

## **SECTION 7 – GREEN BUILDING**

### **7.1.0 GENERAL PROVISIONS**

Section seven describes the processes, requirements, and procedures necessary to obtain a site plan permit, building permit, and Certificate of Occupancy for the construction of a building requiring a Green Building Program Rating. Included are requirements for Commercial, Multi-family, and Single-family developments.

### **7.1.1 PURPOSE**

A. The purpose of the Green Building Program is to encourage best practices of design and construction in order to develop a durable, aesthetically pleasing, well-built, energy-efficient, healthy city that promotes environmental stewardship and the well-being of its citizens.

B. A development or building project that receives a Green Building Program Rating embodies good practice in regard to community, health, and the management of energy, water, and material resources. It also promotes the local economy and is socially acceptable.

C. The Green Building Program offers three distinct programs based on building use. Each program utilizes a different tool to rate buildings and developments.

1. Commercial Program: Applicable for all projects for Commercial Uses as defined by Chapter 25-2 of the Land Development Code.
2. Multi-family Program: Applicable for all projects for Residential Uses as defined by Chapter 25-2 of the Land Development Code intended for more than two (2) family units.
3. Single Family Program: Applicable for all projects for Residential Uses as defined by Chapter 25-2 of the Land Development Code intended for one (1) or two (2) family units.

D. Mixed-use projects shall participate in the Program(s) (Commercial, Multi-family, or Single Family) based on the Use Classification of the project, as defined by Chapter 25-2 of the Land Development Code. This may require participation in more than one Program.

### **7.1.2 DEFINITIONS**

In this chapter:

- 1) COMMERCIAL means those projects for Commercial Uses as defined by Chapter 25-2 of the Land Development Code.
- 2) CONDITIONAL APPROVAL means approval by GBP Staff, based on contents of construction documentation and necessary supporting evidence, prior to building plan review. For projects in which GBP Star Rating is required, Conditional Approval is a required submittal as part of the Building Permit Application. Conditional Approval under this section shall not be deemed or construed to constitute approval of any building or other permit required pursuant to other applicable provisions of this manual and any other ordinances of the city.
- 3) DENIED means the requirements for conditional approval or final approval have not been met and the development shall not receive a Green Building Program Star Rating.
- 4) GREEN BUILDING PROGRAM (GBP) RATING TOOL means the applicable tool utilized by the Green Building Program to determine the correct Star Rating for a project or development.

- 5) GREEN BUILDING PROGRAM REPRESENTATIVE (GBP Rep) means the Green Building Program staff person who is the main point of contact for use by a Participant.
- 6) GREEN BUILDING PROGRAM (GBP) STAR RATING means completion of all requirements of the GBP Rating Tool to achieve a GBP Star Rating, AND the payment of any applicable fees as specified in section 7.3.1 of this manual, AND receipt of documentation from the GBP that will include the Project Name, Parties involved, and the GBP Star Rating achieved.
- 7) INCOMPLETE means approval has been temporarily denied due to missing or incomplete information.
- 8) MULTI-FAMILY means those projects for Residential Uses as defined by Chapter 25-2 of the Land Development Code intended for more than two (2) family units.
- 9) PARTICIPANT means the responsible party who represents the owner of a project or development that is involved in any part of the process to achieve a GBP Star Rating.
- 10) PARTICIPATION REQUEST means the formal application form required by the Commercial Program and the Multi-family Program that initiates the process toward a voluntary GBP Star Rating. Submission of a Participation Request is required to meet the minimum requirements of this document. A Participation Request is located in section 7.4.0 of this manual or by contacting a GBP Representative.
- 11) SCHEMATIC DESIGN PHASE means the design phase during which time building orientation, occupied spaces, space functions, and some material choices are made. Schematic Design Phase occurs prior to the development of Construction Documents including specifications.
- 12) SINGLE-FAMILY means those projects for Residential Uses as defined by Chapter 25-2 of the Land Development Code intended for one (1) or two (2) family units.

### **7.1.3 PROCESS**

The process below must be followed to the fullest extent possible in order to meet the intent of this Section and the requirements herein.

- 1) Commercial or Multi-family Residential project Participant shall begin this process by submitting a “Participation Request” to GBP Representative. The Participation Request must be completed to the fullest extent possible. It shall be submitted before the schematic design phase of the project. A Participation Request is located in section 7.4.0 of this manual or may be obtained by contacting a GBP Representative.
- 2) For all developments that are required to achieve a minimum GBP Star Rating, Participant must:
  - a. Submit a completed and signed (by, at a minimum, GBP Representative and Participant) “GBP Letter of Intent” with the Administrative Site Plan application.
  - b. Submit a completed and signed “GBP Conditional Approval” as a part of the Building Permit application. In order to achieve a GBP Conditional Approval, the necessary construction documents, including plans, specifications, mechanical plans, Manual J (applicable for Multi-family Rating and Single Family Rating), and the GBP Rating Tool completed through 100% completion of the Construction Documentation Phase, shall be submitted to the project’s GBP Representative. The GBP Rep will reply to Participant within five (5) business days with a written GBP Conditional Approval, Denied, or Incomplete.
- 3) Conditional Approval under this section shall not be deemed or construed to constitute approval of any building or other permit required pursuant to other applicable provisions of this manual and any other ordinances of the city.
- 4) If GBP Conditional Approval is Denied or determined to be Incomplete, Participant shall resubmit required documentation to demonstrate that all Required Measures will be met.

- 5) During the Construction Phase, Participant shall retain documentation to use as evidence for fulfilling each Required Measure. The Participant shall schedule a “Walk through” with GBP Staff to be completed soon after the mechanical system has been installed. For residential projects, the walk through shall take place prior to when insulation is installed.
- 6) For developments that are required to achieve a minimum GBP Star Rating, Participant must submit a “GBP Final Approval” as part of the Certificate of Occupancy Application. If GBP Final Approval is Denied, a written explanation of the reasons will be returned to the Participant within ten (10) business days of submission of a GBP Final Approval Request and the necessary support documentation.
- 7) Final Approval under this section shall not be deemed or construed to constitute approval of any building or other permit required pursuant to other applicable provisions of this manual and any other ordinances of the city.
- 8) If GBP Final Approval is Denied, Participant shall resubmit required documentation to demonstrate that all Required Measures will be met.
- 9) All consulting, document review, and certification services provided by the Green Building Program for projects within the Austin Energy service area shall be at no charge. For developments outside the Austin Energy Service Area, see section 7.3.1 of this manual for applicable fees.
- 10) A Participant who desires to achieve a higher GBP Star Rating shall follow the voluntary measures outlined in the applicable Program.

#### **7.1.4 LAND DEVELOPMENT CODE APPLICABILITY**

- A. The Land Development Code applies to a Green Building Program Rated development.
- B. If this section is applicable and an inconsistency occurs between it and another provision of the City Code or ordinance, then this section shall control.
- C. The requirements of this chapter are voluntary unless required by ordinance or deed restriction.

### **7.2.0 RATING SYSTEMS**

#### **7.2.1 COMMERCIAL RATING**

##### **A. REQUIRED MEASURES**

The completion of all of the required measures in this subsection shall qualify as meeting the requirements of a GBP One Star Rating of the Commercial Program.

- 1) Building Systems Commissioning
  - Verify and ensure that all fundamental building elements and systems are designed, installed and calibrated to operate according to the design intent and the owner’s operational needs, and includes the following:
    - a. Develop design intent and basis of design documentation
    - b. Develop and utilize a commissioning plan
    - c. Include commissioning requirements in the construction documents
    - d. Verify installation, functional performance, training and documentation
    - e. Complete a commissioning report
- 2) Storm Water Run-off and Water Quality Control
  - Meet current city drainage and water quality standards applicable in the watershed where the project is located
- 3) Urban Heat Island Reduction
  - Use ENERGY STAR compliant, high-reflectance roofing (according to the EPA Energy Star Roof Criteria), for a minimum of 75% of the roof surface.
- 4) Energy Reduction

- Reduce building design energy use compared to the current City of Austin Energy Code by 15%.
- 5) Building Water Use Reduction  
Reduce planned indoor water consumption below the current City of Austin Plumbing Code in aggregate by a minimum of 15%.
  - 6) Low-emitting Paint for Indoor Environmental Quality  
All paint used in the interior of the building must meet or exceed the VOC (volatile organic compounds) limit of Green Seal Environmental Standard GS-11.
  - 7) Storage and Collection of Recyclables  
Provide an easily accessible area that serves the entire facility and is dedicated to the separation, collection, and storage of materials for recycling including, at a minimum, the top two identified recyclable waste stream items. Building loading dock or pick-up location must be sized appropriately to handle the recycling material volumes generated by the building occupants.
  - 8) Construction Waste Management Plan  
Recycle or salvage at least 50% (by weight) of construction, demolition, and land clearing waste.

## **B. VOLUNTARY MEASURES FOR HIGHER GBP STAR RATINGS**

- 1) A Participant who voluntarily desires to achieve a GBP Star Rating higher than the minimum requirements of this document shall follow the process in this section to the fullest extent possible.
- 2) Participant must comply with all applicable requirements outlined in section 7.1.3 of this manual.
- 3) Participant must attend a meeting between GBP Staff and as many members of the project team as possible, at a minimum to include a financial decision-maker for the project and the project's design professional and mechanical engineer, to discuss the project including location, type of development, and current design phase, as well as the basic requirements in order for a project to achieve a GBP Star Rating.
- 4) Participant may complete a variety of the voluntary measures in order to achieve a higher GBP Star Rating.

### **7.2.2 MULTI-FAMILY RATING**

#### **A. Required Measures**

The completion of all of the measures in this subsection shall qualify as meeting the requirements of a GBP One Star Rating of the Multi-family Program. The requirements herein may also be known as Green Building Level 1 Standards.

- 1) Code Compliance
  - a. International Residential Code (IRC) in effect in the City of Austin is met, regardless of project location
  - b. International Energy Conservation Code (IECC) and City of Austin Energy Code in effect in the City of Austin are met, regardless of project location
    1. Accurate Manual J (or equivalent residential HVAC sizing calculation) submitted to, reviewed and approved by GBP Staff prior to installation
- 2) Energy
  - a. Installed cooling equipment tonnage determined by GBP-approved Manual J calculation
  - b. 12.0 SEER minimum cooling equipment efficiency (matched per ARI); OR federal minimum standard, whichever is higher
  - c. All ductwork installed in conditioned space (e.g. no ductwork in attic, including top floor)

- d. Low-E glazed windows with a Solar Heat Gain Coefficient (SHGC) of  $\leq 0.4$ ; OR Energy Code maximum-allowed SHGC, whichever is less
  - e. Continuous soffit and ridge (or adequate gravity) vents or attic space is within the thermal envelope and not vented
  - f. Roof radiant barrier, metal roof or alternate GBP-reviewed and pre-approved roofing system
  - g. At least 1 interior ceiling fan installed per number of bedrooms in each unit
  - h. Fluorescent lamps (compact or tube) installed in a minimum of 2 light fixtures in each living unit
  - i. All exterior lighting has fluorescent lamps, or motion detectors and photocell controllers, or is solar-powered
  - j. All installed appliances are Energy Star labeled (for all appliances for which Energy Star labels are available)
- 3) Materials
- a. No solid lumber 2x10s or larger used in floor or roof framing system
  - b. Porch/Deck/Patio made of concrete, masonry, or reused, reclaimed, or recycled composite
- 4) Water
- a. Any turf grass/lawn in full sun is GBP-approved low-water variety (e.g. common bermuda, zoysia japonica, buffalo)
  - b. At least 90% of plants are from City of Austin *WaterWise* or *Grow Green* Plant List
  - c. Plant-based mulch covers all planting beds to a minimum 2" depth.
  - d. Open end of splash blocks (if used) inclined and directed away from foundation
- 5) Health and Safety
- a. Interior wall and ceiling paint VOC levels (volatile organic compounds) do not exceed 100 grams per liter (g/l) for water-based paints and 380 g/l for solvent-based paints
  - b. Exhaust fans installed and vented to exterior for cook-top/stove and any room with a tub or shower
  - c. No vapor barrier (including vinyl wallpaper) installed on inside of perimeter walls
  - d. No unvented gas logs, fireplaces, or heaters installed
  - e. Any exterior wood-to-concrete connections are separated by metal or plastic fasteners/dividers
  - f. One-inch-minimum pleated-media filter installed in all HVAC returns prior to final GBP inspection
- 6) Community
- a. Exterior light fixtures are designed to prevent up-lighting and light pollution
  - b. On-site recycling is made possible and convenient for tenants of projects with 50 or more units

## **B. PERFORMANCE-BASED RATING TOOL AND HIGHER GBP STAR RATINGS**

- 1) Participant who wishes to achieve a GBP Star Rating higher than the minimum requirements listed above shall work with a GBP representative, using the current Multi-family Rating.
- 2) In special cases, as determined by the GBP Program Manager, the current Multi-family Rating tool at the time of initial contact with GBP Representative may be utilized to evaluate a performance-based GBP Rating in lieu of meeting 7.2.2A Required Measures. The performance-based GBP Rating is a detailed tool that may be obtained by contacting a GBP Representative.
- 3) Participant utilizing the performance-based GBP Rating Tool shall follow the process required in section 7.1.3 of this manual.

## 7.2.3 SINGLE FAMILY RATING

### A. REQUIRED MEASURES

The completion of all of the measures in this Subsection shall qualify as meeting the requirements of a GBP One Star Rating of the Single Family Program. The requirements herein may also be known as Green Building Level I Standards.

#### 1) Code Compliance

- a. International Residential Code (IRC) in effect in the City of Austin is met, regardless of project location
- b. International Energy Conservation Code (IECC) and City of Austin Energy Code in effect in the City of Austin are met, regardless of project location
  1. Manual J calculation to determine correct sizing of mechanical equipment, based on actual design, specifications and orientation of the project, to be submitted to the GBP

#### 2) Energy

- a. 13.0 SEER (as per ARI) minimum cooling-equipment efficiency; or federal minimum standard, whichever is higher
- b. Installed cooling equipment tonnage determined by Manual J calculation
- c. Direct duct-pressure test performed by GBP-approved professional; results show < 10% air leakage (submit AE GBP test form obtainable from a GBP Representative; or all duct work and indoor heating and cooling equipment are located within the thermal envelope)
- d. Low-E glazed windows with a Solar Heat Gain Coefficient (SHGC) of  $\leq 0.40$ ; or Energy Code maximum-allowed SHGC, whichever is less
- e. Roof radiant barrier; or metal roofing or other GBP-approved roofing; or all duct work and indoor heating and cooling equipment are located within the thermal envelope
- f. Ceiling fans in all main rooms and bedrooms, except kitchen and dining areas
- g. Fluorescent lamps (compact or tube) installed in a minimum of 3 light fixtures
- h. All exterior lighting has fluorescent lamps, or motion detectors and photocell controllers, or is solar-powered
- i. All appliances installed are Energy Star labeled (for all appliances for which Energy Star labels are available)

#### 3) Materials

- a. No solid lumber 2x10's or larger used in floor or roof framing system
- b. Durable materials - at least one of the following:
  1. Porch/Deck/Patio made of concrete or masonry, or decking is recycled composite material, or reused, or reclaimed; or
  2. Flooring is durable material for a minimum of 50% of all floor area (e.g. concrete, stone, wood, ceramic tile), or
  3. Tile or metal roofing installed

#### 4) Water

- a. Any turf grass/lawn in full sun is GBP-approved low-water variety (e.g. common bermuda, zoysia japonica, buffalo)
- b. At least 90% of new plants are from City of Austin *WaterWise* or *Grow Green* Plant List (4 plants minimum)
- c. Plant-based mulch covers all planting beds to a 2" minimum depth

#### 5) Safety and Health

- a. Exhaust fans installed and vented to exterior for cook-top/stove and any room with a tub or shower

- b. Any exterior wood-to-concrete connections (such as at posts, deck supports, or stair stringers) are separated by metal or plastic fasteners/dividers
  - c. No vapor barrier (including vinyl wallpaper) installed on inside of perimeter walls
  - d. No unvented gas logs, fireplaces, or heaters installed
  - e. Interior wall and ceiling paint VOC (volatile organic compounds) levels do not exceed 150 grams per liter (g/l) for water-based paints and 380 g/l for solvent-based paints
  - f. Pleated-media filter installed in heating and cooling system (electronic filter also acceptable). Note: mechanical system must be designed for filter used
- 6) Community
- a. Home has a covered porch with one side facing the street, a 6 ft. minimum depth, and a 60 sq. ft. minimum area; or home is built to zero lot line
  - b. Homeowner Information materials (available from GBP) supplied to homeowner

## **B. PERFORMANCE-BASED RATING TOOL AND HIGHER GBP STAR RATINGS**

- 1) Participant who wishes to achieve a GBP Star Rating higher than the minimum requirements listed above shall work with a GBP representative, using the current Single Family Rating.
- 2) In special cases, as determined by the GBP Program Manager, the current Single Family Rating tool at the time of initial contact with a GBP Representative may be utilized to evaluate a performance-based GBP Rating in lieu of meeting the measures outlined in section 7.2.3(A) of this manual. The performance-based GBP Rating is a detailed tool that may be obtained by contacting a GBP Representative.
- 3) Participant utilizing the performance-based GBP Rating Tool shall follow the process required of in section 7.1.3 of this manual.

### **7.3.0 MISCELLANEOUS**

#### **7.3.1 FEES**

A. All consulting, document review, and certification services provided by the Green Building Program for projects within the Austin Energy service area shall be at no charge.

B. For projects outside the Austin Energy service area, consult the Austin Energy Green Building Program for a current fee schedule.

#### **7.3.2 PENALTIES**

A building or development shall not receive a Certificate of Occupancy unless the requirements of this chapter have been fulfilled to the fullest extent.

### **7.4.0 PARTICIPATION REQUEST FORM**



Reference#: _____ GBP Rep.: _____
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## ***PARTICIPATION REQUEST***

Business/Company submitting request: \_\_\_\_\_

Mailing Address: \_\_\_\_\_ Zip code: \_\_\_\_\_

Contact person: \_\_\_\_\_ Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Address: \_\_\_\_\_ Zip code: \_\_\_\_\_

Project Primary Contact: \_\_\_\_\_

Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_ Fax: \_\_\_\_\_

Project Secondary Contact: \_\_\_\_\_ Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

**Primary use of building(s):**

Office     Church     Retail     Warehouse     Hotel/Motel     School     Restaurant

Grocery     Health Care     Manufacturing

Mixed Use (describe): \_\_\_\_\_

Multifamily (describe): \_\_\_\_\_

**Type of construction and size:** Total square feet: \_\_\_\_\_ # of Floors: \_\_\_\_\_

# of Units: \_\_\_\_\_

New building     Remodel     Addition     Finish-out     Shell only

**Participation with other Programs / Certifications:**

Smart Growth     Smart Housing     LEED™

**Project's estimated completion date:** \_\_\_\_\_

**Current status:**

Programming     Schematic Design     Design Development     Construction

**Project Team Members:**

Project Manager: \_\_\_\_\_ Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

Architectural firm: \_\_\_\_\_

Contact person: \_\_\_\_\_ Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

Mechanical Engineering firm: \_\_\_\_\_

Contact person: \_\_\_\_\_ Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

Electrical Engineering firm: \_\_\_\_\_

Contact person: \_\_\_\_\_ Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

Landscape Architectural firm: \_\_\_\_\_

Contact person: \_\_\_\_\_ Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

General Contracting firm: \_\_\_\_\_

Contact person: \_\_\_\_\_ Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

**Authorized Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_