2016 Commercial Rating

Guidebook

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INTRODUCTION

Buildings have a profound impact on the environment, economy, health and well-being, productivity, and community's quality of life. In the U.S. buildings account for 40% of energy and 13% of water used annually. In addition, 39% of carbon dioxide emissions are associated with building processes. Furthermore, Americans spend on average 90% of their time indoors. For these reasons and many more, the Austin Energy Green Building mission is *to lead the transformation of the building industry to a sustainable future.*

In 1991, Austin Energy Green Building® (AEGB) developed the first rating system in the U.S. for evaluating the sustainability of buildings. Since its inception, AEGB has rated more than 20 million square feet of commercial buildings, as well as more than 10,000 single family and 12,500 multifamily dwelling units. We regularly update our ratings to maintain an effective, Austin-specific tool, and to encourage sustainability in Central Texas.

AEGB promotes an integrated team approach to design in order to achieve higher-performing buildings. The program recognizes that great buildings are created by teams that set ambitious goals and collaborate to achieve them. An integrated approach, that establishes sustainability as a priority early in the design process, results in buildings that are energy and water efficient; healthier and more comfortable to work in; well-constructed; economical to operate; easier to maintain; and help create a better community. Incorporating the services offered by AEGB as early as possible helps ensure that you will take advantage of valuable resources available to your project.

Our unique program incorporates proven green building strategies while building upon Austin's code standards and local building regulations. It encourages innovative and sustainable building practices and creates market demand for green buildings. It guides development into preferred growth corridors, and addresses environmental, community, health, and economic issues specific to the Central Texas region.

The AEGB representatives will guide you through every step of the rating process.

Welcome to Austin Energy Green Building; we look forward working with you!

The AEGB Commercial Rating

The AEGB Commercial Rating is a tool developed to help guide projects and measure the impact of the team's sustainability efforts. The rating includes of a series of Basic Requirements and voluntary measures, and addresses seven major aspects of sustainable design and construction: Integrated Design, Site, Energy, Water, Indoor Environmental Quality, Materials & Resources, and Education & Equity. An Innovation category is available to encourage projects to push the boundaries of green building even further. All AEGB rated projects must fulfill the Basic Requirements. Projects that achieve points for voluntary measures may attain a higher Star Rating at the point thresholds described below:

AEGB Commercial Rating	Star Levels
1 Star	Basic Requirements
2 Stars	35-44 points
3 Stars	45-54 points
4 Stars	55-74 points
5 Stars	75 points or more

About the AEGB Online Rating System
This website is a means for you and your AEGB representative(s) to communicate and track your progress in meeting your sustainability goals and AEGB Rating. Throughout the rating process, you will be receiving feedback, advice, and comments updating you on the progress of your project's rating through the ORS.

The Green Building Rating Process

Getting started: Go to the AEGB Online Rating System (ORS) at:
www.greenbuildingsystem.austinenergy.com/Login/HowToParticipate.aspx

1. **Select or Create an Organization Profile and Personal Profile:**
   - If your organization is new to AEGB, you must create an Organization Profile with basic information about the services your company provides and contact information. If your organization has previously participated in an AEGB project you may already have an Organization profile. Search the list of Organizations to find your organization's profile.
   - Create a Personal Profile with login information you will use to access the Online Rating System throughout the project.

2. **Start a New Project:** The registration information you provide about your project will enable us to verify whether your project is eligible for a rating. If eligible, the project will be assigned to the appropriate rating system, and AEGB representative(s).
   - Multifamily, or multifamily mixed-use developments, seven stories or taller will use the commercial rating. Multifamily or multifamily mixed-use developments, six stories or fewer will use the Multifamily rating.

3. **Accept the "Terms and Conditions":** Once the project has been assigned AEGB representatives, the project's primary contact will receive an email requesting them to login to the AEGB Online Rating System and accept the Terms and Conditions to participate.
   - *Accepting the Terms and Conditions will initiate a Registration Fee invoice.*

After the Terms and Conditions have been accepted, additional tabs will be available on your project's profile page.

- **"Worksheet" Tab:** Contains specific information and requirements for achieving and documenting measures in your rating.

- **"Team" Tab**: Invite other professionals working on this project to the ORS. Other team members may already have an existing profile. You may search for them by searching for their company name. If the team member's company name is not found, select "Click here to invite an unregistered organization" at the bottom of the page.

  Team members you may want to invite are: the project owner, architect, engineers (mechanical, electrical, structural, civil), general contractor, commissioning agent, landscape architect, interior designer, and other project consultants.

- **"Documents" Tab:** This section provides a landing for documents such as the Terms and Conditions, the Letter of Intent, Tenant Agreements, and Master Development Agreements. AEGB uses the "Documents" tab for phase approval documents. As you achieve milestones, additional documents including the Conditional Approval and Final Approval will become available here.

Rating Phases

I: Planning and Design Phase:

1. **Letter of Intent:** *When zoning or other City of Austin criteria requires an AEGB Rating, please download, sign, and upload the signed Letter of Intent (LOI) to the "Documents" tab of the ORS. Your AEGB representative will also sign and upload the LOI on the ORS. You will need to present the completed LOI to Land Use Review to receive a Site Development Permit.*

2. **Meetings:** Your AEGB representative(s) would like to meet with the project team, as early in the process as possible. This will provide an opportunity to walk through the ORS, explain features of the Commercial Rating, and answer questions you may have. Meeting early in the process is a great way to set the tone for a successful project. After the initial goal-setting meeting, your AEGB representative(s) would like to meet at significant design phase milestones. This will provide an opportunity to clarify questions, and keep up with project updates and rating goals.

3. **Review and Conditional Approval:**
    a. The AEGB representative(s) will provide a comprehensive review of the project's drawings, specifications, and other documentation applicable to the rating.

    b. During the Design Phase review, the AEGB representative(s) will advise and comment on the project's progress toward achieving its Green Building rating goal, and will either mark basic requirements and additional measures as "on-track", or request follow up information and documentation as needed.

    c. Upon satisfactory review of the building permit set, an **AEGB Conditional Approval letter** will be issued. The signed Conditional Approval letter will be uploaded to the "Documents" tab.

    For mandated AEGB projects, the Conditional Approval letter should be attached to the front of the Building Permit set at the time of intake with the Planning and Development Review Department (PDRD).

    d. The Conditional Approval does not guarantee award of any requirement or point, but enables project teams to assess likelihood of credit achievement. All measures require follow-up through construction completion.

4. **Design Phase Fees:** Payment of the Registration Fee is due in accordance with the terms on the invoice and before AEGB can approve the Design Phase and issue the **Conditional Approval**.
    - *Once the Design Phase is approved, the Services Fee invoice will be initiated.*

II: Construction Phase:

1. **Updates and Documents**: During construction, provide regular updates on the "Worksheet" tab in the ORS. Required construction phase documentation is described within the guidebook and on the ORS. If the construction schedule changes please provide updates within the ORS "Schedule" tab.

2. **Site Visits**: The AEGB representative(s) is also available as a resource to your Contractor and will verify the project's progress toward achieving certain measures directly on site. Please coordinate access to the building site with your AEGB representative(s), as necessary.

3. **Construction Phase Approval**: The AEGB representative(s) will conduct site visits and review the submitted construction phase documentation in order to determine achievement of the Basic Requirements and additional measures in the Construction Phase. Upon satisfactory review of all Basic Requirements and voluntary measures pursued by the project, an **AEGB Final Approval letter** will be issued. Projects may continue efforts toward achieving a higher rating after the Final Approval is issued. The Final Approval will appear in the "Documents" tab.

   For mandated AEGB projects, this Final Approval may be necessary to acquire the Certificate of Occupancy.

4. **Construction Phase Fees**: Payment of the Services Fee is due in accordance with the terms on the invoice and before AEGB can issue the **Final Approval**.

III: Close-Out Phase:

1. **Rating:** The Close-Out Phase offers the project an opportunity to celebrate the team's successes as AEGB confirms and awards the final Rating.

2. **Professional Directory**: Project team members may verify their Company Profile and confirm their preference to be included in the AEGB Professional Directory.

3. **Case Study**: Your AEGB representative(s) will assist in developing and publishing to our website a project Case Study using the AEGB Case Study template. The Case Study is an opportunity to share the project's accomplishments with building occupants, stakeholders, clients, and the community.

4. **Certificates and Plaque**: All AEGB rated projects receive Certificates listing the participating team members.

   All commercial projects receiving an AEGB Rating are eligible to display the AEGB plaque on the building. AEGB provides the plaque free of charge to all commercial projects achieving 3, 4, or 5-Star ratings.

Projects with Tenants

The AEGB Commercial Rating applies to the entire building and site; however, many projects include tenant, speculative or unfinished shell space. The work done by future tenants is an important contributor to the overall sustainability of a project. In order to help the tenant team understand and efficiently utilize the base building's systems and features, and ensure that the sustainable measures of the original design are carried out throughout the project, a **Tenant Requirements** must be implemented for all initial tenant finish out projects. Please refer to **Basic Requirement 10: Tenant Requirements** for more information regarding projects with tenant space.

About the Guidebook

This guidebook is intended to assist the project team in understanding the purpose or intent of each sustainable building measure and the requirements and documentation needed for compliance to earn points. It also includes helpful links to resources that may assist in measure achievement. In conjunction with the ORS, it is intended to guide your project team through the AEGB Rating process. Additional green building resources are listed in the Appendix. We encourage all team members to become familiar with the Guidebook.

Please bring any malfunctioning links to the attention of AEGB; we are aware that the links sometimes expire due to the dynamic nature of websites.

Disclaimer

Austin Energy Green Building does not make any warranty (expressed or implied) or assume any liability or responsibility, to you or any third parties for the accuracy, completeness or use of, or reliance on any information contained in the AEGB Commercial Guidebook. Any discrepancies between the AEGB Commercial Guidebook and the Online Rating System are unintended and will be resolved by AEGB.

2016 Commercial Rating Scorecard Planner

PROJECT NAME

MEASURE	POINTS AVAILABLE	YES	MAYBE	NO
BASIC REQUIREMENTS				
1. Plans & Specifications	Req'd			
2. Current Codes & Regulations	Req'd			
3. Building Systems Commissioning	Req'd			
4. Building Energy Performance	Req'd			
5. Outdoor Water Use Reduction	Req'd			
6. Indoor Water Use Reduction	Req'd			
7. Low-Emitting Materials - Interior Paints & Coatings	Req'd			
8. Storage & Collection of Recyclables	Req'd			
9. Construction Waste Management	Req'd			
10. Tenant Requirements	Req'd			
INTEGRATED DESIGN				
1. Integrated Project Design	2			
INTEGRATED DESIGN SUBTOTALS				
SITE				
1. Environmental Sensitivity	2			
2. Desired Development	2			
3. Density	2			
4. Diverse & Walkable Communities	1			
5. Brownfield Redevelopment	1			
6. Site Specific Design	1			
7. Public Transportation	1-3			
8. Bicycle Use	1			
9. Parking Capacity	1			
10. Electric Vehicle Charging Station	1			
11. Protect & Restore Habitat	1			
12. Beneficial Open Space	1			
13. Access to Local & Regional Produce	1			
14. Heat Island Reduction	1			
15. Light Pollution Reduction	1			
16. Integrated Pest Management	1			
SITE SUBTOTALS				
ENERGY				
1. Building Energy Performance	1-16			
2. Renewables	1-4			
3. Additional Commissioning	1-3			
4. Advanced Energy Metering	1			
5. Demand Response	2			
6. Green Energy	2			
7. District Cooling	1			
ENERGY SUBTOTALS				

Austin Energy Green Building Commercial Rating: Rating Scorecard

MEASURE	POINTS AVAILABLE	YES	MAYBE	NO
WATER				
1. Outdoor Water Use Reduction	1-3			
2. Building Water Use Reduction	1-6			
3. Process Water Use Reduction	1-2			
4. Stormwater Management	1-2			
WATER SUBTOTALS				
INDOOR ENVIRONMENTAL QUALITY (IEQ)				
1. Indoor Chemical & Pollutant Source Control	1			
2. Green Housekeeping	1			
3. Daylighting - Design	1			
4. Daylighting - Controls	1			
5. Views to the Outside	1			
6. Individual Controllability	1			
7. Low-Emitting Materials				
Interior Sealants & Adhesives	1-5			
Flooring Systems				
Composite Wood & Agrifiber Products				
Insulation				
Ceiling & Wall Systems				
Furniture				
Exterior Applied Products				
8. Moisture Protection	1			
9. Acoustic Quality	1			
10. Outdoor Pollutant Control	1			
11. Construction Indoor Air Quality	1			
IEQ SUBTOTALS				
MATERIALS & RESOURCES				
1. Additional Construction Waste Management	1			
2. Building Materials Use Reduction	1-3			
3. Sustainably Sourced Material	1-6			
4. Certified Wood	1			
5. PVC & Phthalate Free Material	1			
MATERIALS & RESOURCES SUBTOTALS				
EDUCATION & EQUITY				
1. Educational Outreach	2			
2. Construction Worker Equity	1			
EDUCATION & EQUITY SUBTOTALS				
INNOVATION				
1. Innovation #1	1			
2. Innovation #2	1			
3. Innovation #3	1			
4. Innovation #4	1			
5. Innovation #5	1			
INNOVATION SUBTOTALS				
GRAND TOTAL POINTS	**100**			

AEGB COMMERCIAL RATING STAR LEVELS	
1 Star	Basic Requirements
2 Stars	35 - 44 points
3 Stars	45 - 54 points
4 Stars	55 - 74 points
5 Stars	75 points or more

BASIC REQUIREMENTS

1. Plans & Specifications

Requirements
Provide complete set of plans and specifications for review at all major milestones, and at a minimum, the 100% Design Development and Building Permit Sets

Provide access via one of the following:

- **OPTION 1 - Hard Copies**
  Provide one half-size set of drawings and one set of specifications to Austin Energy Green Building (AEGB).
  Mailing Address:
  Attn: Commercial Program
  Austin Energy Green Building
  721 Barton Springs Road
  Austin, TX 78704-1145

- **OPTION 2 - Access to FTP/Project Management Site**
  Provide the URL, User Name, and Password your AEGB Representative is to use. Plans should be in PDF format.

- **OPTION 3 - Electronic Plans and Specifications**
  Upload on the AEGB Online Rating System (ORS) the plans (in PDF format) and specifications.

Required Documentation
- 100% Design Development Plans and Specifications
- 50% Construction Documents Plans and Specifications, if available
- Building Permit Plans and Specifications
- As-Built Drawings, if available

2. Current Codes & Regulations

Intent
To ensure quality buildings, and protect the health and safety of building occupants, our community, and the environment, through compliance with all current codes, and building-related environmental laws and regulations

Requirements
Meet current City of Austin Codes with local amendments (including but not limited to energy, building, mechanical, plumbing, electrical, and current drainage and water quality standards applicable in project watershed), and applicable building-related laws and regulations.

Required Documentation
- Schedule of applicable codes in Construction Documents
- Approved Water Quality Control Plan

- Roof plan and verification of roofing material SRI or reflectance, and/or vegetated roof areas (IECC 2015 Section 402.3)
- Energy Code compliance documents (one of the following)
  - COM*check*™ reports
  - IECC 2015 Section C407 compliance report
  - ASHRAE 90.1-2013 energy model path compliance reports* and the AEGB Energy Analysis Summary Form

* Note regarding energy models for code compliance:
Multifamily projects not connected to an Austin Energy district chilled water loop must prepare an energy model according to the Energy Cost Budget (ECB) Method described in Section 11 of ASHRAE 90.1-2013. All other project types may prepare an energy model using the performance rating method described Appendix G of ASHRAE 90.1-2013.

Resources

City of Austin - Zoning Profile Report
City of Austin - Watershed Protection Ordinance
City of Austin - Environmental Criteria Manual – Section 1.9.0
City of Austin – Technical Code Amendments and Interpretations
City of Austin Ordinance No. 20160623-099 - Energy Code Ordinance and Amendments
International Code Council Online Library (Free online access to technical codes)
TCEQ - Edwards Aquifer Recharge Zone Map
ENERGY STAR Labeled Products
ORNL and LBNL - Roof Savings Calculator
Greenroofs.com
U.S. Department of Energy - COM*check*™

3. Building Systems Commissioning

Intent

To meet the owner's project requirements for energy, water, indoor environmental quality, and durability through verification of the design, installation, and performance of all energy using building systems

Requirements

- Develop the **Owner's Project Requirements (OPR)** document early in design to establish the requirements and goals for the design, construction, and operation of the project. Update the OPR as needed throughout the course of the project.
- Develop the **Basis of Design (BOD)** document to outline how the design team will fulfill the criteria of the OPR. Update the BOD as needed throughout the course of the project to reflect updates to the OPR.
- Designate a **Commissioning Authority (CxA)** to verify that mechanical, electrical, and all other energy using systems are installed and calibrated to operate according to the owner's requirements.
  - The CxA must have documented commissioning experience on at least two other commercial building projects with similar scope of work
  - The CxA shall review the OPR and BOD documents for clarity and completeness
  - The CxA may be an employee of the owner, a subcontractor of the design/construction team, an employee of the design/construction firm not directly involved in the project, or a consultant
  - The CxA must report findings and submit reports directly to the owner
- **Commission all Energy Using Systems.** Energy using systems include but are not limited to: mechanical systems, renewable energy systems, controls, the complete lighting system, water heating, building automation, and pumps.

- **Commissioning Specifications**. Incorporate the commissioning requirements, including the scope of what is to be commissioned, in the project's specifications.
- Define **Control Sequencing and Set Points** for all design conditions and include in the construction documents.
- Develop a **Commissioning Plan (CxP)** that provides an overview of the commissioning process, identifies roles and responsibilities, and establishes the schedule, scope, and documentation requirements of commissioning.
- **Verification**. Review and verification of submittals, documentation of systems testing, identification of issues, descriptions of corrective action, coordination of team members, and verification of acceptance are all tasks that must be accomplished through commissioning.
- Prepare the final **Commissioning Report** including a summary of the commissioning process, observations, findings, conclusions, and outstanding issues. List any deficiencies identified during commissioning and how they were resolved. Identify any seasonal testing or re-commissioning requirements. Provide confirmation that systems are performing in accordance with the final OPR document.
- Provide **Operations and Maintenance Manuals** for the systems commissioned to the owner.
- Confirm **Training of Operations and Maintenance Personnel**. Train operations and maintenance personnel on the fundamentals of facility and system operations.

Required Documentation

- Owner Project Requirements (OPR)
- Basis of Design (BOD)
- Project specifications
- Commissioning Plan (CxP)
- Final Commissioning Report
- Confirmation of development of Operations and Maintenance Manuals
- Documentation that the Training Plan for operations and maintenance personnel has been or will be conducted

Resources

City of Austin Ordinance No. 20160623-099 - Energy Code Ordinance and Amendments
Portland Energy Conservation, Inc. - Model Commissioning Plans & Guide Specifications
Energy Design Resources - Building Commissioning
ASHRAE Guideline 0-2013 "The Commissioning Process"
AABC Commissioning Group
National Institute of Building Sciences - Whole Building Design Guide

4. Building Energy Performance

Intent

To reduce the environmental and economic impacts associated with energy use by achieving increased levels of energy efficiency for the building and its systems

Requirements

- Meet the requirements of the 2015 International Energy Conservation Code, Section C406.2, More Efficient HVAC equipment performance. Compliance with this measure ensures compliance with the minimum requirements of Section C406 of the City of Austin Energy Code.
- Register the project with ENERGY STAR Portfolio Manager

AND

- **OPTION 1 - Prescriptive Performance Requirements**
  Surpass current Austin Energy Code requirement for building interior lighting power by 15%, and surpass the requirement for parking garage lighting power by 15%.

OR

- **OPTION 2 - Whole Building Energy Analysis**
  Demonstrate at a minimum a 5% improvement (3% if major renovation) in the energy cost performance of the proposed building compared to a baseline building that complies with the current City of Austin Energy Code using the performance rating method described in Appendix G of ANSI/ASHRAE/IESNA Standard 90.1-2013 with errata.

Required Documentation

- Narrative describing the building envelope, systems, and energy saving measures incorporated into the building
- HVAC equipment efficiency ratings (as per the mechanical schedules)
- Registration confirmation with ENERGY STAR Portfolio Manager
- Product specifications for envelope materials, mechanical and lighting systems highlighting pertinent performance values
- Verification from Commissioning Authority, access to ftp site, or confirmation statement that materials and systems installed meet performance specifications.
- Option 1:
  - COM*check*™ Interior Lighting Code Compliance Certificate
- Option 2:
  - The AEGB Energy Analysis Summary Form indicating energy model inputs and results
  - Simulation software input and output reports as specified in the AEGB Energy Analysis Summary Form, including hourly, summer peak day reports, for proposed and baseline buildings

Resources

Austin Energy - Commercial Rebate Offerings
Austin Energy - Commercial Rebate Application
City of Austin Ordinance No. 20160623-099 - Energy Code Ordinance and Amendments
ENERGY STAR Portfolio Manager
ASHRAE Standards and Guidelines - ANSI/ASHRAE/IES 90.1-2013, Energy Standard for Buildings
Austin Energy Electric Rates
Texas Gas Service Rates
ASHRAE Advanced Energy Design Guides
U.S. Department of Energy - Building Energy Software Tools Directory
U.S. Department of Energy - IRS Qualified Software for Calculating Commercial Building Tax Deductions
National Institute of Building Sciences - Whole Building Design Guide
E Source - Business Energy Advisor
U.S. Department of Energy - COM*check*™
Architecture 2030
2030 Palette
Sefaira
Open Studio

5. Outdoor Water Use Reduction

Intent
To reduce the environmental and economic impacts associated with water consumption, and lessen the burden on municipal water supply and treatment facilities by minimizing potable water use for landscape irrigation

Requirements
Choose one of the options below:

- **OPTION 1 - No Irrigation Required**

  Demonstrate that the landscape does not require a permanent irrigation system beyond a maximum two-year establishment period.

- **OPTION 2 - Reduce or Eliminate Irrigation**

  Reduce the project's potable landscape irrigation water demand by 30% from the calculated baseline for the site's peak watering month as calculated in the AEGB Irrigation Calculator.

Projects with landscape area less than the smaller of 1,000 square feet or 5% of the total site area are exempt from the Outdoor Water Use Reduction Basic Requirement. Athletic fields and food gardens may be excluded at the project team's discretion.

Required Documentation

- Irrigation plans indicating the type of irrigation system, calculations of the areas that will require irrigation, and any alternative water systems, as applicable
- Landscape plans indicating landscape location and species
- Design narrative describing the following components, as applicable: landscape design, irrigation system, auxiliary water system with the capacity of the system highlighted, and description of why a permanent landscape irrigation system is not necessary
- AEGB Irrigation Water Use Reduction Calculator
- AEGB Rainwater & Condensate Calculator, if applicable

Resources

Austin Water Conservation Program
Austin Water Xeriscape Plant List
Austin Watershed Protection Department - Grow Green
The Irrigation Association
Texas Water Development Board - Guide to Rainwater Harvesting
Texas A&M - Rainwater Harvesting (including calculator)
Texas A&M - Texas Evapotranspiration
U.S. EPA - The WaterSense Water Budget Tool

6. Indoor Water Use Reduction

Intent
To reduce the environmental and economic impacts associated with water consumption, and lessen the burden on municipal water supply and treatment facilities by increasing water efficiency within the building

Requirements
Meet the building water use and process water use requirements for all applicable plumbing fixtures and fixture fittings installed in the project.

- **Building Water Use**

  - **OPTION 1 - Building Performance Requirements**
    Demonstrate a 5% reduction in building water use over the baseline as calculated in the AEGB Building Water Use Reduction Calculator.

  OR

  - **OPTION 2 - Prescriptive Performance Requirements**
    Install water efficient flush and flow fixtures that do not exceed the flush and flow rates in Table 1.

Table 1: Maximum Flush and Flow Rates for Building Plumbing Fixtures

Fixture or Fitting	Flush/Flow Rate
Water Closet	1.28 gpf [1]
Urinal	0.5 gpf
Public Lavatory Faucet	0.5 gpm
Private Lavatory Faucet	1.0 gpm
Kitchen Faucet [2]	1.8 gpm
Showerhead	2.0 gpm

[1] Water closets, including flush tank, flushometer tank, and flushometer valve operated. For dual flush toilets, the maximum average flush volume is defined as the average flush volume of two reduced flushes and one full flush.
[2] Flow rates apply to both public and private installations.

AND

- **Process Water Use**
  For all applicable appliances and equipment installed on the project, comply with the requirements in Table 2:

Table 2: Process Water Use Requirements

Appliance or Water Use	Requirement
Residential-style Dishwashers	ENERGY STAR or performance equivalent
Pre-rinse Spray Valves	≤ 1.3 gpm
Ice Machine	ENERGY STAR or performance equivalent and use either air-cooled or closed-loop cooling, such as chilled or condenser water system
Water Feature	Use at least 50% non-potable water supply

Required Documentation

- Projected building occupancy and occupancy schedules
- AEGB Building Water Use Reduction Calculator

- AEGB Process Water Use Reduction Calculator
- AEGB Rainwater and Condensate Calculator, if using auxiliary water
- Plumbing fixture schedule specifying flush and flow rates
- Equipment and fixture specifications for all applicable appliances, fixtures, and water features
- Verification of flow and flush rates and other performance criteria, as requested

Resources

City of Austin Water Conservation
City of Austin Ordinance No. 20130606-093
EPA WaterSense labeled products
ENERGY STAR – Residential Dishwashers
ENERGY STAR – Commercial Ice Machines

7. Low-Emitting Materials - Interior Paints & Coatings

Intent

To reduce the quantity of indoor air contaminants that are damaging to air quality and to the environment, and to protect the health and comfort of installers and building occupants

Requirements

- All **paints, primers, and anti-corrosive coatings** applied on-site to the interior of the building must not exceed the VOC limit of Green Seal Environmental Standard GS-11, Edition 3.1, 2013, Section 3.4.

Paint Type	VOC Limit (g/L) *
Non-flat Topcoat	100
Flat Topcoat	50
Primer or Undercoat	100
Anti-Corrosive Coating	250

* The calculation of VOC shall exclude water and colorants added at the point-of-sale.

- **Coatings** applied on-site to the interior of the building must not exceed the currently effective VOC limits of South Coast Air Quality Management District (SCAQMD) Rule 1113 for clear wood finishes, floor coatings, stains, sealers and shellacs, and all other applicable coatings.

If a specialty product does not have a low VOC option, the project must complete a VOC Budget to account for use of any non-compliant products.

Required Documentation

- Project specifications identifying applicable VOC limits for all interior paints and coatings applied on-site
- Verification that all paints and coatings meet VOC limits, as requested. Verification may include product cut sheets, MSDS, or manufacturer letter
- Tabulation of products using the AEGB Low Emitting Materials Calculator

Resources

Green Seal GS-11 Paints and Coatings, Edition 3.1, July 12, 2013
South Coast Air Quality Management District - Rule 1113 Architectural Coatings

8. Storage & Collection of Recyclables

Intent
To reduce waste generated by building occupants and building operations extending the life of the landfill and saving energy and resources through the recycling process

Requirements

- Identify the facility's top four recyclable material streams.
- Comply with the requirements of the Austin Resource Recovery Universal Recycling Ordinance (URO) (Austin Ordinance No. 20140612-010), regardless of size or type of project.
- Provide appropriately sized, easily-accessible, clearly-marked area(s) dedicated to the separation, storage, and collection of the following materials:
  - Materials included in the URO: paper, cardboard, glass bottles and jars, aluminum cans, and plastic bottles #1-2
  - The facility's top four recyclable material streams
  - Facilities with a major food service component or commercial kitchen, including restaurants and groceries, must provide separation, storage, and collection of kitchen scraps and other compostable materials
  - All projects over 100,000 square feet must provide safe storage and recycling of fluorescent lamps and batteries
- Per the URO, appropriate signage and on-going education about recycling must be provided for all building occupants.

Required Documentation

- Narrative identifying the project's top four recyclable material streams, how the project determined these streams, and a description of the onsite collection and recycling process
- Site and floor plans identifying recycling / compost collection areas
- For projects larger than 100,000 square feet: Site plan indicating collection area for fluorescent bulbs and batteries, and narrative describing how these materials will be safely recycled
- Complete the online Austin Resource Recovery (ARR) Recycling Plan form and submit the confirmation email from ARR
- Identify the recycling service provider or recycling facility for each material to be recycled

Recyclable waste streams include, but are not limited to:

- Paper and Cardboard
- Glass
- Aluminum, tin, steel, or mixed metals
- Foils (aluminum, tin, copper)
- Beverage cartons (gable top containers)
- Shredded paper
- Pallets, wood or plastic
- Batteries of all types
- Plastics #1-#7, including plastic bags or films or expanded polystyrene (Styrofoam)
- Compact fluorescent lamps (CFLs)
- Other fluorescent bulbs
- Electronics (e-scrap) including televisions
- Printer cartridges (ink jet or toner)

- Compostable materials
- Tires
- Liquids including fats, oils and greases
- Textiles

Resources

Austin Resource Recovery - Recycling Plan Form
City of Austin - Universal Recycling Ordinance (Amended 06/12/2014)

9. Construction Waste Management

Intent

To reduce construction and demolition waste destined for the landfill or incineration facilities by reusing or recycling material thus, furthering the City of Austin's *Zero Waste* Goals, extending the life of the landfills, and saving energy, resources, and costs

Requirements

Divert non-hazardous construction and demolition materials, excluding excavated soil, stone, and land clearing debris, from landfills and incinerators. Diverted material must include at least four material streams (i.e. concrete, metal, wood, gypsum wallboard, paper and cardboard, plastic). Maintain tracking and report weights of material hauled and processed for recycling/salvage and sent to landfill for all material generated during demolition and construction activity associated with the project.

Acceptable strategies include any combination of the following two options:

Option 1: Divert at least 50% (by weight) of non-hazardous construction and demolition materials, excluding excavated soil, stone, and land clearing debris, from landfill and incineration.

OR

Option 2: Recycle and/or salvage non-hazardous construction and demolition materials by sending the project's total commingled waste materials to a mixed-recovery processing facility that has:

- Registered as a Qualified Processor with Austin Resource Recovery as defined in City of Austin Code Chapter 15-6, Article 9 – Construction and Demolition Materials Diversion Program

OR

- Received Recycling Certification Institute's Certification of Real Rates (CORR) or equivalent *qualified third party verification* of facility-average recycling rates.

Definitions

Zero Waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Implementing Zero Waste will eliminate all discharges to the land, water or air that are a threat to planetary, human, animal or plant health.

Qualified third-party verification organizations who certify facility average recycling rates include these minimum program requirements:

- The certification organization follows guidelines for environmental claims and third-party oversight, including ISO/IEC Guide 65 or ISO 17065 and relevant portions of the ISO 14000 family of standards.

- The certification organization continuously monitors "certified" facilities to ensure that the facilities are operating legally and meeting the minimum program requirements for facility certification and recycling rates.
- Data submitted by the facilities to the certification organization in support of the recycling rate is audited. The audit includes, at a minimum: the evaluation of recyclables sales records, verification of facility sales into commodity markets, monitoring off-site movement of materials, and a review of the facilities' customers haul weight information.
- Facilities submit data to the certification organization that supports the recycling rate, such as a mass balance recycling rate (tons in/tons out) for a twelve month period, or quarterly sorts completed and verified by an independent third party entity.
- Breakdown of materials (by type and by weight), including analysis of supporting data relating to amounts (in tons) and types of materials received and processed at the facility.
- At a minimum, the third-party certifying organization conducts an on-site visit of the Facility for the first year certification, with subsequent site visits occurring at least once every two (2) years, unless additional visits are deemed necessary by the certification organization. The site visit will examine:
    - How materials enter, are measured, deposited, processed/sorted and exit facility,
    - Conduct interviews with key personnel,
    - Confirm equipment types and capacity,
    - Observe and verify load/materials sorting and accuracy,
    - Verify use and accuracy of scales including calibration frequency.
- Recycling rates shall adhere to these requirements:
    - Measurements must be based on weight (not volume), using scales.
    - Recycling rates must be available on a website and viewable by the general public.
- Facility recycling data submitted to certification program will be analyzed for recycling rates using a mass balance formula or quarterly sorts completed and verified by an independent third party entity.
- Final recycling tracking will be detailed enough to:
    - Include separate recycling rates by material type
    - Isolate material diverted for alternative daily cover
    - Isolate material diverted for waste to energy or incineration end-markets

Required Documentation

- Specifications for Construction Waste Management in the contract documents
- Construction Waste Management Plan. Plan must address at minimum:
    - Anticipated waste streams
    - Four materials to be diverted from landfill/incineration
    - Hauler, processor, and landfill/recycler location for each material stream
- AEGB Construction Waste Calculator. An updated calculator must be provided to AEGB quarterly reflecting the project's current status
- Weight tickets for all of the waste recycled, salvaged, or sent to the landfill/incineration, as requested

Resources

U.S. Zero Waste Business Council
U.S. EPA - Sustainable Management of Construction and Demolition Materials
Construction Industry Compliance Assistance Center
Austin Resource Recovery – Construction Material Reuse and Recycling
Austin Resource Recovery - Solid Waste Services and Waste Reduction Program
Austin Resource Recovery - Private Waste & Recycling Hauler Licensing
Austin Materials Marketplace
Construction and Demolition Recycling Ordinance (Ord. #20151119-098)
Recycling Certification Institute

10. Tenant Requirements

Intent
To incorporate sustainable design and construction features into tenant or speculative space and integrate shell and tenant space systems to achieve whole building performance

Requirements
Choose one of the options below:

- **OPTION 1 - Projects without Tenant Space**
  Project does not contain tenant or speculative space.

- **OPTION 2 - Projects with Tenant Space**
  Institute tenant requirements that extend all Green Building basic requirements and applicable voluntary measures to tenant or speculative space within the project. Establish a responsible party and protocol for review and verification of tenant compliance with tenant requirements.

  Tenant requirements should include the following:
  - Tenant Requirements description and scope
  - Description of review and verification procedure
  - Stipulations and documentation requirements for all AEGB Basic Requirements and any voluntary measures pursued by the base building, as applicable to the tenant or speculative space scope.

  Rental dwelling units are exempt from tenant requirements.

Required Documentation
- Option 1: Confirmation that the project does not contain tenant or speculative space.
- Option 2:
  - Project-specific Tenant Requirements agreement establishing stipulations and documentation requirements for all AEGB Basic Requirements and any voluntary measures pursued by the base building, as applicable to the tenant or speculative space scope.
  - Description of responsible party and protocol for review and verification of tenant compliance with tenant requirements.

Resources
Austin Energy - Commercial Rebate Offerings
Austin Energy - Commercial Rebate Application

INTEGRATED DESIGN

Achieving Sustainability Goals through Integrated Design

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1. Integrated Project Design 2 points

Intent
To develop an early understanding of the relationships between building systems and the natural environment, set sustainability goals early in the design process, and implement green design and construction strategies to achieve a high-performance and cost-effective building

Requirements
Beginning in the programming phase, and continuing throughout the design phases, identify and use opportunities to achieve synergies across disciplines and building systems. Perform an early analysis of the energy- and water-related systems and use multi-disciplinary design and decision-making to inform the project's design, as demonstrated by the owner's project requirements (OPR), basis of design (BOD), design documents, and construction documents.

- **Energy-Related Systems**
    - Discovery: Before the completion of schematic design, perform a preliminary energy analysis that explores how to reduce energy loads in the building and accomplish sustainability goals. Assess through parametric analysis at least two potential strategies associated with the following:
        - Site conditions: Assess shading, exterior lighting, hardscape, landscaping, and adjacent site conditions.
        - Massing and orientation: Assess how massing and orientation affect HVAC sizing, energy consumption, lighting, and renewable energy opportunities.
        - Envelope attributes: Assess insulation values, window-to-wall ratios, glazing characteristics, and shading.
        - Lighting levels: Assess interior surface reflectance values and lighting levels in occupied spaces.
        - Thermal comfort: Assess thermal comfort range options.
        - Plug and process loads: Assess reducing plug and process loads through programmatic solutions (e.g., equipment and purchasing policies, layout options).
        - Programmatic and operational parameters: Assess multi-functioning spaces, operating schedules, space allotment per person, and reduction of building area.
    - Implementation: Document how the parametric analysis informed design decisions in the project's OPR and BOD and the eventual design of the project, including the following, as applicable:
        - building and site program
        - building form and massing
        - building envelope and façade treatments on different orientations
        - sizing of building systems (e.g., HVAC, lighting, controls, exterior materials, interior finishes, and functional program elements)
        - other systems

AND

- **Water-Related Systems**

  - Discovery: Before the completion of schematic design, perform a preliminary water budget analysis that explores how to reduce potable water loads in the building and accomplish sustainability goals. Assess and estimate the project's potential non-potable water supply sources and water demand volumes, including the following:
    - Indoor water demand: Assess flow and flush fixture demand volumes for the design case, calculated in accordance with the Water Basic Requirement Indoor Water Use Reduction.
    - Outdoor water demand: Assess landscape irrigation demand volume for the design case calculated in accordance with the Water Basic Requirement Outdoor Water Use Reduction.
    - Process water demand: Assess kitchen, laundry, cooling tower, and other equipment demand volumes in accordance with the Water measure Process Water Use Reduction.
    - Supply sources: Assess all potential non-potable water supply source volumes, such as on-site rainwater and graywater, reclaimed water, and HVAC equipment condensate.

  - Implementation: Document how the analysis informed building and site design decisions in the project's OPR and BOD. Demonstrate how at least one on-site non-potable water supply source was used to reduce the burden on municipal supply or wastewater treatment systems by contributing to the water demand components identified. Demonstrate how the analysis informed the design of the project, including the following, as applicable:
    - plumbing systems
    - sewage conveyance
    - stormwater quantity and quality management systems
    - landscaping, irrigation, and site elements
    - roofing systems and/or building form and geometry
    - other systems

Required Documentation

- Summary of the data, analysis, results, and project design demonstrating how design decisions were influenced by these studies

Resources

National Institute of Building Sciences - Whole Building Design Guide
U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy
Architecture 2030
2030 Palette
Sefaira
Open Studio

SITE

Sustainability through Responsible Site Selection & Development

1. Environmental Sensitivity — 2 points

Intent
To reduce the impact of population growth in Central Texas, preserve our natural resources, and enhance livability through careful site selection that utilizes existing infrastructure and supports the Imagine Austin Comprehensive Plan

Requirements

- Project site is not in the Drinking Water Protected Zone, which includes the Barton Springs Zone, Barton Creek Watershed, Edwards Aquifer Recharge and Contributing Zone, and Balcones Canyon Land.

AND

- Project site is not a *Greenfield*.

Required Documentation

- GEO Profile print-out identifying project site location and Watershed Classification from the Watershed Development Map GIS Viewer, including site address
- Pre-construction site description, preferably an Environmental Site Assessment report

Definitions

Greenfields are sites not previously developed or graded, except for agricultural or forestry uses, and remain in a natural state.

Resources

City of Austin - Watershed Development Map GIS Viewer:

Open development web map via the web address above. Add the project address into the search bar at the top and click "GO." At the right open the "Development Resources" folder and click on the "Desired Development Zone" box. This will show the drinking water protected zones in yellow and the desired development zones in green.

City of Austin - Watershed Ordinance Map
City of Austin - Urban Planning and Design
City of Austin - Imagine Austin Comprehensive Plan

2. Desired Development — 2 points

Intent
To reduce the impact of population growth in Central Texas, preserve our natural resources, and enhance livability through careful site selection that utilizes existing infrastructure and supports the Imagine Austin Comprehensive Plan

Requirements

- Project site is located within the Urban Watershed Desired Development Zone.

Required Documentation

- GEO Profile print-out identifying project site location and Watershed Classification from the Watershed Development Map GIS Viewer, including site address
- Pre-construction site description, preferably an Environmental Site Assessment report

Resources

City of Austin - Watershed Development Map GIS Viewer:

Open development web map via the web address above. Add the project address into the search bar at the top and click "GO." At the right open the "Development Resources" folder and click on the "Desired Development Zone" box. This will show the drinking water protected zones in yellow and the desired development zones in green.

City of Austin - Watershed Ordinance Map
City of Austin - Urban Planning and Design
City of Austin - Imagine Austin Comprehensive Plan

3. Density 2 points

Intent

To reduce the impact of population growth in Central Texas, preserve our natural resources, and enhance livability through careful site selection that utilizes existing infrastructure and supports the Imagine Austin Comprehensive Plan

Requirements

- Project site is located within one of the centers or corridors as defined in the Imagine Austin Comprehensive Plan Growth Concept Map.

Required Documentation

- Imagine Austin Comprehensive Plan Growth Concept Map indicating location of project site

Resources

City of Austin - Watershed Development Map GIS Viewer:

Open development web map via the web address above. Add the project address into the search bar at the top and click "GO." At the right open the "Development Resources" folder and click on the "Desired Development Zone" box. This will show the drinking water protected zones in yellow and the desired development zones in green.

City of Austin - Urban Planning and Design
City of Austin - Imagine Austin Comprehensive Plan
City of Austin - Planning and Zoning Long-Range Plan Efforts

4. Diverse & Walkable Communities 1 point

Intent

To promote livable, walkable, and bikeable communities, efficient transportation, connectivity, safe pedestrian access, and community-oriented business growth; to protect land and wildlife habitat by encouraging development in areas with existing infrastructure

Requirements

- Building is connected to neighboring properties via pedestrian and/or bicycle-only paths (shading is preferred) that are separate or protected from vehicular traffic.

- Locate the building so that any functional entry is within 1/2-mile walking distance to at least 10 distinct basic services.

Basic services include, but are not limited to:

1) Bank, 2) Place of Worship, 3) Convenience Grocery, 4) Daycare, 5) Cleaners, 6) Fire Station, 7) Beauty Salon, 8) Hardware, 9) Laundry, 10) Library, 11) Medical / Dental Office, 12) Senior Care Facility, 13) Park, 14) Pharmacy, 15) Post Office, 16) Restaurant, 17) School, 18) Supermarket, 19) Entertainment Venue, 20) Community Center, 21) Fitness Center, 22) Museum, 23) Retail Store

Two out of the ten services may be restaurants; all other services must be distinct. Up to two anticipated services may be included if operational within a year of the project's occupancy. Up to two services may be counted within the proposed building.

- Basic services must be accessible via a safe route intended for use by pedestrians that does not require crossing a road more than 5 lanes wide or 35 miles per hour, without a safe pedestrian crosswalk.

Required Documentation

- Vicinity plan identifying Basic Services, the pedestrian route, and distance to a functional entrance of the project
- Verification of a signed lease for any anticipated services

Resources

City of Austin - Imagine Austin Comprehensive Plan
City of Austin - Subchapter E: Design Standards and Mixed Use
WalkScore® Maps
Oregon Bicycle and Pedestrian Planning and Design Manual
City of Portland, Oregon - 20-Minute Neighborhoods

5. Brownfield Redevelopment 1 point

Intent

To revitalize communities, utilize existing infrastructure, ease development pressure on undeveloped land, and improve and protect the environment by redeveloping brownfield sites

Requirements

- Develop on a site defined as a *brownfield* and requiring remediation by a local, state, or federal authority.
- Remediate site of contamination using established technologies that have minimal disruption on the site's natural features above and below ground.

Required Documentation

- Documentation of the Brownfield classification by an authority with jurisdiction, and verification that remediation efforts were completed, after site purchase

Definitions

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

Resources

City of Austin Brownfields Revitalization Office
Texas Commission on Environmental Quality - Brownfields Site Assessment Program
U.S. EPA - Sustainable Redevelopment of Brownfields Program
U.S. EPA - CERCLA 104 (k) information

2011 CERCLA Priority List of Hazardous Substances

6. Site Specific Design 1 point

Intent
To reduce the impact of the structures on the environment through an early assessment of site conditions that informs sustainable design decisions

Requirements
Assess site conditions before design in order to evaluate sustainable options and inform design decisions about the building's relationship to the specific site and local environment. Complete and document a site-specific study and incorporate study findings into the building design.

- Complete a site survey to evaluate the following conditions:
  - Local Climate
  - Topography
  - Soils
  - Hydrology
  - Vegetation
  - Local habitat
  - Human Use
  - Cultural or Historic Significance
  - Site Acoustics

Required Documentation
- Narrative description of the project's site-specific design analysis, and individual study reports
- Narrative or drawings demonstrating how the site features influenced the design; or reasons for not addressing any of the findings of the analysis

Resources
U.S. DOE-EERE – Whole Building Design Approach
City of Austin - Watershed Development Map GIS Viewer
City of Austin - Historic Preservation Office -Historic Districts
Sun Path Chart
Texas Historical Commission Atlas of historical sites
Austin Weather Data
Texas Climate Data

7. Public Transportation 1-3 points

Intent
To reduce greenhouse gas emissions, air pollution, and other environmental and health impacts that are associated with automobile use

Requirements
- **OPTION 1 (1-3 points)**

  Locate any functional entry of the project within 1/4 mile walking distance of existing or planned bus stop(s), or within 1/2 mile walking distance of existing or planned bus rapid transit stop(s), or rail station(s). Planned stops and stations may count if they are funded by the date of the Certificate of Occupancy (CO) and are anticipated to be operational within 24 months of that date. The transit service in aggregate must meet the weekday and weekend trip minimums listed in Table 1.

Table 1: Minimum aggregate daily transit service (bus, rapid transit, or rail) and associated points

Weekday Trips	Weekend Trips	Points
72	40	1
144	108	2
360	216	3

Both weekday and weekend trip minimums must be met.

Count trips as follows:
- Trips are counted on routes with service in opposite directions
- Trips in opposite directions are counted separately
- Trips of a route that stops more than once within the required walking distance may be counted only once
- If the inbound or outbound stops are beyond the walking distance, calculate the average walking distance
- Projects must have service every day

OR

- **OPTION 2 (1 point)**

  Locate any functional entry of the project within 1/4 mile walking distance of existing or planned bus stop(s) serving at least two (2) bus routes, or within 1/2 mile walking distance of existing or planned bus rapid transit stop(s), or rail station(s). Planned stops and stations may count if they are funded by the date of the certificate of occupancy (CO) and are anticipated to be operational within 24 months of that date.

Required Documentation
- Vicinity plan identifying public transportation stop(s) with the walking distance from the building's entry indicated
- Option 1: Weekday and weekend trip counts for all stops and routes servicing the site

Resources

Capital Metro - Trip Planner
City of Austin -Transit Oriented Development Districts
Imagine Austin

8. Bicycle Use 1 point

Intent

To reduce greenhouse gas emissions, air pollution, and other environmental and health impacts that are associated with automobile use

Requirements
- **Bicycle Storage**
  - **Non-Residential Use**
    - Provide bicycle parking for 10% of building occupants.
  - **Residential Use**
    - Provide secure and sheltered bicycle storage that protects the bicycle from inclement weather for 15% of residential occupants.

- Provide bicycle storage for visitors at a rate of one storage space per 20 dwelling units, but no fewer than four spaces.

- **Showers**

  Provide one shower with changing facilities for 0.4% of building occupants, but no less than one. Showers and changing facilities may be located in an adjacent building, if adjacent facility is no more than 200 yards from the project's main entrance Retail projects may provide lockable changing areas, a bicycle maintenance and education program, or bicycle route assistance in lieu of showers.

- **Bicycle Network**

  Provide safe connectivity from bikeable public corridors to bicycle storage area(s) and building facilities.

Required Documentation

- Narrative and calculations of building occupancy, required quantity of bicycle securing areas and shower / changing locations
- Building and/or site plan indicating bicycle rack locations and capacities
- Building plans indicating locations of shower and changing areas
- Specifications of bicycle securing systems
- Site plan indicating safe bicycle routes

Resources

City of Austin - Pedestrian Programs
City of Austin - Bicycle Program
City of Austin - Bicycle Route Map
Bike Austin
Oregon Bicycle and Pedestrian Planning and Design

9. Parking Capacity 1 point

Intent

To reduce greenhouse gas emissions, air pollution, and other environmental and health impacts that are associated with automobile use

Requirements

- **OPTION 1 - No New Parking**

  If no new parking is provided in the building, the project must demonstrate how occupant transportation will be alternatively managed. Parking may be provided in a shared, off-site garage.

OR

- **OPTION 2 - Projects with Parking Minimums**
  - Provide 20% less parking than the minimums defined in the Land Development Code Chapter 25-6, Appendix-A, Part 1.
  - Provide preferred parking for carpools and vanpools for 5% of total parking capacity. Preferred spaces must be indicated with signage. Residential portions of projects may provide infrastructure and support programs to facilitate shared vehicle use such as carpool coordination programs, car-share services, ride boards, and shuttle services to mass transit in lieu of assigned carpool spaces.

OR

- **OPTION 3 - Projects without Parking Minimums**
  - For areas with no minimum parking capacity requirement provide 60% less than the base ratios defined in the Land Development Code Chapter 25-6 Appendix A, Part 1.
  - Provide preferred parking for carpools and vanpools for 5% of total parking capacity. Preferred spaces must be indicated with signage. Residential portions of projects may provide infrastructure and support programs to facilitate shared vehicle use such as carpool coordination programs, car-share services, ride boards, and shuttle services to mass transit in lieu of assigned carpool spaces.

Required Documentation

- Parking plan highlighting the total parking capacity and preferred parking locations for carpools including signage locations and drawings
- Narrative and calculations for any alternate parking arrangements
- Shared parking analysis approved by COA/PDRD for site development permit

Resources

City of Austin - Land Development Code Ch 25-6-471, Off-street parking and loading
City of Austin - Parking Enterprise Division

10. Electric Vehicle Charging Stations 1 point

Intent

To reduce greenhouse gas emissions, air pollution, and other environmental and health impacts that are associated with automobile use

Requirements

Install electric vehicle charging station(s) per the requirements. Participate in the Austin Energy “Plug-in-EVerywhere” rebate program, if available.

- **OPTION 1**

  Install a bank of *Level 1* outlets, for at least 6% of the total parking spaces.

OR

- **OPTION 2**

  Install *Level 2,* communicating or non-communicating, electric vehicle charging stations, for at least 3% of the total parking spaces.

OR

- **OPTION 3**

  Install at least one *DC Fast Charging* electric vehicle charging station.

AND

- Electric Vehicle charging station installation must follow the TDLR Guidelines for Electrical Vehicle Charging Stations.
- All parking spaces associated with charging stations should be designated with “EV Charging Only” signage.

Required Documentation

- Plans that identify the location of the Electric Vehicle charging stations. DC fast requires an approved site plan
- Specifications for the EV charging stations
- Narrative explaining the scope of use for the Electric Vehicle charging stations

Definitions

For EV charging station definitions, see U.S. Department of Energy - Energy Efficiency and Renewable Energy - Alternative Fuels Data Center

Resources

Austin Energy Plug-in Partners
U.S. Dept. of Energy-EERE: Alternative Fuels Data Center
U.S. Dept. of Energy-EERE: Fuel Economy
International Energy Agency - Hybrid & Electric Vehicles Charging Equipment
ChargePoint® Mobile Applications - ChargePoint station locations
Texas Department of Licensing and Regulation - Guidelines for Electric Vehicle Charging Stations

11. Protect & Restore Habitat 1 point

Intent

To conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity

Requirements

- Preserve and protect 40% of all portions of the site identified as *greenfield* area from development and construction activity.

AND

- Restore 30% of all portions of the site identified as *previously developed* with *native* or *adapted vegetation.* Turfgrass may not exceed 25% of the contributing vegetated area. Athletic fields are excluded from calculations.

Green roof areas may be included in the contributing area calculations if the plants meet the definition of native/adapted. Wetlands or naturally designed ponds may be included in contributing area calculations.

Required Documentation

- Site plan indicating project boundary, tree protection, and area calculations demonstrating that at least 40% of all greenfield area is preserved and protected
- Landscape plan, including plant list and area calculations, demonstrating that at least 30% of the previously developed area is vegetated with native or adapted plants

Definitions

Greenfield is defined as a parcel of land that is not previously developed or graded, except for agricultural and forestry uses, and remains in a natural state.

Previously developed area is land that previously contained buildings, roadways, parking lots or was graded or altered by direct human activities.

Native or adapted species are plants that are indigenous to Central Texas or adapted to the local climate, and are not considered invasive species or noxious weeds.

Resources

Austin Watershed Protection Department - Grow Green

12. Beneficial Open Space 1 point

Intent

To create exterior open space for interaction with the outdoor environment, including opportunities for social interaction, recreation, and/or physical activities

Requirements

- Provide outdoor open space equal to at least 30% of the total site area (including building footprint).
- A minimum of 7.5% of the total site area (including building footprint) must be vegetated with *native or adapted* plants or have overhead vegetated canopy coverage. Turfgrass may not contribute to the native/adapted vegetated area, but may contribute towards overall open space.
- Beneficial Open Space must be exterior space that is physically or visually accessible, and meets one of the following criteria:
  - Communal site elements that accommodate outdoor dining, meetings, classes or other social activities
  - Pedestrian oriented hardscape, including but not limited to, sidewalks and trails.
  - Recreation oriented areas such as play grounds, pools, amenity decks, athletic courts or fields
  - Garden space that provides passive recreation opportunities, or is dedicated to food growing
  - A "Protected or Restored Habitat" that provides elements of human interaction through trail access, viewing platforms or an interpretive signage component
  - Wetlands or vegetated wet ponds with average side slope gradients of 1:4 (vertical: horizontal) or less
  - Vegetated roofs

Parking lots and roadways may not contribute to open space provision.

Required Documentation

- Site or landscape plan with plant list and calculations of total site area and contributing beneficial open space.

Definitions

Native or adapted species are plants that are indigenous to Central Texas or adapted to the local climate, and are not considered invasive species or noxious weeds.

Resources

Austin Watershed Protection Department - Grow Green

13. Access to Local & Regional Produce 1 point

Intent

To reduce environmental impact of globally sourced food production, and improve occupant health and productivity by supporting local, regional and urban agriculture, and by removing key barriers from consumption of healthy and local produce

Requirements

- **OPTION 1**

  Implement a weekly local produce delivery program available on an elective basis to employees or residents of the building.

OR

- **OPTION 2**

  Implement a local produce purchasing policy for the building's cafeteria.

OR

- **OPTION 3**

  Integrate opportunities for agriculture, appropriate to the scale and density of the project, using the Floor Area Ratio (F.A.R.) as the basis for calculation. The garden must be available to building occupants for participation.

Site Description	F.A.R.	Percentage of Site Dedicated to Food Production
Rural to General Urban	< 0.50	5.0%
Urban Core Zone	≥ 0.50	2.5%

Required Documentation

- Option 1: Documentation of the local produce delivery program
- Option 2: Cafeteria purchasing policy identifying local produce sources
- Option 3: Calculation of building F.A.R., landscape plans indicating areas for food production, and area calculations for the site demonstrating the minimum requirements are met

Resources

Sustainable Food Center
Texas Department of State Health Services - "Farm to Work Toolkit"
The Living Building Challenge 2.1

14. Heat Island Reduction 1 point

Intent

To minimize the effects of heat island on microclimate, wildlife, and human habitat, and improve air quality

Requirements

- **OPTION 1**

  Provide any combination of the following strategies for 50% of the site hardscape.
  - Vegetated open-grid pavement system (at least 50% pervious)
  - Paving materials or shade structures with a three-year aged solar reflectance (SR*)* value of at least 0.28. If three-year aged value information is not available, use materials with an initial SR of at least 0.33
  - New or existing plants that provide shade over hardscape within 10 years of building occupancy
  - Shade structures covered by energy generation systems, such as solar thermal collectors, and photovoltaics

OR

- **OPTION 2**

  Locate at least 50% of on-site parking spaces underground, or in structured parking with a concrete top deck surface, or roof material with a three-year aged SRI of at least 32. If three-year aged value information is not available, use materials with an initial SRI of at least 39 at installation. Parking garages with vegetated roofs or covered by energy generation systems also meet this requirement.

Required Documentation

- Option 1: Site plan with calculations of site hardscape and areas of hardscape meeting one of the qualifying strategies
- Option 2: Building plans and sections identifying structured parking and roof plan indicating qualifying roofing SRI value

Definitions

The Urban *Heat Island* is characterized by increased surface temperatures in urban areas due to proliferation of impervious, heat absorbing, building materials, which affect the formation of ground-level ozone or smog, local weather patterns and the performance of air conditioning and refrigeration equipment.

Resources

Lawrence Berkeley National Laboratory - Cool Materials and Shade Trees
U.S. EPA – Heat Island Effect
American Concrete Pavement Association "Albedo: A Measure of Pavement Surface Reflectance"
Austin Watershed Protection Department - Grow Green

15. Light Pollution Reduction 1 point

Intent

To preserve nocturnal environments, and increase night sky access by reducing the adverse effects of excessive artificial light outdoors

Requirements

Meet the Uplight and Light Trespass requirements given below for the site's Lighting Zone as defined by Illuminating Engineering Society and International Dark Sky Association (IES/IDA) Model Lighting Ordinance (MLO) User Guide (*See definitions section for Lighting Zone descriptions*).

- **Uplight**
  - **OPTION 1 - BUG Rating Method**

    The Uplight (U) Rating, as defined in IESNA TM-15-11 Addendum A, of all exterior luminaires must not exceed the values in Table 1.

Table 1: Uplight Rating

	LZ0	LZ1	LZ2	LZ3	LZ4
Maximum Uplight Rating	U0	U1	U2	U3	U4

Lighting in LZ 3 and LZ 4, used solely for uplighting structures, building facades, or landscaping and is automatically turned off from midnight until 6 a.m. may be exempt from the uplight requirements.

OR

- **OPTION 2 - Calculation Method**
  The percentage of total exterior fixture lumens emitted above the horizontal - i.e, greater than 90 degrees from nadir (straight down) - must not exceed the values in Table 2.

Table 2: Lumen Emitted Above Horizontal

	LZ0	LZ1	LZ2	LZ3	LZ4
Maximum Lumen Percentage Emitted Above Horizontal	0%	0%	1.5%	3%	6%

- **Light Trespass**

  Meet the requirements of either Option 1 or Option 2 at the property line. For property lines that abut public walkways, bikeways, plazas, and parking lots, the property line may be considered to be 5 feet beyond the actual property line for the purpose of determining compliance. For property lines that abut public roadways and public transit corridors, the property line may be considered to be the centerline of the public roadway or public transit corridor for the purpose of determining compliance.

  - **OPTION 1 - BUG Rating Method**
    The Backlight (B), and Glare (G) Ratings, as defined in IESNA TM-15-11 Addendum A, of all exterior luminaires must not exceed the values in Table 3.

Table 3: Backlight and Glare Ratings

	LZ0	LZ1	LZ2	LZ3	LZ4
	Backlight Ratings				
>2 mounting heights from property line	B1	B3	B4	B5	B5
1 to 2 mounting heights from property line	B1	B2	B3	B4	B4
0.5 to 1 mounting height to property line	B0	B1	B2	B3	B3
<0.5 mounting height to property line	B0	B0	B0	B1	B2
	Glare Ratings				
Building-mounted >2 mounting heights from property line	G0	G1	G2	G3	G4
Building-mounted 1 to 2 mounting heights from property line	G0	G0	G1	G1	G2
Building-mounted 0.5 to 1 mounting height to property line	G0	G0	G0	G1	G1

Building-mounted <0.5 mounting height to property line	G0	G0	G0	G0	G1
All other luminaires	G0	G1	G2	G3	G4

Orient all luminaires less than two mounting heights from the lighting boundary such that the backlight points toward the nearest lighting boundary line.

OR

- **OPTION 2 - Calculation Method**
  The vertical illuminance must not exceed the values in Table 4.

Table 4: Vertical Illuminance

	LZ0	LZ1	LZ2	LZ3	LZ4
Vertical Illuminance at Property Line	0.05 fc	0.05 fc	0.10 fc	0.20 fc	0.60 fc

Exterior Lighting Exceptions:
Lighting used for the following applications is exempt when equipped with a control device that complies with the requirements of ASHRAE 90.1-2007 Section 9.4.1.3, and is independent of the control of the non-exempt lighting.

1. Specialized signal, directional, and marker lighting associated with transportation
2. Internally-lit and/or back-lit advertising signage or directional signage
3. Lighting integral to equipment or instrumentation and installed by its manufacturer
4. Lighting for theatrical purposes, including performance, stage, film production, and video production
5. Lighting for athletic playing areas
6. Temporary lighting
7. Lighting for industrial production, material handling, transportation sites, and associated storage areas
8. Theme elements in theme/amusement parks
9. Lighting used to highlight features of public monuments, registered historic landmark structures or buildings, and the national flag.

Required Documentation

- Exterior lighting plan and fixture schedule
- Option 1: Uplight and Light Trespass
  - Tabulation of luminaries with associated BUG ratings and mounting heights from property line
  - Product submittals including zonal lumen distribution with BUG Rating for each luminaire
- Option 2: Uplight and Light Trespass
  - Photometric study of Light Trespass Calculation points may be no more than 5 feet apart. Vertical illuminances must be calculated on vertical planes running parallel to the lighting boundary, with the normal to each plane oriented toward the property and perpendicular to the lighting boundary, extending from grade level to 33 feet above the height of the highest luminaire.
  - Product submittals including ISO footcandle chart and photometric data

Definitions

LZ 0: No ambient lighting

Areas where the natural environment will be seriously and adversely affected by lighting. Impacts include disturbing the biological cycles of flora and fauna and/or detracting from human enjoyment and appreciation of the natural environment. Human activity is subordinate in importance to nature. The vision of human residents and users is adapted to the darkness, and they expect to see little or no lighting. When not needed, lighting should be extinguished. LZ-0 typically includes undeveloped areas of open space, wilderness parks and preserves, areas near astronomical observatories, or any other area where the protection of a dark environment is critical.

LZ 1: Low ambient lighting

Areas where lighting might adversely affect flora and fauna or disturb the character of the area. The vision of human residents and users is adapted to low light levels. Lighting may be used for safety and convenience but it is not necessarily uniform or continuous. After curfew, most lighting should be extinguished or reduced as activity levels decline. LZ-1 typically includes single and two family residential communities, rural town centers, business parks, and other commercial or industrial/storage areas typically with limited nighttime activity.

LZ 2: Moderate ambient lighting

Areas of human activity where the vision of human residents and users is adapted to moderate light levels. Lighting may typically be used for safety and convenience but it is not necessarily uniform or continuous. After curfew, lighting may be extinguished or reduced as activity levels decline. LZ-2 typically includes multifamily residential uses, institutional residential uses, schools, churches, hospitals, hotels/motels, commercial and/or businesses areas with evening activities embedded in predominately residential areas, neighborhood serving recreational and playing fields and/or mixed use development with a predominance of residential uses.

LZ 3: Moderately high ambient lighting

Areas of human activity where the vision of human residents and users is adapted to moderately high light levels. Lighting is generally desired for safety, security and/or convenience and it is often uniform and/or continuous. After curfew, lighting may be extinguished or reduced in most areas as activity levels decline. LZ-3 typically includes commercial corridors, high intensity suburban commercial areas, town centers, mixed use areas, industrial uses and shipping and rail yards with high night time activity, high use recreational and playing fields, regional shopping malls, car dealerships, gas stations, and other nighttime active exterior retail areas.

LZ 4: High ambient lighting

Areas of human activity where the vision of human residents and users is adapted to high light levels. Lighting is generally considered necessary for safety, security and/or convenience and it is mostly uniform and/or continuous. After curfew, lighting may be extinguished or reduced in some areas as activity levels decline. LZ-4 may be used for extremely unusual installations such as high density entertainment districts, and heavy industrial uses. (NOTE: Austin currently does not contain areas meeting the LZ4 definition)

Resources

Illuminating Engineering Society and International Dark Sky Association (IES/IDA) Model Lighting Ordinance (MLO) User Guide

Addendum A for IESNA TM-15-11: Backlight, Uplight, and Glare (BUG) Ratings: International Dark-Sky Association

16. Integrated Pest Management 1 point

Intent
To preserve the site's ecological integrity, enhance biodiversity, and protect wildlife, public health and safety through the use of native and adapted plants, physical barriers, and least toxic pest control

Requirements
Develop and implement an Integrated Pest Management (IPM) Plan and program addressing interior and exterior pest management. The IPM Plan should address the following:

- IPM program description and scope
- Responsible party for implementing and operating the IPM Plan
- Description of pest management strategies including pest identification, monitoring and inspection, evaluation of pest control need, and non-toxic pest control measures (structural, biological or other nonchemical options) approved for use on-site
- When non-toxic options are unreasonable or have been exhausted, define a list of "least toxic" chemical pesticides approved for use on-site. Pesticides that meet the San Francisco Integrated Pest Management Program's Tier 3 hazard criteria are considered "least toxic"
- Notification procedure for building occupants when pesticides considered toxic are to be applied on site
- An appropriate staffing plan including training procedures for maintenance personnel in approved pest management strategies
- For projects using a third party pest management vendor:
  - Vendor's pest management contract(s) must include requirements to meet IPM Plan requirements. Vendor's existing IPM Policy or Program may be used if it meets credit requirements

Required Documentation
- Project-specific IPM Plan that addresses interior and exterior pest control
- Verification of an IPM contract, if using a third party pest management contractor

Resources
City of Austin - Integrated Pest Management [starting point for exterior IPM Plan]
City of Austin - Pesticides
Austin Watershed Protection Department - Grow Green
The IPM Institute of North America
U.S. EPA: Pesticides: Controlling Pests
Massachusetts Integrated Pest Management
San Francisco Integrated Pest Management Program's Tier 3 hazard criteria
PAN Pesticides Database

ENERGY

Saving Energy, Reducing Emissions, Using Clean Energy

1. Building Energy Performance 1-16 points

Intent
To reduce the environmental and economic impacts associated with energy use by designing energy efficient buildings and associated systems

Requirements
Choose one of the options below:

- **OPTION 1 - Whole Building Energy Analysis (1-16 points)**
  Demonstrate at a minimum a 7% improvement (5% if major renovation), using one of the four metrics below, of the performance of the proposed building compared to a baseline building that complies with the current City of Austin Energy Code using the performance rating method described in Appendix G of ANSI/ASHRAE/IESNA Standard 90.1-2013 with errata. Points are achieved according to Table 1.

  Metrics

  1. **Energy cost ($)** – Total annual energy cost calculated for the building's energy consumption, using the actual energy rates that will apply to the project once it is in operation.
  2. **Site Energy (MMBTU)** – Includes all energy consumed within the boundaries of the project site, from all sources.
  3. **Source Energy (MMBTU)** – Includes the energy impact associated with the project upstream of the site. It is the energy necessary to generate and deliver all the Site Energy consumed by the building, from all sources. For more detail, see Energy Star Portfolio Manager Technical Reference - Source Energy
  4. **Greenhouse Gas Emissions ($CO2_e$)** – Total annual greenhouse gas emissions, in terms of carbon dioxide equivalents, of all energy consumed by the building, from all sources.

Table 1: Points for Energy Performance Percentage Improvements

Points	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
New Construction	7%	9%	11%	13%	15%	17%	19%	21%	25%	29%	33%	37%	43%	49%	55%	65%
Major Renovations	5%	7%	9%	11%	13%	15%	17%	19%	23%	27%	31%	35%	41%	47%	53%	63%

OR

- **OPTION 2 - Prescriptive Performance Requirements (1-4 points)**
  Meet the prescriptive requirements for the components described in Table 2. The point structure is outlined below.

  The following restrictions apply:
  - Buildings no greater than 50,000 square feet
  - Office or retail occupancy, excluding groceries and restaurants

- **Small to Medium Office Buildings (up to 50,000 square feet)**
  - Building Envelope: Roof and Walls (1 point)
  - Building Envelope: Projection Factor (1 point)
  - Automatic Daylighting Controls (1 point)
  - Water Heater (1 point)

OR

- **Small Retail Buildings (up to 20,000 square feet)**
  - Building Envelope: Roof and Walls (2 points)
  - Interior Lighting (2 points)

OR

- **Medium Retail Buildings (20,000 to 50,000 square feet)**
  - Building Envelope: Roof and Walls (2 points)
  - Automatic Daylighting Controls (2 points)

Table 2: Prescriptive Performance Requirements

Small to Medium Office Buildings (up to 50,000 square feet)			
BUILDING ENVELOPE: ROOF & WALLS	Roof insulation	Insulation entirely above deck	R-30.0 c.i.
	Walls	Steel-framed	R-13.0 + R-7.5 c.i.
		Mass	R-7.6 c.i.
BUILDING ENVELOPE: PROJECTION FACTOR	Vertical Fenestration	Exterior sun control (S, E, & W only)	PF-0.5
AUTOMATIC DAYLIGHTING CONTROLS	Daylighting (required for qualifying top-lit and side-lit areas)	Automatic controls	Per ASHRAE 90.1-2013, Section 9 (LIGHTING)
WATER HEATER	Service water heating	Gas water heater efficiency	Condensing type = 90% efficiency
		Elec. Storage EF (≤12 kW, ≥20 gal.)	EF > 0.99-0.0012 x volume
		Pipe insulation (d <1.5 in / d ≥ 1.5 in)	1 in. / 1.5 in.
Small Retail Buildings (up to 20,000 square feet)			
BUILDING ENVELOPE: ROOF & WALLS	Roof insulation	Insulation entirely above deck	R-30.0 c.i.
	Walls	Steel-framed	R-13.0 + R-7.5 c.i.
		Mass	R-7.6 c.i.

INTERIOR LIGHTING	LPD-additional specialty floor lighting	For "Retail Areas (RA) 1, 3, 4," as defined in 2015 IECC Section C405.4.2.2.1 and ASHRAE 90.1-2013 Section 9.6.2	RA1- 0.4 W/ft^2 RA3- 0.95 W/ft^2 RA4- 1.5 W/ ft^2
Medium Retail Buildings (20,000 - 50,000 square feet)			
BUILDING ENVELOPE: ROOF & WALLS	Roof insulation	Insulation entirely above deck	R-30.0 c.i.
	Walls	Steel-framed	R-13.0 + R-7.5 c.i.
		Mass	R-7.6 c.i.
AUTOMATIC DAYLIGHTING CONTROLS	Daylighting (required for qualifying top-lit areas, optional for side-lit areas)	Automatic controls	Per ASHRAE 90.1-2013, Section 9 (LIGHTING)

Required Documentation

- Narrative describing the building envelope, systems, and energy saving measures incorporated into the building
- Product Specifications for envelope materials, mechanical and lighting systems highlighting pertinent performance values
- Verification from the commissioning authority, access to ftp site, or confirmation statement that materials and systems installed meet performance specifications
- Option 1:
  - The AEGB Energy Analysis Summary Form indicating energy model inputs and results
  - Simulation software input and output reports as specified in the AEGB Energy Analysis Summary Form, including hourly summer peak day reports, for proposed and baseline buildings

Resources

Austin Energy - Commercial Rebate Offerings
Austin Energy - Commercial Rebate Application
City of Austin Ordinance No. 20160623-099 - Energy Code Ordinance and Amendments
ASHRAE Standards and Guidelines - ANSI/ASHRAE/IES 90.1-2013, Energy Standard for Buildings
Austin Energy Electric Rates
Texas Gas Service Rates
ASHRAE Advanced Energy Design Guides
Building Energy Software Tools Directory
U.S. Department of Energy - IRS Qualified Software for Calculating Commercial Building Tax Deductions
National Institute of Building Sciences - Whole Building Design Guide
E Source - Business Energy Advisor
Architecture 2030
2030 Palette
Sefaira
Open Studio

2. Renewables 1-4 points

Intent
To reduce the environmental and economic impacts associated with fossil fuel energy by increasing on-site energy generation through the use of renewable energy technologies (such as photovoltaic panels, solar thermal, and wind turbines)

Requirements
Use on-site renewable energy generation to offset building electricity consumption. Calculate the percentage of renewable energy generated on-site relative to the building's annual electric energy consumption. Points are achieved according to Table 1.

Table 1: Renewable Energy Generation Points

Points	1	2	3	4
Percentage energy generated	1%	4%	7%	10%

Solar Photovoltaics (PV) and Solar Thermal systems must meet the performance requirements of the Austin Energy Solar Photovoltaics and Solar Water Heater Programs.

Use either of the following two methods to calculate the building's annual electric energy consumption.

- Calculate the building's annual electricity use as per the mandatory provisions of ANSI/ASHRAE/IESNA Standard 90.1-2013 with errata.
- If an energy analysis was not performed, use the Department of Energy's Commercial Buildings Energy Consumption Survey (CBECS) database to estimate the electricity use based on the provided electricity intensity factors for various building types in the United States (see Table 2).

Table 2: CBECS Electricity Use Intensity by Building Type*

Building Type**	Median Electricity Intensity (kWh/ft^2-yr)
Education	11.0
Food Sales	49.4
Food Service	38.4
Large Hospitals (>200,000 ft^2) ***	29.1
Health Care	22.9
Inpatient	27.5
Outpatient	16.1
Lodging	13.5
Retail (other than mall)	14.3
Office	17.3
Public Assembly	12.5
Public Order and Safety	15.3
Religious Worship	4.9

Service	11.0
Warehouse and Storage	7.6
Other	22.5

** All Electricity Intensity factors except Large Hospitals from CBECS 2003, Table C14. Electricity Consumption and Expenditure Intensities for Non-Mall Buildings, 2003.*

*** See CBECS Building Type Definitions for detailed descriptions of building types.*

**** From Energy Characteristics and Energy Consumed in Large Hospital Buildings in the United States in 2007, Table H6. Electricity Usage for Large Hospitals, 2007*

Required Documentation

- Calculations of the project's annual building electricity use and amount of energy to be generated by on-site renewable energy technologies
- Rebate documentation verifying participation in the Austin Energy Solar PV and Solar Water Heater Rebate Programs, if applicable
- Sizing and performance verification including product submittals or other documentation for the on-site renewable energy systems, as requested

Resources

Austin Energy Solar Photovoltaics - Commercial and Multifamily Rebates
Austin Energy Solar Water Heater Rebate
National Renewable Energy Laboratory (NREL) - Learning About Renewable Energy
DSIRE (Database of State Incentives for Renewables and Efficiency) - Texas Incentives/Policies for Renewables & Efficiency
Commercial Buildings Energy Consumption Survey (CBECS)

3. Additional Commissioning 1-3 points

Intent

To meet the owner's project requirements for energy, water, indoor environmental quality, and durability through comprehensive verification of the design, installation, and performance of energy using building systems and thermal envelope

Requirements

- **OPTION 1 - Comprehensive Commissioning (1 point)**

  Designate a Commissioning Authority (CxA) with documented commissioning experience on at least two other building projects with similar scope of work to complete the following commissioning activities in addition to the tasks required under the Building Systems Commissioning Basic Requirement:
  - Conduct a review of the design documents prior to 50% Construction Documents but early enough for the CxA's review to be incorporated into the design
  - Review contractor submittals
  - Verify seasonal testing
  - Provide re-commissioning services through the warranty period
  - Develop a continuous commissioning plan

AND/OR

- **OPTION 2 - Thermal Envelope Commissioning (2 points)**

  Designate a Commissioning Authority to verify that the building's thermal envelope performs according to the owner's project requirements and to complete the following commissioning

activities in accordance with ASHRAE Guideline 0-2013 and the National Institute of Building Sciences (NIBS) Guideline 3-2012, Building Enclosure Commissioning Process:

- Review contractor submittals
- Verify seasonal testing
- Provide re-commissioning services through the warranty period
- Develop a continuous commissioning plan

All tasks required under the Building Systems Commissioning Basic Requirement must also incorporate the Envelope Commissioning scope and process, as applicable.

Required Documentation

- CxA's Review Report of Design Documents that was provided to the design team
- Final Commissioning Report verifying that the energy systems and if applicable, the building's thermal envelope, operate according to the owner's project requirements
- Continuous Commissioning Plan

Resources

Portland Energy Conservation, Inc. - Model Commissioning Plans & Guide Specifications
Energy Design Resources - Building Commissioning
ASHRAE Guideline 0-2013 "The Commissioning Process"
AIA Best Practices - "Building Enclosure Commissioning: An Introduction"
WBDG - NIBS Guideline 3-2012 "Building Enclosure Commissioning Process"

4. Advanced Energy Metering 1 point

Intent

To support energy management and identify opportunities for additional energy savings by tracking building-level and system-level energy use

Requirements

Install advanced energy metering for all whole-building electricity sources.

The advanced energy metering must have the following characteristics:

- Meters must be permanently installed, record at intervals of one hour or less, and transmit data to a remote location.
- Electricity meters must record both consumption and demand. Whole-building electricity meters should record the power factor, if appropriate.
- The system must be capable of storing all meter data for at least 36 months.
- The data must be remotely accessible.
- All meters in the system must be capable of reporting hourly, daily, monthly, and annual energy use.

Required Documentation

- Tabulation of all advanced meters serving the project indicating meter type and system metered
- Meter cut sheets indicating meter capabilities and confirming ability to record both consumption and demand, or confirmation that the meters used have been provided by Austin Energy
- Verification of participation in Austin Energy's Web-based Load Profiler Program, if applicable

Resources

Austin Energy Power Saver Program - Load Profiler

5. Demand Response 2 points

Intent
To promote participation in demand response programs that reduce peak demand on the electric grid, increase system reliability, make generation and distribution systems more efficient, and reduce environmental impacts and greenhouse gas emissions

Requirements
Design building and equipment for participation in Austin Energy's demand response programs through load shedding or shifting. On-site electricity generation does not qualify for this measure.

- Enroll in an Austin Energy demand response program and participate in Demand Response (DR) events in exchange for a cash incentive, with intention of multiyear renewal for at least 10% of the estimated peak electricity demand or at least 20 kW, whichever is greater. Peak demand is determined through either energy modeling or verified through electric utility bills.
- Design a system with capability for real-time, fully automated DR based on external initiation by a DR Program Provider (Open ADR 2.0). Semi-automated DR may be utilized in practice.
- Prepare a curtailment plan for meeting the contractual commitment during a DR event.
- Include the DR processes in the scope of work for the Commissioning Authority, including participation in at least one full test of the DR plan.

Required Documentation

- Confirmation that Commissioning Authority's scope of work includes DR test
- Peak demand verification method (energy analysis or energy bill) and confirmation of peak electricity demand (kW) and planned reduction
- Comprehensive action plan for a DR event that includes roles, responsibilities, expectations and descriptions of end-use systems impacted
- Confirmation of enrollment through signed Austin Energy demand response program contract

Resources
Austin Energy's Load Co-op Program
Open ADR Alliance

6. Green Energy 2 points

Intent
To reduce the environmental impact (greenhouse gas emissions) associated with fossil fuel energy through the use of grid-source renewable energy technologies

Requirements

- **OPTION 1**

  Subscribe to Austin Energy GreenChoice® (minimum one-year and 100% renewable energy subscription contract, or equivalent terms).

OR

- **OPTION 2**

  Obtain at a minimum a two-year contract for Texas RECs or other national RECs that are Green-e Energy certified for at least 50% of the building's annual electricity use.

Use either of the following two compliance paths to calculate the building's annual electric energy consumption.

- Calculate the building's annual electricity use as per the mandatory provisions of ANSI/ASHRAE/IESNA Standard 90.1-2013 with errata.
- If an energy analysis was not performed, use the Department of Energy's Commercial Buildings Energy Consumption Survey (CBECS) database to estimate the electricity use based on the provided electricity intensity factors for various building types in the United States (see Table 1).

Table 1: CBECS Electricity Use Intensity by Building Type*

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Inpatient	27.5
Outpatient	16.1
Lodging	13.5
Retail (other than mall)	14.3
Office	17.3
Public Assembly	12.5
Public Order and Safety	15.3
Religious Worship	4.9
Service	11.0
Warehouse and Storage	7.6
Other	22.5

** All Electricity Intensity factors except Large Hospitals from CBECS 2003, Table C14. Electricity Consumption and Expenditure Intensities for Non-Mall Buildings, 2003.*

*** See CBECS Building Type Definitions for detailed descriptions of building types.*

****From Energy Characteristics and Energy Consumed in Large Hospital Buildings in the United States in 2007, Table H6. Electricity Usage for Large Hospitals, 2007*

Required Documentation

- Option 1: Contract Agreement with Austin Energy GreenChoice®
- Option 2: RECs Contract including name of REC vendor and value of RECs purchased (kWh), and total annual electricity consumption (kWh)

Resources

GreenChoice® - Austin Energy Renewable Power Program
EPA's Green Power Partnership - Guide to Purchasing Green Power
Green-e - Certified Renewable Energy for your Home or Organization
Commercial Buildings Energy Consumption Survey (CBECS)

7. District Cooling 1 point

Intent
To increase demand for district cooling systems that make energy generation and distribution systems more efficient, increase system reliability, and reduce environmental impacts and greenhouse gas emissions

Requirements

- Tie into a district thermal energy system.

Required Documentation

- Construction documents demonstrating the tie from the building into a district thermal energy loop
- Copy of the contract with the thermal energy provider
- Confirmation that heat exchangers and all other district cooling related equipment have been included in the commissioning process

Resources
Austin Energy District Cooling Services

WATER

Water Conservation, Rainwater Harvesting, Improved Water Quality

1. Outdoor Water Use Reduction 1-3 points

Intent
To reduce the environmental and economic impacts associated with water consumption, and lessen the burden on municipal water supply and treatment facilities by minimizing potable water use for landscape irrigation

Requirements
Choose one of the options below:

- **OPTION 1 - No Irrigation Required (3 points)**
  Demonstrate that the landscape does not require a permanent irrigation system beyond a maximum two-year establishment period.

OR

- **OPTION 2 - Reduce or Eliminate Irrigation (1-3 points)**
  Reduce the project's potable landscape irrigation water demand by at least 50% from the calculated baseline for the site's peak watering month as calculated in the AEGB Irrigation Calculator. Points are achieved according to Table 1.

Table 1: Irrigation Water Use Reduction Points

Points	1	2	3
Percentage water use reduction	50%	75%	100%

The project's landscape area must be greater than the smaller of 1,000 square feet, or 5% of the total site area, to be eligible for points under this measure. Athletic fields and food gardens may be excluded at the project team's discretion.

Required Documentation

- Irrigation plans indicating the type of irrigation system, calculations of the areas that will require irrigation, and any alternative water systems, as applicable
- Landscape plans indicating landscape location and species
- Design narrative describing the following components, as applicable: landscape design, irrigation system, auxiliary water system with the capacity of the system highlighted, and description of why a permanent landscape irrigation system is not necessary
- AEGB Irrigation Water Use Reduction Calculator, and AEGB Rainwater & Condensate Calculator, if applicable

Resources
Austin Water Conservation Program
Austin Water Xeriscape Plant List
Austin Watershed Protection Department - Grow Green
Texas Water Development Board - Guide to Rainwater Harvesting

Texas A&M - Rainwater Harvesting (including calculator)
Texas A&M - Texas Evapotranspiration
UP EPA - The WaterSense Water Budget Tool

2. Building Water Use Reduction 1-6 points

Intent
To reduce the environmental and economic impacts associated with water consumption, and lessen the burden on municipal water supply and treatment facilities by increasing water efficiency within the building

Requirements
Demonstrate a reduction in building water use over the baseline by at least 10%, as calculated in the AEGB Building Water Use Reduction Calculator. Points are achieved according to Table 1.

Table 1: Building Water Use Reduction Points

Points	1	2	3	4	5	6
Percentage water use reduction	10%	15%	20%	25%	30%	35%

The baseline flush and flow rates for standard plumbing fixtures are established by the current ASME/ANSI Standards and City of Austin Ordinance No. 20130606-093, and are listed in Table 2.

Table 2: City of Austin Code Flow and Flush Rates

Fixture or Fitting	Maximum Flow/Flush Rate (City of Austin Code)
Water Closet	1.28 gpf [1]
Urinal	0.5 gpf
Public Lavatory Faucet	0.5 gpm
Private Lavatory Faucet	2.2 gpm
Kitchen Faucet [2]	2.2 gpm
Showerhead	2.5 gpm

[1] Water closets, including flush tank, flushometer tank, and flushometer valve operated. For dual flush toilets, the maximum average flush volume is defined as the average flush volume of two reduced flushes and one full flush.
[2] Flow rates apply to both public and private installations.

Required Documentation
- Projected building occupancy and occupancy schedules
- Plumbing fixture schedule specifying flush and flow rates
- Specifications for all applicable plumbing fixtures
- AEGB Building Water Use Reduction Calculator
- AEGB Rainwater and Condensate Calculator, if using auxiliary water
- Plumbing fixture submittals with flush and flow rates highlighted

Resources

City of Austin Water Conservation
City of Austin Ordinance No. 20130606-093
EPA WaterSense labeled products

3. Process Water Use Reduction 1-2 points

Intent

To reduce the environmental and economic impacts associated with water consumption, and lessen the burden on municipal water supply and treatment facilities by increasing process water use efficiency

Requirements

Select one or more options and meet the listed requirements for all applicable appliances, equipment, and processes within the project's scope. One point is earned for each option, up to two points.

- **OPTION 1 - Clothes Washers**

Equipment	Requirement
Residential Clothes Washer	ENERGY STAR or performance equivalent
Commercial Clothes Washer	ENERGY STAR or performance equivalent

AND/OR

- **OPTION 2 - Commercial Kitchen Equipment**

Kitchen Equipment		Requirement
Dishwasher	Undercounter	ENERGY STAR
	Stationary, single tank, door	ENERGY STAR
	Single tank, conveyor	ENERGY STAR
	Multiple tank, conveyor	ENERGY STAR
	Flight machine	ENERGY STAR
Food Steamer	Batch (no drain connection)	≤2 gal/hour/pan including condensate water
	Cook-to-order (with drain connection)	≤5 gal/hour/pan including condensate water
Combination Oven	Countertop or stand	≤1.5 gal/hour/pan including condensate cooling water
	Roll-in	≤1.5 gal/hour/pan including condensate cooling water
Food Waste Disposer	Scrap collector	Prohibited
	Pulper/Extractor	Prohibited
	Strainer basket	No additional water usage

AND/OR

- **OPTION 3 - Commercial Laundry ***

Washing Machine	Requirement
On-premise, minimum capacity 2,400 lbs per 8-hour shift	Maximum 1.8 gals per pound

* To use this option, project must process at least 120,000 lbs of laundry per year

AND/OR

- **OPTION 4 - Lab Equipment**

Equipment	Requirement
Reverse-osmosis water purifier	75% recovery
Steam Sterilizer	60-inch sterilizer: 6.3 gal/tray 48-inch sterilizer: 7.5 gal/tray
X-ray processor, 150 mm or more in any dimension	Film processor recycling unit
Digital imager, all sizes	No water use

AND/OR

- **OPTION 5 - Heat Rejection and Cooling Towers**

Process	Requirement
Heat Rejection and Cooling	No once-through cooling with potable water for any equipment or appliances that reject heat
Cooling Towers and Evaporative Condensers	Equip with: - Makeup water meters - Conductivity controllers and overflow alarms - Efficient drift eliminators that reduce drift to maximum of 0.002% of re-circulated water volume for counter-flow towers, and 0.005% of re-circulated water flow for cross-flow towers

Required Documentation

- Projected building occupancy and schedules, or equipment usage schedules, as applicable
- Appliance and equipment specifications incorporating performance criteria requirements (ENERGY STAR certification, flow rate, or other criteria) of Options 1 through 5, as applicable
- AEGB Process Water Use Reduction Calculator
- Appliance and equipment submittals verifying performance criteria requirements, as applicable

Resources

ENERGY STAR – Commercial Dishwashers
ENERGY STAR – Clothes Washers
ENERGY STAR – Commercial Clothes Washers

4. Stormwater Management 1-2 points

Intent
To mitigate the impact of development on natural hydrology and ecosystems through green water quality controls for rainwater management

Requirements

- **Stormwater Quality (1 point)**

  Use green water quality controls as outlined in ECM 1.6.7 to treat 50% of the Water Quality Volume (WQV).

AND/OR

- **Stormwater Quantity (1 point)**

  Manage a volume of stormwater equal to 50% of the Water Quality Volume (WQV) by infiltration on site.

Calculate WQV as defined in the City of Austin Environmental Criteria Manual (ECM 1.6.2A).

Required Documentation

- Calculations of total stormwater runoff as provided in the City of Austin Drainage Criteria Manual, and calculations of the WQV as provided in the ECM 1.6.2A
- Drainage Plan showing the stormwater management controls
- Narrative describing contribution of each Best Management Practice (BMP)

Resources

City of Austin, Environmental Criteria Manual 1.6.2A and 1.6.7
City of Austin, Drainage Criteria Manual
City of Austin, Watershed Protection - Stormwater Management Program
Texas Water Development Board, Innovative Water Technologies
LCRA Watershed Ordinance and Best Management Practices

INDOOR ENVIRONMENTAL QUALITY

Enhance Occupant Comfort, Health, & Productivity

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1. Indoor Chemical & Pollutant Source Control — 1 point

Intent
To support the health, comfort, and productivity of building occupants by preventing prolonged exposure to potentially hazardous particulates and chemicals used, generated or stored inside buildings

Requirements
Identify and isolate pollution point sources, which may include janitorial closets/rooms, chemical storage, laboratories, large copy rooms or print shops.

For each space identified as a pollution point source:

- Provide ventilation directly to the outside of the building
- Construct a full-height, deck-to-deck partition or a hard lid ceiling enclosure between the space and adjacent occupied spaces
- Operate the space at a negative pressure relative to surrounding areas under all operating conditions, and verify through commissioning

Required Documentation

- Building plans identifying janitorial and chemical storage rooms, laboratories, large copy rooms, print shops, and any other spaces that will be a point source of indoor chemical or particulate pollution
- Partition schedule, reflected ceiling plan and details indicating the construction type of walls and ceilings in the target spaces
- Mechanical construction documents demonstrating ventilation, and pressure requirements

Resources
EPA - Indoor Air Quality in Large Buildings
EPA – "Office Equipment: Design, Indoor Air Emissions, and Pollution Prevention Opportunities"

2. Green Housekeeping — 1 point

Intent
To reduce the impact of housekeeping and cleaning products on the environment, building occupants, and maintenance personnel

Requirements
Develop and implement a housekeeping program, supported by a green cleaning policy, which addresses the following:

- Housekeeping program description and scope
- Responsible party for implementing and operating the housekeeping program
- Sustainable purchasing policies for cleaning materials and products, floor finishes and strippers, disposable janitorial paper products, and trash bags. Include list of approved products and reference to required standards described in Tables 1 through 5
- An appropriate staffing plan including training procedures for maintenance personnel in the hazards, use, maintenance, disposal and recycling of cleaning chemicals, dispensing equipment and packaging

- For projects using a third party housekeeping vendor:
  - Vendor's housekeeping contract(s) must include requirements to meet Green Housekeeping policy requirements. Vendor's existing Green Housekeeping Policy or Program may be used if it meets credit requirements
  - All cleaning products and janitorial products used by vendor must meet requirements described in Tables 1 through 5

Table 1: Cleaning Products

Cleaning Product Type	Standard
Bathroom, glass, carpet, general cleaning	Green Seal (GS-37)
Cleaning and degreasing compounds	UL 2792
Hard surface cleaners	UL 2759
Carpet and upholstery care	UL 2795
Floor care	Green Seal (GS-40)
Hard floor care	UL 2777
Cleaning products	EPA - Safer Choice

Table 2: Disinfectants, Metal Polish and Other (not addressed elsewhere)

Product Type	Standard
Digestion additives for cleaning and odor control	UL 2798
Drain or grease traps additives	UL 2791
Odor control additives	UL 2796
Odor removal and other	EPA - Safer Choice
Other	California Code of Regulations (maximum allowable VOC levels)

Table 3: Disposable Janitorial Paper Products

Janitorial Paper Product Type	Standard
Janitorial paper	EPA Comprehensive Procurement Guidelines Or FSC or SFI Certification Or Made from rapidly renewable sources or tree-free fibers
Napkins, hand towels, and sanitary paper	Green Seal (GS-01) or UL 175

Table 4: Disposable Janitorial Plastic Products

Product Type	Standard

Plastic trash bags	EPA Comprehensive Procurement Guidelines Or California Integrated Waste Management Certification

Table 5: Hand Soaps and Sanitizers

Product Type	Standard or Requirement
Antimicrobial agents	Prohibited except as a preservative and where required by health codes and other regulations (e.g., food service and health care)
Industrial and institutional hand cleaners	Green Seal (GS-41)
Hand cleaners and hand soaps	UL 2784
Hand sanitizers	UL 2783
Hand soaps and sanitizers	EPA - Safer Choice

Required Documentation

- Green Cleaning Policy addressing all measure requirements
- Verification of contract with third party housekeeping vendor, if applicable

Resources

Green Seal Standards
EPA - Safer Choice
ISSA - Guide to Green Cleaning Products
California Air Resources Board - California Code of Regulations, Article 2 - Regulation for Reducing Emissions from Consumer Products
EPA - Comprehensive Procurement Guidelines
Forest Stewardship Council (FSC)
Sustainable Forest Initiative (SFI)
CalRecycle Recycled-Content Trash Bag Program
UL Environment Sustainability Standards

3. Daylighting - Design 1 point

Intent

To promote a healthy, productive, and comfortable indoor environment by providing a connection to the outdoors; and to reduce the environmental and economic impacts associated with energy use by integrating daylighting systems, electric lighting systems, and controls

Requirements

- **OPTION 1: Illuminance Calculations**

  Demonstrate through computer simulations that illuminance levels from daylight sources are between 25 fc and 300 fc at 9 a.m. and 3 p.m. on a clear-sky day at the equinox for 75% of the regularly occupied floor area.

  Calculate illuminance intensity for sun (direct component) and sky (diffuse component) for clear-sky conditions as follows:
  - Use typical meteorological year data, or an equivalent, for the nearest available weather station.

- Select one day within 15 days of September 21 and one day within 15 days of March 21 that represent the clearest sky condition.
- Calculate levels on a horizontal surface at appropriate work height (30" by default).
- Use the average of the hourly value for the two selected days.

Exclude blinds or shades from the model. Include any permanent interior obstructions. Moveable furniture and partitions may be excluded.

OR

- **OPTION 2: Measurements**

  Demonstrate through indoor light measurements that daylight illuminance levels between 25 fc and 300 fc have been achieved for 75% of the regularly occupied floor area.

  With furniture, fixtures, and equipment in place, measure illuminance levels as follows:
  - Take measurements on a clear day between 10 a.m. and 2 p.m.
  - Measure at appropriate work plane height (30 inches by default)
  - For spaces larger than 150 square feet, take measurements on a maximum 10-foot square grid
  - For spaces 150 square feet or smaller, take measurements on a maximum 3-foot grid
  - Take and record at least one outdoor measurement

Required Documentation

- Option 1:
  - Building plans showing the regularly occupied spaces that were modeled for daylight
  - Output reports from daylight simulation software showing daylight illuminance within the required ranges for 75% of the regularly occupied floor area
- Option 2:
  - Measurement plan with measurement grids, highlighting all regularly occupied areas
  - Report of measurement results and calculations showing the percentage of the regularly occupied areas that receive daylight at the required levels

Resources

U.S. Department of Energy EERE - Daylighting Design Guide
Whole Building Design Guide - Daylighting
Whole Building Design Guide - Electric Lighting Controls

4. Daylighting - Controls 1 point

Intent

To promote a healthy, productive, and comfortable indoor environment by providing a connection to the outdoors; and to reduce the environmental and economic impacts associated with energy use by integrating daylighting systems, electric lighting systems, and controls

Requirements

For all luminaires in *daylight zones*, install and commission controls capable of automatically reducing the lighting power in response to available daylight by either:

- **OPTION 1: Continuous Dimming**
  - Continuous dimming using dimming ballasts and daylight-sensing automatic controls capable of reducing the power of general lighting in the daylight zone continuously to less than 35% of rated power at maximum light output.

OR

- **OPTION 2: Stepped Dimming**
  - Stepped dimming using multi-level switching, and daylight-sensing controls capable of reducing light power automatically. The system must provide a minimum of two control steps such that at least one step is between 50% and 70% of design lighting power, and another step that is no greater than 35% of design power.

Luminaires in residential dwelling and sleeping units are excluded.

Required Documentation

- Electrical lighting plans with daylight zones marked, luminaires in those zones, specifications of photo-sensing controls, and indication of which luminaires are controlled by which controls
- Narrative highlighting the methods used to provide sufficient daylighting for the tasks, and identifying the lighting levels that will activate dimming controls
- Commissioning documentation indicating that the daylight controls have been commissioned

Definitions

Daylight zones are defined as the areas adjacent to vertical fenestration or under skylights that receives daylight through the fenestration. Dimensions of daylight zones are as follows (unless detailed analysis is provided):

- Adjacent to vertical fenestration: The daylight zone depth is assumed to extend 15 feet into the space from the plane of the window, or to the nearest ceiling height partition, whichever is less. The daylight zone width is assumed to be the width of the window plus 2 feet on each side, or the window width plus the distance to an opaque partition, or the window width plus one-half the distance to adjacent skylight or vertical fenestration, whichever is least.
- Under skylights: The horizontal dimension of the daylight zone under a skylight in each direction is equal to the skylight dimension in that direction plus either the floor-to-ceiling height or the dimension to a ceiling height opaque partition, whichever is less.

Resources

U.S. Department of Energy EERE - Daylighting Design Guide
Whole Building Design Guide - Daylighting
Whole Building Design Guide - Electric Lighting Controls

5. Views to the Outside 1 point

Intent

To promote a healthy, productive, and comfortable indoor environment by providing a connection to the outdoors; and to reduce the environmental and economic impacts associated with energy use by integrating daylighting systems, electric lighting systems, and controls

Requirements

Glazing systems and interior partitions allow for a minimum of 75% of regularly occupied spaces a view of vision glazing (between 2'-6" and 7'-6" from finished floor height) and a view of the outdoors.

Required Documentation

- Calculations indicating that areas with uninterrupted views to the outside encompass 75% of regularly occupied space (not including copy rooms, storage areas, mechanical, laundry, bathrooms, and other support areas)
- Demonstrate the lines of site from within the building to the vision glazing by one of the following:
  - Scheduling a site visit with the AEGB representative
  - Documenting through photos
  - Providing plans and sections

Resources

U.S. Department of Energy EERE - Daylighting Design Guide
Whole Building Design Guide - Daylighting
Whole Building Design Guide - Electric Lighting Controls

6. Individual Controllability 1 point

Intent

To support the health, comfort, and productivity of the building occupants by accommodating their diverse thermal comfort preferences in the indoor environment

Requirements

- Install and commission systems that provide for individual controllability of one or more of the following: air temperature, radiant temperature, air speed, and humidity, for at least 50% of the building occupants, and for all shared multi-occupant spaces. Individual controls must be accessible to occupants of the space that they control.
- Individual workstations in an office, residential dwelling units, and hotel/motel/dormitory rooms are considered individual occupant spaces for the purposes of this point.

Required Documentation

- Narrative describing the mechanical system and controls, and calculations that show that individual control has been provided for 50% of individual occupant spaces, and 100% of shared multi-occupant spaces

Resources

"A Field Study of Personal Environmental Modules Performance", Bauman, Fred, Center for Environmental Design Research, Berkeley, CA, 1997

7. Low-Emitting Materials 1-5 points

Intent

To reduce the quantity of indoor air contaminants that are damaging to air quality and to the environment, and to protect the health and comfort of installers and building occupants

Requirements

Meet the requirements for the low-emitting materials categories as given in the sections below. One point is awarded for each category, up to a maximum of five points.

- **Interior Sealants & Adhesives**

  All sealants and adhesives applied on-site to the building interior must not exceed the currently effective VOC limits of South Coast Air Quality Management District (SCAQMD) Rule 1168.

  If a specialty product does not have a low VOC option, the project must complete a VOC Budget to account for use of any non-compliant products.

- **Flooring Systems**
  - All carpet must be Green Label Plus certified, or equivalent.
  - All carpet cushions must be Green Label certified, or equivalent.
  - All carpet adhesives must have VOC content of 50 g/L or less.

- All hard surface flooring must meet the testing and product requirements of California Department of Public Health (CDPH) Standard Method v1.1-2010. Mineral-based flooring such as ceramic tile, terrazzo, masonry or cut stone is not subject to testing requirements.
- All engineered wood flooring and laminate flooring must contain no added formaldehyde resins.
- Concrete, tile, wood, bamboo, and cork floor finishes, such as sealers and stains, must not exceed the currently effective VOC limits of South Coast Air Quality Management District (SCAQMD) Rule 1113.
- Tile setting adhesives and grout must not exceed the currently effective VOC limits of South Coast Air Quality Management District (SCAQMD) Rule 1168.

- **Composite Wood & Agrifiber Products**

  All installed composite wood and agrifiber products must meet one of the options below:

  - **OPTION 1:** Do not contain any added formaldehyde resins, including urea formaldehyde, phenol formaldehyde, and urea-extended phenol formaldehyde

  OR

  - **OPTION 2:** Meet emission requirements for ultra-low-emitting formaldehyde (ULEF) resins as defined in California Air Resources Board Airborne Toxic Control Measure (ATCM) to Reduce Formaldehyde Emissions from Composite Wood Products

  Composite wood and agrifiber products include particleboard, medium density fiberboard (MDF), wheatboard, strawboard, panel substrates, door cores, and plywood.

- **Insulation**

  All installed insulation must contain no added formaldehyde resins, including urea formaldehyde, phenol formaldehyde, and urea-extended phenol formaldehyde.

- **Ceiling & Wall Systems**

  All gypsum board, acoustical ceiling systems, and wall coverings installed in the building interior must be tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method v1.1-2010, using the applicable exposure scenario.

- **Furniture**

  At least 90% (by cost) of new interior systems furniture, seating, and classroom furniture, must meet one of the options below:

  - **OPTION 1:** New systems furniture and seating must be tested in accordance with ANSI/BIFMA Standard Method M7.1-2011. Comply with emission standards of ANSI/BIFMA e3-2011 Furniture Sustainability Standard, Sections 7.6.1 and 7.6.2, using either the concentration modeling approach or the emissions factor approach. Classroom furniture must comply with the standard school classroom model and emissions standards in CDPH Standard Method v1.1-2010.

  OR

  - **OPTION 2:** New systems furniture, seating, and classroom furniture must be GREENGUARD Gold certified, Scientific Certification Systems (SCS) Indoor Advantage Gold certified, or certified by an equivalent standard

  Used or salvaged furniture that is more than 1 year old at the time of occupancy may be excluded from credit requirements.

- **Exterior Applied Products**

  All paints, primers, and anti-corrosive coatings applied on-site to the building exterior must not exceed the VOC limit of Green Seal standard GS-11 Edition 3.1, 2013, Section 3.4. All coatings, adhesives, and sealants applied on-site to the building exterior must not exceed the currently effective VOC limits of South Coast Air Quality Management District (SCAQMD) Rule 1113 and Rule 1168.

  If a specialty product does not have a low VOC option, the project must complete a VOC Budget to account for use of any non-compliant products.

Paint Type	VOC Limit (g/L) *
Non-flat Topcoat	100
Flat Topcoat	50
Primer or Undercoat	100
Anti-Corrosive Coating	250

* The calculation of VOC shall exclude water and colorants added at the point-of-sale.

Required Documentation

- Project specifications identifying applicable VOC limits, certification, testing, composition, and/or emissions criteria as established in measure requirements for all products and materials within the scope of options pursued by the project
- Verification that installed products and materials meet VOC limits, certification, testing, composition and/or emissions criteria, as requested. Verification may include product cut sheets, MSDS, manufacturer letter, and approved third party certifications
- Tabulation of products using the AEGB Low Emitting Materials Calculator

Resources

South Coast Air Quality Management District - Rule 1168 Adhesive and Sealant Applications
South Coast Air Quality Management District - Rule 1113 Architectural Coatings
Carpet & Rug Institute - Green Label Plus approved products
FloorScore® - Certified resilient flooring products
California Air Resources Board Airborne Toxic Control Measure (ATCM) to Reduce Formaldehyde Emissions from Composite Wood Products
CDPH Standard Method for the Testing and Evaluation of VOC Emissions from Indoor Sources Using Environmental Chambers v1.1 – February 2010
Green Seal GS -11 Paints and Coatings, Edition 3.1, July 12, 2013
SCS Indoor Advantage & Indoor Advantage Gold
GREENGUARD Certification Product Guide
CHPS High Performance Product Database
Healthy Building Network – "Alternative Resin Binders for Particleboard, Medium Density Fiberboard (MDF), and Wheatboard"
GreenSeal - "Particleboard and Medium Density Fiberboard"

8. Moisture Protection 1 point

Intent

To protect the health and well-being of building occupants, and promote integrity and durability of the building's structure and envelope by avoiding moisture intrusion

Requirements

- No vinyl wall coverings or other vapor barriers, such as fiber reinforced plastic or vinyl (FRP or FRV) may be installed as the finish material on the interior of any exterior wall.
- Install effective building envelope drainage plane systems.
- Design the building to be pressurized under all operating conditions, and verify through commissioning.

Required Documentation

- Building plans and finish schedules identifying wall finishes on the interior side of all exterior walls
- Details of building envelope drainage systems, including flashing and overhang systems
- Building pressurization schedule
- Commissioning Report confirming that the building is positively pressurized under all operating conditions

Resources

Center for Disease Control and Prevention - "Dampness and Mold in Buildings"

9. Acoustic Quality 1 point

Intent

To promote occupant well-being and productivity, and to create buildings that allow for better communication, acoustical privacy, and appropriate sound isolation through effective acoustical design

Requirements

Meet the performance requirements for all the sections:

- **Environmental Noise**
  - For projects that are located 1,000 ft or less from significant noise sources - including but not limited to aircraft flyovers, highways, trains, industry, and entertainment - interior noise levels in acoustically sensitive spaces due to these noise sources must not exceed the higher of:
    - 45 dBA and 70 dBC, or
    - the mechanical background noise levels given in Table 1 of Ch. 48 of the 2011 ASHRAE Handbook, HVAC Applications or Table 15 of AHRI Standard 885-2008.

- **Mechanical Systems Background Noise**
  - HVAC-related background noise levels must not exceed levels given in Table 1 of Ch. 48 of the 2011 ASHRAE Handbook, HVAC Applications or Table 15 of AHRI Standard 885-2008. Calculate or measure sound levels. For measurements, use a sound level meter that conforms to ANSI S1.4 for type 1 (precision) or type 2 (general purpose) sound measurement instrumentation, or a local equivalent. Comply with design criteria for HVAC noise levels resulting from the sound transmission paths listed in ASHRAE 2011 Applications Handbook, Table 6.
  - Mechanical equipment sound power level in any full- or third-octave band should not be more than 10 dB above the sound power level in the adjacent bands.

- **Vibration Isolation**
  - Provide appropriate vibration isolation for mounted equipment meeting guidelines given in Table 47 of Ch. 48 of the 2011 ASHRAE Handbook, HVAC Applications, or equivalent.

- **Sound Isolation**
  - Specify partitions, ceilings, and floor/ceiling assemblies that meet the minimum composite sound transmission class (STCC) ratings given in Table 1. Hospitals and other health care facilities shall conform to STCC ratings given in Table 4.3-1 or A2.1-a of the FGI Sound and Vibration Design Guidelines for Healthcare Facilities, as applicable.
  - Specify floor/ceiling assemblies between acoustically sensitive spaces with a minimum IIC rating of 50.

Table 1: Minimum STCC Ratings

Room Adjacency		STCC
Residence (within a multifamily residence), hotel or motel room	Residence, hotel, or motel room	55
Residence, hotel or motel room	Common hallway, stairway	50
Residence, hotel or motel room	Retail	60
Retail	Retail	50
Standard office	Standard office	45
Executive office	Executive office	50
Conference room	Conference room	50
Office, conference room	Hallway, stairway	50
Mechanical equipment room	Occupied area	60

- **Reverberation Time**
  - Meet the reverberation decay times given in Table 2.

Table 2: Reverberation Time

Room Type	Application	T60 (sec) At 500 Hz, 1 kHz, and 2 kHz
Apartment and Condominium	all	<0.6
Hotel/Motel	Individual room or suite	<0.6
	Meeting or banquet room	<0.8
Office building	Executive or private office	<0.6
	Conference room	<0.6
	Teleconference room	<0.6
	Open-plan office without sound masking	<0.8
	Open-plan office with sound masking	0.8
Courtroom	Unamplified speech	<0.7

	Amplified speech	<1.0
Performing arts space	Drama theaters, concert and recital halls	Varies
Laboratories	Testing or research with minimal speech communication	<1.0
	Extensive phone use and speech communication	<0.6
Church, mosque, synagogue	General assembly with critical music program	Varies
Library	all	<1.0
Indoor stadium, Gymnasium	Gymnasium and natatorium	<2.0
	Large-capacity space with speech amplification	<1.5
Classroom	all	<0.6

- **Sound Reinforcement and Masking Systems**
  - For all large conference rooms and auditoriums seating more than 50 persons, evaluate whether sound reinforcement and AV playback capabilities are needed.
  - If needed, the sound reinforcement systems must meet the following criteria:
    - Achieve a minimum speech transmission index (STI) of 0.60 or a common intelligibility scale (CIS) rating 0.77 at representative points within the area of coverage to provide acceptable intelligibility.
    - Have a minimum sound level of 70 dBA and must maintain sound-level coverage within +/-3 dB at the 2000 Hz octave band throughout the space.
  - For projects that use masking systems, the design levels must not exceed 48 dBA. Ensure that loudspeaker coverage provides uniformity of +/-2 dBA and that speech spectra are effectively masked.

Required Documentation

- Acoustical Requirements narrative and Basis of Design
- Full-octave band sound data submittals (or a narrative to address tonality) for the following:
  - air handling equipment inlets, discharges, and casing radiation
  - exhaust fan bare fan sound levels
  - generators
  - pumps
  - chillers
- HVAC noise calculations that indicate expected room background noise levels
- Vibration isolation schedule
- Finish schedules including NRC and CAC Ratings as applicable
- Schedule of partition and floor/ceiling assembly cross sections. Indicate STC, CAC and IIC ratings of partitions, ceilings and floor/ceilings on plans.

Resources

ASHRAE, “A Practical Guide to Noise and Vibration Control for HVAC Systems” by Mark E. Schaffer
ASHRAE, “Applications of Manufacturers Sound Data” By Charles Ebbing and Warren Blazier.
Acoustics.com

AHRI Standard 885-2008: Procedure for Estimating Occupied Space Sound Levels in the Application of Air Terminals and Air Outlets
FGI - Sound & Vibration: Design Guidelines for Health Care Facilities (Free account required to view read only copy of guidelines)

10. Outdoor Pollutant Control 1 point

Intent
To support the health and comfort of building occupants by minimizing exposure to potentially hazardous particulates and chemical pollutants

Requirements

- **Air Borne Pollutants**
  - **Non-residential uses**
    - Prohibit smoking inside and outside the building except in designated smoking areas located outside and at least 30 feet from all building entrances, outdoor air intakes, and operable windows. Air intakes shall meet the minimum separation distance requirements of ASHRAE 62.1-2004, Table 5-1.
    - Install appropriate signage to clearly designate where smoking is permitted and not permitted. Signage must be posted within 10 feet of all building entrances indicating the no-smoking policy.

    In addition to tobacco smoke, evaluate and design to mitigate the impact of any other outdoor air pollutant sources as applicable to the project site.

  - **Residential Uses**
    - Common Areas
      - Prohibit smoking inside all common areas of the building. The prohibition must be communicated in building rental or lease agreements, or condo or coop association covenants and restrictions. Make provisions for enforcement.
      - Entrances, operable windows, balconies, and fresh air intakes shall be located a minimum 30 feet away from designated smoking areas and air intakes shall meet the minimum separation distance requirements of ASHRAE 62.1-2004, Table 5-1.
      - Install appropriate signage to clearly designate where smoking is permitted and not permitted. Signage must be posted within 10 feet of all building entrances indicating the no-smoking policy.
    - Residential Units
      - Each unit must be compartmentalized to prevent excessive leakage between units.
      - Weather-strip all exterior doors and operable windows in the residential units to minimize leakage from outdoors.
      - Weather-strip all doors leading from residential units into common hallways.
      - Minimize uncontrolled pathways for the transfer of smoke and other indoor air pollutants between residential units by sealing penetrations in the walls, ceilings, and floors and by sealing vertical chases (including utility chases, garbage chutes, mail drops, and elevator shafts) adjacent to the units.
      - Demonstrate a maximum leakage of 0.23 cubic feet per minute per square foot at 50 Pa of enclosure (i.e., all surfaces enclosing the apartment, including exterior and party walls, floors, and ceilings).

    In addition to tobacco smoke, evaluate and design to mitigate the impact of any other outdoor air pollutant sources as applicable to the project site.

- **Building Entrances**
  - Install permanent entryway systems (grilles, grates, mats), at minimum 6 feet long (10 feet recommended), in the primary direction of travel to capture dirt from entryways directly connected to the outdoors.

Required Documentation

- Building and/or site plans indicating the location and signage of the smoking areas, and the 30-foot radius around all entrances, operable windows and air intakes
- Testing reports for residential unit leakage testing
- Entrance plans, details and cut sheets describing the entryway system
- Mechanical designer should provide a narrative identifying outdoor air pollutant sources in accordance with ASHRAE 62.1-2004, Sections 4.1, 4.2, and 4.3
- Narrative of design strategies to mitigate air borne contaminates from the outdoors, and supporting documentation for the implementation of these strategies, as applicable

Resources

City of Austin Smoking in Public Places Ordinance No. 050303-05
US EPA - IAQ Design Tools for Schools, Controlling Pollutants and Sources
US EPA - I-BEAM Text Modules, Fundamentals of IAQ in Buildings

11. Construction Indoor Air Quality 1 point

Intent

To prevent the introduction of potentially hazardous contaminants into the building during construction; and to protect the comfort and well-being of construction workers and building occupants

Requirements

- Develop and implement a Construction Indoor Air Quality Management Plan that meets or exceeds the recommended control measures of the Sheet Metal and Air Conditioning National Contractor's Association (SMACNA) *IAQ Guidelines for Occupied Buildings Under Construction*. The plan should include each of these key areas of IAQ protection: Scheduling, Source Control, HVAC Protection, Pathway Interruption, and Housekeeping.
- If permanently installed air handlers are used during construction, filtration media with a minimum MERV of 8 shall be used at each return grille. Replace all media filters immediately prior to occupancy.

Required Documentation

- Construction IAQ Management Plan
- Photographs of on-site construction IAQ measures, such as duct protection and on-site storage of absorptive materials
- Cut sheets of filtration media used during construction with MERV values highlighted

Resources

Sheet Metal and Air Conditioning National Contractor's Association - IAQ Guidelines for Occupied Buildings Under Construction

MATERIALS & RESOURCES

Sustainable Material Choices, Use, and Disposal

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1. Additional Construction Waste Management 1 point

Intent
To reduce construction and demolition waste destined for the landfill or incineration facilities by reusing or recycling material thus, furthering the City of Austin's *Zero Waste* Goals, extending the life of the landfills, and saving energy, resources, and costs

Requirements

Divert non-hazardous construction and demolition materials, excluding excavated soil, stone, and land clearing debris, from landfills and incinerators. Diverted material must include at least four material streams (i.e. concrete, metal, wood, gypsum wallboard, paper and cardboard, plastic). Maintain tracking and report weights of material hauled and processed for recycling/salvage and sent to landfill for all material generated during demolition and construction activity associated with the project.

Acceptable strategies include any combination of the following two options:

Option 1: Divert at least 75% (by weight) of non-hazardous construction and demolition materials, excluding excavated soil, stone, and land clearing debris, from landfill and incineration.

OR

Option 2: Recycle and/or salvage non-hazardous construction and demolition materials by sending the project's total commingled waste materials to a mixed-recovery processing facility that has:

- Registered as a Qualified Processor with Austin Resource Recovery as defined in City of Austin Code Chapter 15-6, Article 9 – Construction and Demolition Materials Diversion Program

OR

- Received Recycling Certification Institute's Certification of Real Rates (CORR) or equivalent *qualified third party verification* of facility-average recycling rates.

Definitions

Zero Waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Implementing Zero Waste will eliminate all discharges to the land, water or air that are a threat to planetary, human, animal or plant health.

Qualified third-party verification organizations who certify facility average recycling rates include these minimum program requirements:

- The certification organization follows guidelines for environmental claims and third-party oversight, including ISO/IEC Guide 65 or ISO 17065 and relevant portions of the ISO 14000 family of standards.
- The certification organization continuously monitors "certified" facilities to ensure that the facilities are operating legally and meeting the minimum program requirements for facility certification and recycling rates.

- Data submitted by the facilities to the certification organization in support of the recycling rate is audited. The audit includes, at a minimum: the evaluation of recyclables sales records, verification of facility sales into commodity markets, monitoring off-site movement of materials, and a review of the facilities' customers haul weight information.
- Facilities submit data to the certification organization that supports the recycling rate, such as a mass balance recycling rate (tons in/tons out) for a twelve month period, or quarterly sorts completed and verified by an independent third party entity.
- Breakdown of materials (by type and by weight), including analysis of supporting data relating to amounts (in tons) and types of materials received and processed at the facility.
- At a minimum, the third-party certifying organization conducts an on-site visit of the Facility for the first year certification, with subsequent site visits occurring at least once every two (2) years, unless additional visits are deemed necessary by the certification organization. The site visit will examine:
    - How materials enter, are measured, deposited, processed/sorted and exit facility,
    - Conduct interviews with key personnel,
    - Confirm equipment types and capacity,
    - Observe and verify load/materials sorting and accuracy,
    - Verify use and accuracy of scales including calibration frequency.
- Recycling rates shall adhere to these requirements:
    - Measurements must be based on weight (not volume), using scales.
    - Recycling rates must be available on a website and viewable by the general public.
- Facility recycling data submitted to certification program will be analyzed for recycling rates using a mass balance formula or quarterly sorts completed and verified by an independent third party entity.
- Final recycling tracking will be detailed enough to:
    - Include separate recycling rates by material type
    - Isolate material diverted for alternative daily cover
    - Isolate material diverted for waste to energy or incineration end-markets

Required Documentation

- Specifications for Construction Waste Management in the contract documents
- Construction Waste Management Plan. Plan must address at minimum:
    - Anticipated waste streams
    - Four materials to be diverted from landfill/incineration
    - Hauler, processor, and landfill/recycler location for each material stream
- AEGB Construction Waste Calculator. An updated calculator must be provided to AEGB quarterly reflecting the project's current status
- Weight tickets for all of the waste recycled, salvaged, or sent to the landfill/incineration, as requested

Resources

U.S. Zero Waste Business Council
U.S. EPA - Sustainable Management of Construction and Demolition Materials
Construction Industry Compliance Assistance Center
Austin Resource Recovery – Construction Material Reuse and Recycling
Austin Resource Recovery - Solid Waste Services and Waste Reduction Program
Austin Resource Recovery - Private Waste & Recycling Hauler Licensing
Austin Materials Marketplace
Construction and Demolition Recycling Ordinance (Ord. #20151119-098)
Recycling Certification Institute

2. Building Materials Use Reduction 1-3 points

Intent
To extend the life cycle of existing buildings, conserve resources, reduce waste, retain cultural assets, and reduce the environmental impacts of new buildings as they relate to materials manufacturing and transport

Requirements
Select Options 1-3 to achieve a maximum of 3 points.

- **OPTION 1 - Existing Building Reuse (1- 3 points)**

  Retain existing non-hazardous building envelope (including exterior skin and framing, excluding window assemblies and non-structural roofing material), structure (including structural floor and roof decking), and interior non-structural elements (walls, doors, floor coverings and ceiling surfaces).

  Points will be achieved according to Table 1.

Table 1: Points for existing building reuse

Points	1	2	3
Percentage of building surface area reused	20%	40%	60%

AND/OR

- **OPTION 2 - Whole Building Life Cycle Assessment (LCA) (1- 3 points)**

  For new construction, conduct a life-cycle assessment of the project's structure and enclosure compared with a reference building. Projects may achieve 1 point for completion of a Whole Building Life Cycle Assessment. Projects demonstrating an overall reduction in life cycle impact compared to a reference building may achieve 2 points for a 5% reduction and, 3 points for a 10% reduction.

  Points will be achieved according to Table 2.

Table 2: Points for whole building LCA

Points	1	2	3
LCA (percentage reduction)	LCA Report	5%	10%

Projects must at a minimum define the Goal and Scope of assessment, the building assemblies to be assessed, the impact of categories to be evaluated, and the reference building. The assessment should include at minimum the impact of construction and life of building, and may also include operations and maintenance, transportation, and end of life. The reference building must be of comparable size, function, orientation, and operating energy performance as the proposed building.

AND/OR

- **OPTION 3 - Cradle-to-Cradle Certified Products (2 points)**
  Install Cradle-to-Cradle v2 or v3 Silver or higher certified materials or products representing 2.5% of total building materials cost (excluding MEP), or five unique Cradle-to-Cradle v2 or v3 Silver or higher certified products (all divisions). Furniture may be included at the discretion of the project team.

Required Documentation

- Option 1
  - Plans and elevations indicating pre-construction existing building shell and structure, building interior elements, and intended area to be preserved
  - Calculations from the AEGB Building Reuse Calculator

- Option 2
  - Narrative description of goal and scope of LCA, subject building assemblies, and impact of categories evaluated
  - Impact reports from LCA software, or other project generated reports of assessment findings

- Option 3
  - Specifications identifying products with Cradle-to-Cradle v2 or v3 Silver, or higher certification
  - Cut sheets or submittals of Cradle-to-Cradle certified products installed
  - Calculations from the AEGB Building Materials Calculator, or list of five Cradle-to-Cradle certified products

Resources

U.S. Department of the Interior - The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings
U.S. Department of the Interior - The Secretary of the Interior's Standards for Rehabilitation
U.S. General Services Administration - Historic Buildings Preservation Technical Resources
Building Reuse Case Studies - Smart Growth Network
AIA Guide to Building Life Cycle Assessment in Practice
Athena Sustainable Materials Institute - Athena Impact Estimator for Buildings
(Free LCA software for building assembly Life Cycle Assessment)
Cradle-to-Cradle - Certified Products Database

3. Sustainably Sourced Material 1-6 points

Intent
To reduce the environmental impacts of materials and products acquired to construct buildings, support the use of indigenous resources, and promote the State economy

Requirements
Use at least 25%, by cost, permanently installed materials and products that meet at least one of the criteria below:

- Salvaged or refurbished materials
- Building materials containing recycled content (the sum of post-consumer recycled content plus one-half of the pre-consumer content)
- Building materials and products extracted and/or manufactured (final assembly) within Texas

Points will be achieved according to Table 1.

Table 1: Points for Sustainably Sourced Material

Points	1	2	3	4	5	6
Percentage of sustainably sourced materials	25%	35%	45%	55%	65%	75%

Mechanical, electrical, and plumbing components as well as specialty items should not be included in the calculations. Furniture may be included at the discretion of the project team.

Required Documentation

- Specifications identifying sustainably sourced material goals
- Calculations from the AEGB Building Materials Calculator
- Narrative identifying the source of salvaged materials and calculation of replacement costs
- Verification of individual material's sustainably sourced criteria, as requested

Resources

Austin Resource Recovery - Austin Materials Marketplace
Building Materials Reuse Association - Salvaged Building Materials Business Directory
Austin Habitat for Humanity - ReStore Salvaged Building Materials Outlet
PlanetReuse - Salvaged Material Broker and Online Marketplace
EPA Comprehensive Procurement Guidelines
California Integrated Waste Management Board - Recycled Content Product Database

4. Certified Wood — 1 point

Intent
To encourage environmentally responsible forest management

Requirements
At least 50%, by cost, of all new wood-based materials are certified in accordance with the Forest Stewardship Council (FSC) guidelines for wood building components.

Required Documentation

- Calculations from the AEGB Certified Wood Calculator

Resources

FSC Certified Products Database
Forest Stewardship Council

5. PVC & Phthalate Free Material — 1 point

Intent
To promote well-being by reducing human exposure to polyvinyl chloride (PVC) materials containing phthalate plasticizers

Requirements
Use materials and products that do not contain PVC or Phthalates for five of the following categories (as applicable):

- Flooring Systems (including carpet)
- Wall Coverings (including wall base)
- Window Treatments
- Roofing Systems
- Windows and Doors
- Furniture
- Irrigation System
- Interior Electrical Systems
- Interior Sanitary Waste Piping and Ventilation
- Interior Domestic Water
- Building and Site Stormwater Piping

Required Documentation

- Specifications stating which materials will not be made with PVC
- Cut sheet submittals or manufacturer documentation demonstrating no PVC
- List of alternative materials that are PVC and Phthalate free, if applicable

Resources

Perkins+Will Precautionary List

"Endocrine Disrupting Chemicals," Muncke, Jane, Journal of Steroid Biochemistry and Molecular Biology, 2010

Health Care Without Harm, "Green Building: Alternatives to Polyvinyl Chloride (PVC) Building Materials in Health Care"

EDUCATION & EQUITY

Environmental Awareness & Social Justice

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1. Educational Outreach — 2 points

Intent
To use the building as an educational tool to highlight the green building strategies implemented in the project

Requirements
Provide at least two of the following Educational Services:

- A comprehensive signage program installed in the building and site to educate the occupants and visitors on the project's green features and the benefits of green building. Educational elements may include windows to view energy saving mechanical equipment and signage calling attention to water conserving plumbing fixtures or landscape features.
- A case study that educates design professionals and the public on the green building strategies implemented in the project. AEGB's template may be used to assist with developing your case study. The case study may be published on the AEGB website, at the discretion of AEGB, and with the permission of the project owner.
- An educational outreach program to educate the community on sustainable design, construction, and operations using the project as an example. This program may include regular guided tours of the facility, community workshops, or public presentations.

Required Documentation

- Narrative describing the signage program, design drawings of the educational displays and locations within the building and site
- Case Study, using the AEGB Commercial Program Case Study configuration, or similar format
- Narrative describing the educational outreach program including the content and means of implementation

Resources

AEGB Case Study Database

2. Construction Worker Equity — 1 point

Intent
To create and promote safe and reliable jobs with fair compensation, while promoting sustainable development in Texas

Requirements

- Abide by the Code of Conduct in construction contracting outlined in the Better Builder program that upholds sustainable workforce standards, and ensures that construction workers have safe, living wage jobs, and become Better Builder with the Workers Defense Project.

  Collaborate with the Workers Defense Project to develop a culture of construction site safety, proper training, and living wages from the top down.
  - Ensure that workers are given proper safety equipment and safety trainings
  - Ensure that workers are fairly and competitively compensated
  - Provide workers' compensation insurance in case of injury

- Work with local community groups to promote local job creation and workforce training

For more information on the Workers Defense Project, contact:
Business Liaison
Workers Defense Project
E-mail: info@workersdefense.org
Phone: (512) 391-2305

Required Documentation

- Verification of the signed agreement with the Workers Defense Project
- Verification from the Workers Defense Project that the project completed construction in good standing

Resources

Workers Defense Project "Build a Better Texas: Construction Working Conditions in the Lone Star State"
Workers Defense Project "Building Austin, Building Injustice Working Conditions in Austin's Construction Industry"
Better Builder Program - Building a Better Austin

INNOVATION

Creative, Exceptional Sustainable Solutions

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1. Innovation 1-5 points

Intent
To develop innovative and creative solutions that demonstrate a comprehensive approach and achieve exceptional and quantifiable environmental and /or health benefits beyond the requirements of measures defined in this rating system

Requirements
Submit a proposal of the innovation measure and include the intent of the innovative measure, requirements for compliance, documentation to demonstrate compliance, and the design approach that will be used to meet the requirements. One point may be earned for each Innovation measure up to a maximum of five points.

Required Documentation

- Narrative detailing the proposed design approach, the sustainability benefits, the requirements, and the project's compliance with the proposed measure
- Calculations verifying project compliance with proposed measure, as necessary

APPENDIX: Green Building Resources

General Resources

- **AIA Guide to Building Life Cycle Assessment in Practice:**
  - www.aia.org/practicing/akr/AIAB089185
- **Architecture 2030:**

  www.architecture2030.org
- **Austin Environmental Directory, Paul Robbins, editor. 2013 edition:**

  A sourcebook for environmental issues, products, services, and organizations in the Austin area
  - www.environmentaldirectory.info
- **BuildingGreen, LLC:**

  BuildingGreen publishes accurate, unbiased, and timely green design information through many publications, including Environmental Building News, the GreenSpec directory of green products, and the BuildingGreen Suite of online tools
  - www.buildinggreen.com
- **Business Energy Advisor, FPL and ESource:**

  The Business Energy Advisor provides detailed information on energy consumption for 10 market sectors, O & M best practices, and buyer's guides for energy efficient technologies.
  - fpl.bizenergyadvisor.com
- **Congress for New Urbanism:**

  Promotes the efficient use of infrastructure and the preservation of habitat and farmland
  - www.cnu.org
- **Energy Design Resources:**

  Energy Design Resources offers a valuable palette of energy design tools and resources that help make it easier to design and build energy-efficient commercial and industrial buildings in California. The goal of this effort is to educate architects, engineers, lighting designers, and developers about techniques and technologies that contribute to energy efficient nonresidential new construction.
  - www.energydesignresources.com
- **Energy Improvement and Extension Act of 2008 Summary:**

  Includes energy efficiency tax incentives for: commercial buildings, combined heat and power systems (CHP) and for plug-in hybrid purchases
  - www.eia.gov
- **ENERGY STAR - Products search:**
  - www.energystar.gov/products
- **Environmental Building News and GreenSpec® Guide:**
  - www.buildinggreen.com
  - www.buildinggreen.com/green-products
- **Green Building Pages:**

  Building materials database and design tool:
  - www.greenbuildingpages.com
- **Green Building Resource Guide:**
  - www.greenguide.com
- **Healthy Building Network:**

  Advocates healthier building materials
  - www.healthybuilding.net

- **IRS publications:**
  - *Energy Savings Modeling and Inspection Guidelines for Commercial Building Federal Tax Deductions, 2nd edition, May 2007.*
    - www.nrel.gov/docs/fy07osti/40467.pdf
  - Notice 2006-52: Deduction for Energy Efficient Commercial Buildings:
    - www.irs.gov/pub/irs-drop/n-06-52.pdf
- **Lawrence Berkeley National Laboratory, The Cost-Effectiveness of Commercial-Buildings Commissioning:**
  - evanmills.lbl.gov/pubs/pdf/ncbc_mills_6apr05.pdf
- **National Institute of Building Sciences - Whole Building Design Guide:**
  - www.wbdg.org/design/sustainable.php
- **Natural Resources Defense Council:**

  Protects wildlife and ensures a safe and healthy environment
  - www.nrdc.org
- **New Buildings Institute:**
  - newbuildings.org
- **Rocky Mountain Institute:**
  - www.rmi.org/
- **Smart Growth Network:**
  - www.smartgrowth.org
- **Sustainable Building Sourcebook:**
  - sustainablesources.com
- **Urban Land Institute (ULI):**

  Non-profit organization that promotes responsible use of land
  - www.uli.org
- **U.S. Department of Energy, Building Technologies Program Building Database:**

  Case studies of various building types around the world with information on green building features, financial analysis, and lessons learned
  - buildingdata.energy.gov/
- **U.S. EPA-Sustainable Management of Construction and Demolition Materials:**
  - www.epa.gov/smm/sustainable-management-construction-and-demolition-materials
- **U.S. EPA-Watersense:**
  - www3.epa.gov/watersense/index.html
- **U.S. Green Building Council:**
  - www.usgbc.org

Texas Organizations and Resources

- **Austin EcoNetwork:**
  - www.austineconetwork.com
- **Austin Energy, Commercial Programs and Rebates:**
  - austinenergy.com/wps/portal/ae/commercial/
  - austinenergy.com/wps/portal/ae/commercial/save-money-and-energy/
- **Austin Energy Green Building:**
  - www.greenbuilding.austinenergy.com

- **Austin Resource Recovery:**
  Solid Waste Services and Waste Reduction Program
  - www.austintexas.gov/department/austin-resource-recovery/programs
- **Austin Water Utility, Commercial Programs and Rebates, and Water Efficient Equipment and Design:**
  - www.austintexas.gov/department/water-conservation
  - www.infohouse.p2ric.org/ref/50/49006.pdf
- **Capital Metro - Austin Public Transit:**
  - www.capmetro.org
- **Center for Maximum Potential Building Systems:**
  - www.cmpbs.org
- **City of Austin - Imagine Austin:**
  - austintexas.gov/imagineaustin
- **City of Austin - Office of Sustainability:**
  - austintexas.gov/department/sustainability
- **Design~Build~Live:**
  - www.designbuildlive.org
- **Lady Bird Johnson Wildflower Center:**
  - www.wildflower.org
- **Save Our Springs Alliance:**
  - www.sosalliance.org
- **Solar Austin - advocacy group:**
  - www.solaraustin.org
- **Texas Commission on Environmental Quality:**
  - www.tceq.texas.gov
- **TREIA (Texas Renewable Energy Industries Association):**
  - www.treia.org
- **TXSES (Texas Solar Energy Society):**
  - txses.org/
- **Urban Land Institute (ULI) Austin:**
  Non-profit organization that promotes responsible use of land
  - www.austin.uli.org
- **U.S. Green Building Council, Central Texas - Balcones Chapter:**
  - usgbc-centraltexas.org
- **Workers Defense Project - Better Builder Program:**
  - betterbuilder.org