plan identifying bike storage, cut sheet of bike rack, and photo of installed bike storage

Resources:

S3.02 Alternative Fuel Vehicles

Requirement: Provide preferred parking and or accommodations based on the requirements listed below, for alternative fuel, hybrid, high capacity or electrical vehicle. Points are available based on the percentage of preferred parking and type of accommodations installed.

- Points:** 1 - 4
- 1 point:** 3% of the total parking spaces provided are designated for alternative fuel, hybrid, high capacity or electrical vehicle
 - 1 point:** 10% of the total parking spaces are designed and constructed to include conduit and dedicated electrical capacity that will allow for non-destructive installation of electric chargers at a future date
 - 2 points:** 1.5% of the total parking spaces provided are designated for electrical vehicle charging. Provide a minimum of one 220 volt 40 Amp outlet at each parking space
 - 3 points:** 3% of the total parking spaces provided are designated for electrical vehicle charging. Provide a minimum of one 220 volt 40 Amp outlet at each parking space

- Intent:** Reduce pollution and land development impacts from automobile use.
- Submittals:** Plan identifying location of preferred parking, description of charging apparatus and photos of installed equipment
- Resources:**

S3.03 Minimize Provided Parking

- Requirement:** Parking provided on site must be 10% less than the parking required by the local land development codes.
- Points:** 1
- Intent:** Reduce areas that may be impervious, create heat islands, or discourage use of multimodal transportation. Design team must work with the local jurisdiction to reduce the typically required parking by proposing shared parking or other multimodal transportation methods.
- Submittals:** Provide a calculation of the zoning required parking spaces, a letter from the local jurisdiction indicating the projects parking requirements and a site plan with a total parking count.
- Resources:**

S3.04 Compact or Automated Parking

- Requirement:** Incorporate lifts, elevators or valet parking to reduce the structure required to support the parking demands of the high rise. Earn 1 point if a minimum of 10% of the total parking spaces provided are stack parking, elevators, or lifts. Earn 2 points for 20% and 3 points for 30%. Three points are also available if the project has 100% valet parking.
- Points:** 1 – 3
- Intent:** Minimize the site footprint of construction materials associated with on site parking
- Submittals:** Detail and description of plan and system
- Resources:**

S4 Heat Islands

S4.01 Roof

Requirement: To qualify for this credit, the roof materials must be Energy Star, have a SRI ≥ 78 or be a vegetated roof structure. If vegetated, the vegetated roof must have a minimum of 80% Florida friendly low water vegetation installed. One point is awarded for each 20% of roof area that is reflective, vegetated, or shaded by solar electric devices.

Points:

- 1 point** $\geq 20\%$ and $< 40\%$ Energy Star, reflective or vegetated roof
- 2 points** $\geq 40\%$ and $< 60\%$ Energy Star, reflective or vegetated roof
- 3 points** $\geq 60\%$ and $< 80\%$ Energy Star, reflective or vegetated roof
- 4 points** $\geq 80\%$ Energy Star, reflective or vegetated roof

Intent: Reduce heat island effect of site development.

Submittals: Provide a roof drawing with area calculations and cut sheets for the materials used. (Amenity decks and finished roof terraces shall be considered under Credit 4.2: Hardscape)

Resources:

S4.02 Shaded, Covered or High Albedo Hardscape

Requirement: Shade, cover or use high albedo hardscape for a minimum of 40% of the site hardscape. For the purpose of this credit site hardscape includes roads, sidewalks, courtyards, amenity decks, and parking lots. Areas square footage that may be included in this calculation are hardscape materials with a SRI ≥ 78 , a LRV ≥ 60 , or shaded within 10 years. The building footprint, ie. square footage of roof, is NOT considered hardscape unless used as a rooftop terrace amenity. Hardscape shaded by photovoltaic panels or other systems that are generating electricity can be included in the shade square footage calculation and are exempt from meeting the SRI ≥ 78 requirement.

Points:

- 2 point: 40% hardscape coverage**
- 3 point: 60% hardscape coverage**
- 4 point: 80% hardscape coverage**

Intent: Reduce heat islands of the developed site.

Submittals: Provide a site plan identifying all the site features and a cut sheet for any reflective materials used to achieve this credit.

Resources:

S4.03 Under Building Parking

Requirement: A minimum of 50% of the parking shall be located under the building.

Points: 3

Intent: Reduce heat island effect of site development and vertical construction.

Submittals: Plan details for project parking.

Resources:

Deleted: IF MEMORY SERVES THERE IS AN ERROR IN XLS - CHECK DESCRIPTION - CHECK LRV'S IN HOMES AND COMMERCIAL ARE THEY ALL 50 OR 60?

Formatted: Highlight

S4.04 Building Exterior

Requirement: To qualify for this credit, a minimum of 20% of the exterior wall surface area minus the glazing must have a SRI \geq 60, LRV \geq 60, or be shaded by tree canopy within 10 years. One additional point is awarded for each additional 20% of reflective or shaded exterior wall surface area.

Points:

- 1 point** \geq 20% and $<$ 40% reflectent or shaded exterior wall
- 2 points** \geq 40% and $<$ 60% reflectent or shaded exterior wall
- 3 points** \geq 60% and $<$ 80% reflectent or shaded exterior wall
- 4 points** \geq 80% reflectent or shaded exterior wall

Intent: Reduce heat island effect of site development and vertical construction.

Submittals: Provide a cut sheet of the exterior wall coating/paint and any shading calculations of claimed.

References: www.sherwin-williams.com/architects-specifiers-designers/specs-and-green-solutions/
www.texcote.com/specs.php

Comment [SBC8]: Need additional paint mfg resources

Comment [BK9R8]: <http://www.benjaminmoore.com/en-us/for-your-home/green-promise-environmentally-friendly-paint.jsessionid=vhQvXfLbLykQvyp0tvGpBvrqjgBWHmbWLb6Dyv3SjpXhzz2rT3yl-222297793!NONE>

S5 Light Pollution Reduction

S5.01 Building, Amenity Desk, and Site Lighting are Dark Sky Compliant

Requirement: Do not exceed the light levels and uniformity ratios recommended by the Illuminating Engineering Society of North America (IESNA) Recommended Practice Manual: Lighting for Exterior Environments (RP-33-99). Design exterior lighting such that all exterior luminaires with more than 1000 initial lamp lumens are shielded and all luminaires with more than 3500 initial lamp lumens meet the Full Cut-off IESNA Classification. If the bulb exceeds 26W the lights shall be full cut-off luminaires so that no light or brightness from those luminaires crosses the property boundary.

Points: 1

Intent: Eliminate light trespass from the building and site, improve night sky access and reduce development impact on nocturnal environments.

Submittals: Provide specifications, construction detail and lighting cut sheets indicating dark sky compliance.

Resources:

S6 Stormwater Management

S6.01 Rate and Quantity

Requirement: No net increase in stormwater runoff from pre-development conditions to post-development

Points: 1

Intent: Increase the quality of stormwater discharge. One point is available for a 50% increase in water quality and a maximum 85% predevelopment discharge.

Submittals: Civil engineering stormwater calculations and narrative explaining how the design improves the water quality

Resources:

S6.02 Treatment

Requirement: Provide onsite treatment of stormwater to remove 80% of (TSS) Total Suspended Solids and 40% of (TP) Total Phosphorous

Points: 1

Intent: Improve natural waterways by minimizing stormwater run-off contaminants

Submittals: Civil engineering stormwater calculations and narrative explaining how the design improves the water quality

Resources:

S6.03 Littoral Vegetation

Requirement: Use littoral vegetation surrounding stormwater ponds - a minimum of 75% of the shoreline (calculated based on percentage of linear feet of shoreline) shall be vegetated with littoral plants.

Points: 2

Intent: Use low Impact Development techniques on site to mitigate for stormwater. Littoral zone of man-made stormwater detention basins that function as wet ponds shall have a minimum of 50% of the pond bank vegetated with native wetland plants of diverse species in appropriate locations for the vegetation type. To create this landscaped littoral shelf, the slope between the normal water level elevation and three feet below the normal water level elevation should be no greater than 6:1. Earn one point for 50% of pond bank coverage and earn an additional point for each additional 25% of pond bank coverage.

Submittals: Plant list and detention pond design.

Resources:

S6.04 Alternative Stormwater Detention: Rain Gardens, Infiltration Trenches, Rainwater Harvesting, and Injection Wells

Requirement: Uses Low Impact Development (LID) alternatives to collect and treat stormwater. Alternative systems that qualify include rain gardens, bio-retention filtration systems, infiltration trenches, vegetated roofing and injection wells. A minimum of 50% of the stormwater collection and treatment must use the low impact development treatment system to achieve this credit. Earn one point if 50% of the site stormwater is collected using low LID techniques. Earn an additional point for each additional 25% of total site stormwater that is collected using LID techniques.

Points: 1 point: 50% of stormwater collected using LID
2 points: 75% of stormwater collected using LID
3 points: 100% of stormwater collected using LID

Intent: Improve quality of natural waterways and stormwater discharge

Submittals: Site design, stormwater calculations and construction details of low impact development designs.

Resources:

S6.05 Pervious Hardscape

Requirement: Install pervious hardscape for a minimum of 25% of the hardscape. Site hardscape includes roads, sidewalks, courtyards, and parking lots. Hardscape may be porous pavers (open grid pavers) or permeable pavement (minimum percolation rate of 2 gal/min/SF and a minimum of 6 inches of open graded base below.

Points: 1

Intent: Improve quality of stormwater discharge and allow groundwater recharge.

Submittals: Site drawing with pervious hardscape identified and cut sheet or calculations regarding percolation or perviousness.

Resources:

S6.06 Treat Stormwater from Adjacent Sites

Requirement: Collect and treat stormwater from adjacent properties to assist in controlling both the quantity and quality of stormwater in the community. Earn one point for each additional 10% of stormwater volume the project site can retain and treat.

Points: 1

Intent: Improve the quality of natural waterways by improving the quality of and reducing the quantity of stormwater discharge.

Submittals: Civil engineering stormwater calculations

Resources:

CATEGORY 5: HEALTH

REQUIRED CATEGORY MINIMUM 10 POINTS

H Prerequisite 1 Environmental Tobacco Smoke (ETS) Control

Requirement: No smoking allowed in the common areas of the building and only in outside designated areas that are located 25 feet or more away from all doors, operable windows, HVAC equipment, and fresh air intakes. If the building is non-smoking a minimum of one No Smoking sign must be placed at the front entrance of the building and at outside common areas. If Smoking is allowed at a designated area, signage must be placed indicating as such and accommodations must be in place for proper cigarette butt disposal.

Points: Prerequisite - Required

Intent: Provide capacity for indoor air quality (IAQ) monitoring to help sustain long-term occupant health, comfort and well-being.

Submittals: Site plan indicating designated smoking area.

Resources:

H Prerequisite 2 Construction IAQ Management Plan, During Construction

Requirement: Indoor Environmental Quality shall be protected during construction according to the Sheet Metal & Air Conditioning Contractors' National Association (SMACNA) guidelines for occupied buildings under construction.

Points: Prerequisite - Required

Intent: Prevent indoor air quality problems resulting from the construction/renovation process in order to help sustain the long-term health, comfort and well-being of construction workers and building occupants.

Submittals: Provide copy of the specifications indicating use of SMACNA guidelines, a copy of the written Indoor Air Quality Management (IAQ) Plan and photos of the IAQ procedures in place during construction.

Resources: <https://www.smacna.org/>

H1 Design - Systems: Protect, Monitor, Remediate Poor IEQ

H1.01 Carbon Dioxide (CO2) Monitoring

H1.01.01 Assembly Areas

Requirement: Systems shall be designed to monitor carbon dioxide (CO2) within the building and activate a system w/ corrective action plan such that mechanical air conditioning system can introduce treated fresh air as needed.

Points: 1

Intent: Prevent exposure of building occupants and systems to Environmental Tobacco Smoke (ETS).

Submittals: Construction detail of CO2 Monitoring system on mechanical plans and cut sheet of equipment

Resources:

H1.01.02 All Common Areas

Requirement: Systems shall be designed to monitor carbon dioxide (CO2) within the building and activate a system with corrective action plan such that mechanical air conditioning system can introduce treated fresh air as needed.

Points: 1

Intent: Provide capacity for indoor air quality (IAQ) monitoring to help sustain long-term occupant health, comfort and well-being.

Submittals: Construction detail of CO2 monitoring system on mechanical plans and cut sheet of equipment

Resources:

H1.01.03 Individual Units

Requirement: Systems shall be designed to monitor carbon dioxide (CO2) within the building and activate a system with corrective action plan such that mechanical air conditioning system can introduce treated fresh air as needed.

Points: 1

Intent: Provide capacity for indoor air quality (IAQ) monitoring to help sustain long-term occupant health, comfort and well-being.

Submittals: Construction detail of CO2 monitoring system on mechanical plans and cut sheet of equipment

Resources:

H1.02 Increased Ventilation Effectiveness

Requirement: Building system shall be designed to create an air change effectiveness greater than or equal to 0.9 as determined by ASHRAE 62.1-2004. This credit shall be available for projects installing dehumidification systems.

Points: 1

Intent:

Submittals: Provide details on mechanical plans and system design

Resources:

H1.03 Building Entrance - Outdoor Pollutants

Requirement: Project shall employ measures such as permanent walk-off grates or mats located at the building main entrance to reduce pollutant contamination of the building entrances. If mats are used, the mats must be, at a minimum, the width of the door and 4 feet in the line of travel. Mats may be placed inside or outside the building entrance, however if

placed outside the mat must be under appropriate cover. A maintenance plan must be included to maintain the integrity of the installed system.

Points: 1

Intent: Improve the indoor environmental quality by reducing the amount of pollutants brought inside the building by foot traffic.

Submittals: Provide cut sheet and construction detail of the system installed

Resources:

H1.04 Building Entrance – Covered Entry

H1.04.01 Main Entry

Requirement: Main entrance of the building shall be covered with no less than 50 square feet of roof to protect entrance from rain.

Points: 1

Intent: Protect the building from water intrusion from rain and provide a protected path for building occupants.

Submittals: Provide a copy of the dimensioned plan indicating the covered entrance and the square footage of the entrance cover.

Resources:

H1.04.02 Entry from Primary Parking

Requirement: Covered path from parking to the main entrance or a Porte cochere at the main entrance.

Points: 1

Intent: Protect the building from water intrusion from rain and provide a protected path for building occupants.

Submittals: Provide a copy of the dimensioned plan indicating the covered entrance and the square footage of the entrance cover.

Resources:

H1.05 High-Efficiency Air Filtration System

H1.05.01 Common Areas

Requirement: Design a mechanical ventilation system to include a minimum MERV 8 air filter.

Points: 1

Intent: Provide improved indoor air quality.

Submittals: Cut sheet of air filter system.

Resources:

H1.05.02 Individual Units

Requirement: Design a mechanical ventilation system to include a minimum MERV 8 air filter.

Points: 2

Intent: Provide improved indoor air quality.

Submittals: Cut sheet of air filter system.

Resources:

H1.06 Chemical and Cleaning Product Storage

Requirement: Any room(s) containing chemicals or cleaning products for building O&M is ventilated and under negative pressure with respect to the building. The room must also have a door installed that will automatically close. For mechanically ventilated buildings, design ventilation systems that result in an air change effectiveness greater than or equal to 0.9 as determined by ASHRAE 129-1997.

Points: 1

Intent: Provide for the effective delivery and mixing of fresh air to support the health, safety, comfort and well-being of building occupants

Submittals: Letter from mechanical engineer indicating the design achieves an air change effectiveness of 0.9 or greater in each ventilated zone or that the design complies with the recommended design approaches in ASHRAE 2001 Fundamentals Chapter 32, Space Air Diffusion.

Resources:

H1.07 Thermal Comfort, Comply with ASHRAE 55-1992

Requirement: Comply with ASHRAE Standard 55-1992, Addenda 1995, for thermal comfort standards, including humidity control

Points: 1

Intent: Increase occupant comfort and productivity by providing individual control over building occupant workspaces.

Submittals: Provide a narrative from the mechanical engineer explaining how the project complies with ASHRAE Standard 55-1992, Addenda 1995.

Resources:

H1.08 Thermal Comfort, Dehumidification System

Requirement: System installed to control building humidity such as a desiccant system, enthalpy wheel, heat pipes, or dual path system. The dehumidification system shall be centrally located and permanent servicing the common areas and individual units of the building.

Points: 5

Intent: Reduce relative humidity inside the building to improve the indoor environment

Submittals: Letter from the mechanical engineer and cut sheet of dehumidification equipment.

Resources:

H1.09 Combustion: No Gas Water Heating Equipment Located Inside the Conditioned Area – Or Use of Electric

Requirement: One point is also available for use of a sealed combustion water heater, or use of an electric water heating system.

Points: 1

Intent: Sealed combustion appliances eliminate the threat of harmful combustion by-products from 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: Mechanical Schedule

Resources:

H1.10 Combustion: No Gas Heating Equipment Located Inside Conditioned Area – Or Use of Electric

Requirement: One point is available for use of a sealed combustion furnace, or use of an electric heating system, such as a heat pump.

Points: 1

Intent: Sealed combustion appliances eliminate the threat of harmful combustion by-products from 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: Mechanical Schedule

Resources:

H1.11 Kitchen Hood Vented to Exterior

Requirement: Home equipped with a range hood vented to the exterior of the building. 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.

Points: 2

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: Schematic of vent, photos of rough in and cut sheet for range vent

Resources:

H2 Design – Occupant Experience

H2.01 Daylight

Requirement: Provide natural day lighting to 50% of interior spaces. Achieve a minimum Daylight Factor (the ratio between the measured interior and exterior light levels in lumens) of 2% for a minimum of 25% of the occupied spaces of the building. Note: Occupied space refers to all areas except hallways, bathrooms, laundry rooms and closets.)

Points: 2 points: 50%

3 points: 75%

Intent: Increase occupant comfort by providing natural light to the unit owners.

Submittals: Provide plans specifying the daylight areas and day lighting calculations for occupied spaces

Resources:

H2.02 Views: Views for 75% of Spaces

Requirement: Provide views to vision glazing for 75% of all occupants. Occupants must have line of sight from occupied spaces to the exterior. (Note: Occupied space refers to all areas except hallways, bathrooms, laundry rooms and closets.)

Points: 3

Intent: Increase occupant comfort by providing views to the unit owners.

Submittals: Provide plans showing line of sight for occupied areas.

Resources:

H2.03 Acoustics

H2.03.01 Between Individual Units

Requirement: Provide wall assembly with a STC rating ≥ 45

Points: 1

Intent: Increase occupant comfort and productivity by providing appropriate acoustical control for the building occupants.

Submittals: Provide cut sheets for the wall assembly and fenestration indicating the STC ratings.

Resources:

H2.03.02 Between Units and Common Areas

Requirement: Provide wall assembly with a STC rating ≥ 55

Points: 1

Intent: Increase occupant comfort and productivity by providing appropriate acoustical control for the building occupants.

Submittals: Provide cut sheets for the wall assembly and fenestration indicating the STC ratings.

Resources:

H2.03.03 Exterior Wall Assembly

Requirement: Provide wall assembly with a STC rating \geq 50

Points: 1

Intent: Increase occupant comfort and productivity by providing appropriate acoustical control for the building occupants.

Submittals: Provide cut sheets for the wall assembly indicating the STC ratings.

Resources:

H2.03.04 Fenestration

Requirement: Provide fenestration with a STC rating \geq 30

Points: 1

Intent: Increase occupant comfort and productivity by providing appropriate acoustical control for the building occupants.

Submittals: Provide cut sheets for the fenestration indicating the STC ratings.

Resources:

H2.03.05 Floor Assembly

Requirement: Provide floor assembly with STC or Impact Insulation Class (IIC) of 50 or greater.

Points: 1

Intent: Increase occupant comfort and productivity by providing appropriate acoustical control for the building occupants.

Submittals: Provide the floor assembly cross section and corresponding STC ratings.

Resources:

H2.04 Cleanability: Narrow Grout Lines

Requirement: All grout lines between tiles must be less than 3/16" wide

Points: 1

Intent: Reduce bacteria and indoor air pollutants held in porous materials. A building that is easily cleaned is not only less maintenance for the owner, but the indoor air quality can be improved due to less accumulation of allergens and pollutants.

Submittals: Specification and photo of installed tile

Resources:

H2.05 15% of Building Units and All Building Common Areas Designed to Meet ADA Standards

- Requirement:** A minimum of 15% of the units in the building must comply with the following requirements:
- Ample clear floor space (5 x 5 foot turning radius) to ensure maneuverability at lavatories, toilets, and tubs/showers
 - 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 a maximum height of 48" from the floor to the top of the switch
 - Electrical outlets a minimum of 15" from the floor to the bottom of the outlet
 - Lever handles on doors or doors without latches
 - Rocker or touch switches
- AND** include at least one of the following options:
- Standard tub with a fold-up seat
 - Tub with a transfer seat
 - Whirlpool tub
 - 3 x 3 foot transfer shower
 - 5 x 5 foot roll-in shower

Points: 2

Intent: Allow for accessibility and Aging in Place

Submittals: Floorplan showing ADA units, cut sheets and signed approved submittal of ADA products, photos of installed features, and plan details

Resources:

H3 IAQ Management During Construction

H3.01 Protect Ducts, Range Hood, and Bath Exhaust Fans During Construction

Requirement: All duct register boxes, supply plenums, range hood, the bath exhaust fans (housing or fan) 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: 2

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

Submittals: Photo

Resources:

H3.02 Minimum MERV 13 During Construction

H3.02.01 Common Areas

Requirement: During construction install a minimum of a MERV 13 air filter.

Points: 2

Intent: Provide improved indoor air quality.

Submittals: Cut sheet of air filter system.

Resources:

H3.02.02 Individual Units

Requirement: During construction install a minimum of a MERV 13 air filter.

Points: 2

Intent: Provide improved indoor air quality.

Submittals: Cut sheet of air filter system.

Resources:

H3.03 Pre-Occupancy IAQ testing

Requirement: Test and remediate building prior to occupancy using procedure consistent with the United States Environmental Protection Agency's current Protocol for Environmental Requirements, Baseline IAQ and Materials, for the Research Triangle Park Campus, Section 01445.

Points: 1

Intent: Provide the Owner with the option to test indoor air quality prior to occupancy.

Submittals: Copy of the IAQ testing results indicating that the maximum chemical contaminant concentration requirements are not exceeded.

Resources:

H4 Low-Emitting Materials/Healthy Finishes

H4.01 Adhesives & Sealants

Requirement: All adhesives and sealants shall be low Volatile Organic Compound (VOC) and meet the VOC limits below that were established by the South Coast Air Quality Management District (SCAQMD) Rule #1168 AND all sealants used as fillers must meet or exceed the requirements of the Bay Area Air Quality Management District Regulation 8, Rule 51.

VOC Limit, Less Water and Less Exempt Compounds in Grams per Liter

<u>Architectural Applications</u>	<u>Current VOC Limit</u>
<u>Indoor Carpet Adhesives</u>	<u>50</u>
<u>Carpet Pad Adhesives</u>	<u>50</u>
<u>Outdoor Carpet Adhesives</u>	<u>150</u>
<u>Wood Flooring Adhesive</u>	<u>100</u>
<u>Rubber Floor Adhesives</u>	<u>60</u>
<u>Subfloor Adhesives</u>	<u>50</u>

Ceramic Tile Adhesives	65
VCT and Asphalt Tile Adhesives	50
Dry Wall and Panel Adhesives	50
Cove Base Adhesives	50
Multipurpose Construction Adhesives	70
Structural Glazing Adhesives	100
Single Ply Roof Membrane Adhesives	250

Points: 2

Intent: All adhesives and sealants shall be low Volatile Organic Compound (VOC) and meet the VOC limits below that were established by the South Coast Air Quality Management District (SCAQMD) Rule #1168 AND all sealants used as fillers must meet or exceed the requirements of the Bay Area Air Quality Management District Regulation 8, Rule 51.

Submittals: Contractor shall maintain all Material Safety Data Sheet (MSDS) highlighting the stated VOC emissions for each paint and coating used in the building.

Resources: <http://www.arb.ca.gov/DRDB/SC/CURHTML/R1168.PDF>

H4.02 Paint

Requirement: Interior paints and coatings shall be less than 100 g/l for non-flat paint and less than 50 g/l for flat paint. Exterior paints and coatings shall be less than 200 g/l for non-flat and less than 100 g/l for flat.

Points: 2

Intent: Improve indoor air quality by minimizing the VOC's used during the construction process.

Submittals: Contractor shall maintain all Material Safety Data Sheet (MSDS) highlighting the stated VOC emissions for each adhesive and sealant used in the building.

Resources: <http://www.greenseal.org/FindGreenSealProductsandServices/Products.aspx?vid=ViewProductDetail&cid=10>

H4.03 Carpet

Requirement: All carpet and carpet products shall meet the Carpet & Rug Institute Green Label Certification Program.

Points: 2

Intent: Reduce the quantity of indoor air contaminants that are odorous, potentially irritating and/or harmful to the health, comfort and well-being of installers and occupants.

Submittals: Provide carpet cut sheets or the VOC limits for each carpet product used in the building.

Resources: <http://www.carpet-rug.org/commercial-customers/green-building-and-the-environment/green-building-standards.cfm>

H4.04 Composite Wood

- Requirement:** All composite wood and agrifiber products will contain no added urea-formaldehyde.
- Points:** 2
- Intent:** Reduce the quantity of indoor air contaminants that are odorous, potentially irritating and/or harmful to the health, comfort and well-being of installers and occupants.
- Submittals:** Provide a manufacturers catalog cut sheet for each composite wood or agrifiber product used in the building indicating that the bonding agent used in each product contains no added urea-formaldehyde.
- Resources:**

H4.05 Insulation

- Requirement:** All Insulation products will be free of formaldehyde.
- Points:** 2
- Reduce the quantity of indoor air contaminants that are odorous, potentially irritating and/or harmful to the health, comfort and well-being of installers and occupants.
- Submittals:** ~~Provide the approved submittal and product data verifying no added urea formaldehyde.~~
- Resources:**

Deleted: Provide a manufacturers catalog cut sheet for each insulation product used in the building indicating that it contains no formaldehyde.

H4.06 Minimize Carpet Use

H4.06.01 100% Hard Flooring Installed in Individual Units

- Requirement:** The flooring installed shall be classified as hard or resilient and comply with GreenGuard or similar health related certification.
- Points:** 2
- Intent:** Provide a healthier indoor environment.
- Submittals:** Cut sheets of flooring selections.
- Resources:**

H4.06.02 Carpet Tiles Used in Common Areas

- Requirement:** If carpet is installed in common areas, carpet tiles must be used. All carpet and carpet products shall meet the Carpet & Rug Institute Green Label Certification Program. All carpet and carpet products shall meet the Carpet & Rug Institute Green Label Certification Program.
- Points:** 2
- Intent:** Reduce the quantity of indoor air contaminants that are odorous, potentially irritating and/or harmful to the health, comfort and well-being of installers and occupants. Carpet tiles also reduce the quantity of waste sent to landfills as small portions can be replaced as needed.
- Submittals:** Provide carpet cut sheets or the VOC limits for each carpet product used in the building.
- Resources:**

H4.07 Green Cleaning - Environmentally Friendly Maintenance - Green Cleaning Products in Common Areas

Requirement: Owner shall maintain or contract a cleaning service to maintain the property using only non-toxic cleaning supplies in the regular maintenance of the building. A list of approved supplies must be posted in janitor closets and in common areas such as break rooms and restrooms. Non-Toxic is defined as having a zero Health Hazard rating on the product's Material Safety Data Sheet (MSDS) and listed as "non-toxic" for Acute Toxicity under "Section V - Health Information" on the MSDS. Alternatively the products may be approved by the EPA's Design for Environment program or Green Seal.

Points: 2

Intent: Reduce the amount of harmful chemicals used in the maintenance operations of the building

Submittals: Provide a list of approved cleaning products for the building

Resources: <http://www.epa.gov/dfe/pubs/projects/formulat/formpart.htm>
<http://www.greenseal.org/FindGreenSealProductsandServices.aspx?vid=ViewProductDetail&cid=16>

H4.08 Healthy Pool- Non-Chlorine System

Requirement: Install and use a pool sanitation system that reduces the use of chlorine.

Points: 2

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, ultra violet or ozone systems.

Submittals: Cut sheet or photo of sanitation system

Resources:

H5 Management

H5.01 Prohibit Smoking

H5.01.01 Reduce Smoke Exposure and Transfer

- Requirement:**
1. Prohibit smoking in all common areas of the building. The prohibition must be communicated in building rental/lease agreements or condo/coop association covenants and restrictions, and provisions for enforcement must be included.
 2. Locate any exterior designated smoking areas, including balconies where smoking is permitted, at least 25 feet from entries, outdoor air intakes and operable windows opening to common areas.
 3. Prohibit on-property smoking within 25 feet of entries, outdoor air intakes and operable windows. Provide signage to allow smoking in designated areas, prohibit smoking in designated areas or prohibit smoking on the entire property.

Points: 1

Intent: Provide improved indoor air quality

Submittals: Copy of the covenants and restriction, plan showing designated smoking area, copy of signage

Resources:

H5.01.02 Prohibit Smoking Throughout the Building

- Requirement:**
1. Prohibit smoking within living units. The prohibition must be communicated in building rental/lease agreements or condo/coop association covenants and restrictions, and provisions for enforcement must be included.
 2. Prohibit smoking in all common areas of the building. The prohibition must be communicated in building rental/lease agreements or condo/coop association covenants and restrictions, and provisions for enforcement must be included.
 3. Any exterior designated smoking areas must be located at least 25 feet away from all entries, outdoor air intakes, and operable windows.

Points: 1

Intent: Provide improved indoor air quality

Submittals: Copy of the covenants and restriction, plan showing designated smoking area, copy of signage

Resources:

H5.02 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
- Provide information to homeowners on non-toxic pest management practices.

Points: 2

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: Provide a copy of the pest management plan including identification of the pests and monitor process, action thresholds, prevention activities, and control mechanisms.

Resources:

CATEGORY 6: MATERIALS

REQUIRED CATEGORY MINIMUM 5 POINTS

M1 Waste Management

M1.01 Building Reuse

Requirement: Rehabilitate existing building. Maintain 50% of the existing shell (exterior skin and framing excluding window assemblies) and non structural roofing material.

Points: 3

Intent: Renovate existing building stock to conserve resources, retain cultural resources, reduce waste and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.

Submittals: Floor plan of existing building, demolition plan, and new building floor plan.

Resources:

M1.02 Recycled Content

Requirement: Incorporate recycled materials (based on materials cost). Use materials with recycled content such that post-consumer and/or post-industrial recycled content constitutes a minimum of 5% of the total project cost. Earn one additional point for each additional 5% of recycled content materials. The value of the recycled content portion of a material or furnishing shall be determined by dividing the weight of recycled content in the item by the total weight of all material in the item, then multiplying the resulting percentage by the total value of the item. Note pre-consumer waste may only be counted in this credit if it can be substantiated that the pre-consumer materials would otherwise have entered the waste stream.

Mechanical and electrical components shall not be included in this calculation. Recycled content materials shall be defined in accordance with the Federal Trade Commission document, *Green Guides*, available at

<https://www.ftc.gov/enforcement/rules/rulemaking-regulatory-reform-proceedings/green-guides>.

Points:

- 1 point: $\geq 5\% < 10\%$
- 2 points: $> 10\% < 15\%$
- 3 points: $> 15\% < 20\%$
- 4 points: $> 20\%$

Intent: Encourage the use of recycled content materials to minimize the environmental impacts associated with the extraction of virgin materials.

Submittals: Complete the Materials Spreadsheet in the checklist. Provide approved submittals for materials and documentation of the products recycled content.

Resources: <https://www.ftc.gov/enforcement/rules/rulemaking-regulatory-reform-proceedings/green-guides>

Deleted: Submit recycled content calculations used in the construction of the project

<https://www.ftc.gov/tips-advice/business-center/advertising-and-marketing/environmental-marketing>
http://www.ecfr.gov/cgi-bin/text-idx?SID=b046a47be3973ae94f0596ef5f9d8292&mc=true&node=se16.1.260_113&rgn=div8

M1.03 Recyclable Materials

Requirement: Use materials that at the end of their useful lifecycle can be recycled by the manufacturer into the raw materials stream of another product. The value of such products will constitute a minimum of 10% of the total value of the materials in the project. The materials selected to comply with this category must be recyclable through a structured existing program.

Points: 1

Intent: Increase the demand for materials that are recyclable at the end of their useful life cycle.

Submittals: Submit recyclable materials calculations

Resources:

M1.04 Rapidly Renewable >3%

Requirement: Incorporate rapidly renewable (plant to harvest cycle <10 years) for 3% of the total value of all building materials and products used in the project. Earn one additional point for each 2% of additional rapidly renewable materials such as bamboo flooring, wool carpets, straw board, cotton batt insulation, linoleum flooring, poplar OSB, and sunflower seed board and wheatgrass cabinetry qualify for this credit.

Points: 1 point ≥ 3% and < 5% rapidly renewable materials
 2 points ≥ 5% and < 7% rapidly renewable materials
 3 points ≥ 7% rapidly renewable materials

Intent: Reduce the use and depletion of finite raw materials and long-cycle renewable materials by replacing them with rapidly renewable materials.

Submittals: Complete the Materials Spreadsheet in the checklist. Provide approved submittals for materials and documentation of the products rapidly renewable content.

Resources: -

M1.05 Certified Wood

Requirement: Wood products are FSC, SFI or CSA certified. Use a minimum of 50% certified of wood-based materials and products, for wood building components including, but not limited to, structural framing and general dimensional framing, flooring, finishes, furnishings and non-vented temporary construction applications such as bracing, concrete form work and pedestrian barriers. Earn one additional point for each 25% additional certified wood used on the project.

Points: 1 point ≥ 50% and < 75% of certified wood
 2 points ≥ 75% and < 100% of certified wood
 3 points 100% of certified wood

Deleted: Requirement: - Incorporate rapidly renewable (plant to harvest cycle <10 years) for 3% of the total value of all building materials and products used in the project. [11]

Intent: Encourage environmentally responsible forest management.
Submittals: Submit a copy of the wood certification, approved submittal and the calculations showing percentage of certified wood used in the construction of the project.
Resources: -

M1.06 Bio-based >3%

Requirement: Earn one point if 3% of the materials, based on cost, are bio-based such as solid wood, engineered wood, bamboo, wool, cotton, cork, agricultural fibers, or other bio-based materials having at least 50% bio-based content.

Points: 1

Intent: Encourage the use of natural products.

Submittals: Complete the Materials Spreadsheet in the checklist. Provide approved submittals for materials and documentation of the products bio-based content.

Resources:

Deleted: Requirement: - Wood products are FSC, SFI or CSA certified. Use a minimum of 50% of wood-based materials and products, certified in accordance with the Forest Stewardship Council (FSC) Guidelines, for wood building components including, but not limited to, structural framing and general dimensional framing, flooring, finishes, furnishings and non-vented temporary construction applications such as bracing, concrete form work and pedestrian barriers - ... [12]

M1.07 Resource Efficient or Panelized Wall Systems

Requirement: Install a minimum of 80% of the non-structural exterior walls must be Autoclaved Aerated Concrete (AAC), Insulated Concrete Forms (ICF), or Structural Insulated Panels (SIPs) or a combination thereof.

Points: 2

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. ICFs 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 a minimum 24" above soil grade.

Submittals: Photo, detailed plans, or material cut sheets.

Resources:

Deleted: Cut sheets of materials used and the calculations showing 3% (based on cost) of the materials purchased for the projects are bio-based.

M1.08 Efficient Drywall Installation: TWalls with Drywall Clips, 2-Stud Corners or Ladder Framing

Requirement: Uses two-stud corners, ladder T-wall framing, and drywall clips in all possible locations.

Points: 2

Intent: Decrease materials used during construction

Submittals: Construction details on plans and photos

Resources:

M2 Material Efficiency and Global Responsibility

M2.01 Recycling for Residents

Requirement: Provide an accessible area that serves all the building occupants that is dedicated to the collection, separation, and storage of recyclables. Recycling rooms in the buildings shall be a minimum of 0.1% of the total conditioned square footage of the building while recycling areas outside the structure shall accommodate a recycling dumpster equal in size (in CY) to $(\# \text{ of units} \times 0.5 \times 18) / 173.57$ rounded up to the nearest even number OR install integrated recycling trash shoots, which are serviced by a recycling waste hauler, that allow the occupants, when disposing of waste, to select either recycling or waste. FGBC will consider multiple pick-ups per week when reviewing compliance with the credit

Points: **1 point: Provide an accessible recycling area**
2 points: Install an integrated recycling trash shoot

Intent: Facilitate recycling and reduce waste

Submittals: Construction detail, cut sheet, and photo

Resources:

M2.02 Construction Waste Management, Divert Waste

Requirement: Develop and implement a waste management plan, quantifying material diversion goals. Recycle and/or salvage a minimum of 50% of construction, demolition and land clearing waste. Calculations can be done by weight or volume, but must be consistent throughout. Earn additional points for increased diversion of waste.

Points: **2 point: $\geq 50\% < 75\%$**
3 points: $> 75\% < 90\%$
4 points: $> 90\%$

Intent: Divert construction, demolition and land clearing debris from landfill disposal. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to appropriate sites.

Submittals: Provide copies of the monthly waste reports indicating diverted waste and calculate the total waste material diversion rate

Resources:

M2.03 Resource Reuse $\geq 5\%$

Requirement: Use salvaged, refurbished or reused materials, products and furnishings for at least 5% of building materials (based on cost).

Points: 1

Intent: Reuse building materials and products in order to reduce demand for virgin materials and to reduce waste thereby reducing impacts associated with the extraction and processing of virgin resources.

Submittals: Provide a listing of each material or product and the original source of the material used to meet the credit.

Resources:

M3 Local and Regional Materials

M3.01 Local/Regional Materials

Requirement: Earn one point by using a minimum of 10% local/regional materials (by cost) that are manufactured within a 700-mile radius of the project site based on the total project cost of building materials and products. Earn one additional point for each additional 5% of materials that are manufactured within 700 miles of the project site.

(Manufacturing refers to the final assembly of components into the building product that is furnished and installed by the tradesman. For example, if the hardware comes from Dallas, Texas, the lumber from Vancouver, British Columbia and the truss is assembled in Kent, Washington; then the location of the final assembly is Kent, Washington.)

Points:
1 point: $\geq 10\% < 15\%$
2 points: $> 15\% < 20\%$
3 points: $> 20\% < 25\%$
4 points: $> 25\%$

Intent: Increase demands for building materials and products that are extracted and manufactured within the region, thereby reducing the environmental impacts resulting from transportation and supporting the regional economy.

Submittals: Complete the Materials Spreadsheet in the checklist. Provide approved submittals for materials and documentation of the products origination.

Resources:

Deleted: Provide calculations demonstrating that the project incorporates the required percentage of regional materials/products and show their cost, and percent of regional components, distance from project to manufacturer and the total cost of all materials for the project.

M3.02 Local/Regional Materials, of the Percentage Claimed Above, 5% Harvested Locally

Requirement: Of the regionally manufactured materials, use a minimum 5% (by cost) of building materials and products that are extracted, harvested or recovered within the following states: Florida, Georgia, Alabama, Mississippi, South Carolina, North Carolina, or Tennessee.

Points:
1 point: $\geq 5\% < 10\%$
2 points: $> 10\% < 15\%$
3 points: $> 15\% < 20\%$
4 points: $> 20\%$

Intent: Increase demands for building materials and products that are extracted and manufactured within the region, thereby reducing the environmental impacts resulting from transportation and supporting the regional economy.

Submittals: Complete the Materials Spreadsheet in the checklist. Provide approved submittals for materials and documentation of the products origination.

Resources: FGBC Material Credits Worksheet within the Checklist Excel file.

Deleted: Provide calculations demonstrating that the project incorporated the required percentage of regional materials/products and show their cost and percent of regional components, distance from project to manufacturer, and the total cost of all materials for the project.

CATEGORY 7: DISASTER MITIGATION AND DURABILITY

REQUIRED CATEGORY MINIMUM 2 POINTS

DMD1 Disaster Mitigation

DMD1.01 Hurricane, Impact Resistance of Openings

Requirement: ALL installed glazing is impact resistant.

Points: 2

Intent: Increase the structural integrity of the building during high-wind conditions, reducing the potential for damage, thus decreasing the potential waste and need for replacement materials after the storm.

Submittals: Provide the manufacturer's cut sheets for the impact resistant products indicating the required approvals and classifications.

Provide a door and window schedule listing impact-resistant products used on the project.

Resources: www.buildingcodeonline.com or <http://hus.parkingspa.com/hc3.asp>

DMD1.02 Flood, Slab Elevation

Requirement: Finished Floor Elevation (FFE) must be 12" above 100-year flood plain or finished grade adjacent to building, whichever is higher. All grades around building must slope away from the foundation a minimum of 6" at 10'-0" distance. The 100-year flood plain is determined by FEMA.

Points: 2

Intent: Reduce the potential for flooding and the resulting moisture and mildew problems.

Submittals: Provide the appropriate drawings illustrating the foundation design, floor elevation and grading requirements. Include a copy of the NFIP Elevation Certificate certified by the surveyor, engineer or architect showing the 100-year flood plain elevation or grade.

Resources:

DMD1.03 Wildfire, Fire Resistant Exterior Finishes

Requirement: Project must utilize fire-resistant exterior wall cladding, roof covering or sub-roof, soffit and vent materials. An exterior cladding other than wood or vinyl must be used on all exterior walls. A roof covering other than asphalt shingles or wood shakes must be used on the entire roof. Roof covering fire resistance shall exceed Code requirements by a minimum of one classifications (for example, install Class "A" when Code requires Class "B"). Soffit and vent materials must be other than wood or vinyl. When these parts of the building are compromised, embers from nearby fires can enter into the attic.

Strategies: Use exterior wall materials made of stucco, unfinished CBS, brick, aluminum, stone, or fiber-cement. Use roof coverings made of metal, concrete, fiber-cement, or tile. Use soffit and vent materials made of aluminum or fiber-cement.

Points: 2

Intent: Increase the fire resistance of the building, reducing the potential for damage from wildfires, thus decreasing the potential waste and need for replacement materials after the fire.

Submittals: Provide appropriate drawings and manufacturer's cut sheets illustrating the fire resistance of the exterior finish materials.

Resources: -

DMD1.04 Termite Prevention

Requirement: Provide a permanent sign, posted near the water heater or electrical panel, identifying the termite treatment provider, the need for re-inspection and treatment contract renewal. A single-slab must be poured monolithically or must have area treated for termites before each portion of slab is poured. After the slab has substantially cured, any penetration through the slab such as piping or conduit shall be sealed around its perimeter with an elastomeric sealer. Any foam insulation must terminate above ground such that none of it extends below grade. The exterior cladding of the building must terminate at least 8" above grade. All wood products must be treated with Borate or ACQ. Rain gutters must be installed to collect water from all roof slopes and convey it at least 3 feet away from the building foundation. All HVAC condensate line(s) must discharge at least 3 feet away from the building. All plants and irrigation should be at least 3 feet from building. Florida law requires that a contract be issued whenever a termite treatment is conducted. The warranty shall include the pest control company to restore any property damaged by wood-destroying organisms during a specified period after the treatment. Alternatively, high rise structures that do not contain any structural wood components may also claim credits.

Points: 2

Intent: Increase the termite resistance of the building, reducing the potential for damage from termite infestation, thus decreasing the potential waste and need for replacement materials after the damage is detected.

Submittals: Provide project photos, copy of warrantee, and appropriate construction details

Resources:

DMD1.05 Termite, Non-Toxic Termite Pretreatment

Requirement: The building uses an alternative to traditional soil poison for termite treatment. Systems may include the use of borate or Alkaline Copper Quaternary (ACQ) treated lumber or termite bait systems. To achieve this credit any and all plants, turf and irrigation lines must be a minimum of 3 feet from the foundation. Additionally, any foam insulation must terminate above ground. The exterior cladding of the building must also terminate a least 8" above grade. Rainwater from the roof must be dispersed a minimum of 3 feet from the building foundation (by the use of downspouts or scuppers and extensions or splash blocks). All AC condensate lines must discharge a minimum of 3 feet from the building.

Points: 2

Intent: Increase the termite resistance of the building, reducing the potential for damage from termite infestation, thus decreasing the potential waste and need for replacement materials after the damage is detected.

Submittals: Provide appropriate drawings and specifications, illustrating compliance to all requirements.

Resources:

DMD2 Durability

DMD2.01 Durable Materials, Exterior Finish Materials

Requirement: Use finish systems and materials capable of withstanding the moisture and heat impacts of the local climate for a period of 30 years on 100% of the exposed exterior surfaces. Structure shall be Type 1A, exterior materials shall be approved by Miami-Dade County, or have a 30 year warranty.

Points: 1

Intent: Reduce the need to replace existing structural finish components and materials over the expected lifetime of the building thereby reducing impacts resulting from removal and disposal of poorly performing material.

Submittals: Plan detail identifying all the systems and materials used for the exterior finish of the building. Attach copies of the NOA for Miami-Dade, manufacturer's warranties or documentation supporting the established history for any material without a written warranty.

Resources:

DMD2.02 Lever Style Clothes Washer Water Shutoff

Requirement: Install a lever style shutoff valve that only requires a 90° turn to shut off water supply

Points: 1

Intent: Valves that are easy to operate are more likely to be turned off before extended periods of non-use (vacations), thereby minimizing potential flooding and high-water use concerns in the event of hose or connection failure. Insurance companies report that washing machine failure is a common claim.

Submittals: Provide construction detail, signed approved submittal, and photos of installed valves

Resources:

DMD2.03 Water Sensors/Shutoff System

Requirement: Receive one point if a sensor/shutoff system is installed to cut off water supply to a clothes washer and water heater located inside conditioned space. Alternatively, one point is available for a whole-house system that detects any sign of water leakage anywhere inside the conditioned space, and cuts off the main water supply to the unit.

Points: 1

Intent: Water using appliances such as clothes washers and water heaters installed inside the conditioned space can leak or fail, causing severe damage due to flooding.

Submittals: Construction detail, cut sheet, and photo of system installed

Resources:

DMD2.04 Durability: Use Armored/Metal Hoses from Service to All Fixtures/Appliances

Requirement: Install armored, braided, pex, or otherwise reinforced hoses to all water using fixtures or appliances.

Points: 1

Intent: Water consuming fixtures and appliances typically use unarmored hoses for their water supply. Plastic 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.

Submittals: Cut sheet, construction detail, signed approved submittal, site photos

Resources:

DMD2.05 Low Maintenance Finishes

Requirement: Use materials (on the floors, walls and ceilings) that can be maintained in a serviceable condition using green cleaning products and methods for 100% of the interior finishes of the building and 50% (by surface area) of the exterior finishes.

Points: 1

Intent: Reduce the need for harsh maintenance chemicals thereby reducing the source pollution within and around the building and improving the indoor air quality.

Submittals: Provide a copy of the manufacturers recommended maintenance procedures, the type and area of materials that comply.

Resources:

CATEGORY 8: ENVIRONMENTAL INNOVATION

EI Environmental Innovation

Requirement: Environmental innovative features included in the project, above and beyond any required features that contribute to the projects sustainability.

Points: 1-5

Intent: These credits are intended to provide the design team and project the opportunity to be awarded points for exceptional performance above the requirements set by the Florida Green Building Coalition and/or innovative performance in green building categories not specifically addressed by this standard.

Submittals: The applicant must submit a summary of the project features including a quantification of their environmental benefit.

Resources:

Page 11: [1] Deleted **Jennifer Languell** **11/26/17 11:51:00 AM**

Requirement: Design the installed lighting in each unit such that the total Watt per square foot does not exceed 0.8.

Points: 2

Intent: Improve the overall efficiency of the building

Submittals: Electrical plans showing fixture location and type, signed approved lighting submittal, unit matrix indicating total Watts and square feet with the W/sf calculated

E1.03.02 Entire Building

Requirement: Design the installed lighting for the entire building, to include conditioned spaces (common areas and private residences) such that the total Watt per square foot does not exceed 0.8

Points: 3

Intent: Improve the overall efficiency of the building

Submittals: Signed approved lighting package submittal, electrical plans and W/SF calculation.

Page 12: [2] Deleted **Jennifer Languell** **11/26/17 11:59:00 AM**

Requirement: Install Energy Star qualified clothes washers in each unit

Points: 1

Intent: Improve the overall efficiency of the building

Submittals: Copy of the appliance package approved submittal, cut sheet identifying model number and photo of installed appliance

Resources: http://www.energystar.gov/index.cfm?fuseaction=find_a_product

Page 13: [3] Deleted **Jennifer Languell** **11/26/17 12:13:00 PM**

Requirement: All non-apartment spaces, except those intended for 24-hour operation or where automatic shutoff would endanger the safety of any building occupants, must have occupancy sensors or automatic bi-level lighting controls.

Points: 2

Intent: Improve the overall efficiency of the building

Submittals: Copy of the lighting package approved submittal, cut sheet identifying sensor type(s) and photo of installed sensors.

Page 15: [4] Deleted **Jennifer Languell** **11/26/17 11:53:00 AM**

Requirement: Fixtures must include automatic switching on timers, photocells, or motion sensor controls, OR provide > 95 lumens/watt, OR be solar powered - except fixtures intended for 24-hour operation, required for security, or located on apartment balconies.

Points: 1

Intent: Improve the overall efficiency of the building

Submittals: Copy of the lighting package approved submittal, cut sheet identifying timer or efficient lighting, and photo of installed lighting.

Page 19: [5] Moved to page 27 (Move #1) **Jennifer Languell** **11/26/17 12:10:00 PM**

E4.03 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. 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 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 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: Floorplan showing location of hot water heaters/distribution system

Resources:

Page 25: [7] Deleted Jennifer Languell 11/26/17 12:25:00 PM

1 point: ≤ 1.28 gpf

2 points: Dual Flush

3 points: ≤ 1.0 gpf

Page 26: [7] Deleted Jennifer Languell 11/26/17 12:27:00 PM

1 point: ≤ 1.5 gallons per minute (gpm)

2 points: ≤ 1.0 gpm OR Motion Sensor self-closing faucet (0.25 gal/metering cycle Max

Page 28: [8] Deleted Jennifer Languell 11/26/17 12:32:00 PM

Requirement: Project achieves Florida WaterStar Certification

Points: 5

Intent: Reduce water consumption

Submittals: Copy of WaterStar Certification

Resources: www.FloridaWaterStar.com

Page 28: [9] Deleted Jennifer Languell 11/26/17 12:32:00 PM

Requirement: Project achieves Florida Friendly Landscape Recognition

Points: 2

Intent: Reduce water consumption

Submittals: Copy of WaterStar Certification

Resources: www.FloridaWaterStar.com

Page 31: [10] Deleted Jennifer Languell 11/26/17 12:34:00 PM

Requirement: Build within an FGBC certified Green Land Development

Points: 1

Intent: Reward projects constructed in certified green land developments as the horizontal development portion of the project has incorporated features to improve the overall sustainability of the region.

Submittals: Name of land development

Resources: www.floridagreenbuilding.org/index.cfm/go/public.certifiedProjects

Page 55: [11] Deleted	Jennifer Languell	11/26/17 1:05:00 PM
------------------------------	--------------------------	----------------------------

Requirement: Incorporate rapidly renewable (plant to harvest cycle <10 years) for 3% of the total value of all building materials and products used in the project

Points: 1

Intent: Reduce the use and depletion of finite raw materials and long-cycle renewable materials by replacing them with rapidly renewable materials.

Submittals: Submit calculations demonstrating that the project incorporates the required percentage of rapidly renewable products used in the construction of the project.

Resources:

Page 56: [12] Deleted	Jennifer Languell	11/26/17 1:05:00 PM
------------------------------	--------------------------	----------------------------

Requirement: Wood products are FSC, SFI or CSA certified. Use a minimum of 50% of wood-based materials and products, certified in accordance with the Forest Stewardship Council (FSC) Guidelines, for wood building components including, but not limited to, structural framing and general dimensional framing, flooring, finishes, furnishings and non-rented temporary construction applications such as bracing, concrete form work and pedestrian barriers

Points: 1

Intent: Encourage environmentally responsible forest management.

Submittals: Submit a copy of the wood certification and the calculations showing 50% (based on cost) of the wood purchased for the project is certified.

Resources: