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AEGB Commercial Ratings:

1 Star  Basic Requirements
2 Star  30-36 points
3 Star  37-48 points
4 Star  44-48 points
5 Star  59 or more points
Austin Energy Green Building Commercial Program: Introduction

Introduction

The Green Building Process

Great buildings don’t just happen- They are planned green from the start.

Austin Energy Green Building (AEGB) promotes an integrated team approach to design which results in a better product. The building is better because it’s healthier, it’s more efficient and it’s more environmentally friendly. Establishing sustainability goals early ensures that you take full advantage of our services. On your end, participation in AEGB Commercial entails:

Getting Started: Log on to the AEGB Rating System at:
https://www.greenbuildingsystem.austinenergy.com

- **Create a User Profile for your Company:** If you are not already registered, we need to know more about the services that you provide and contact information about the project professionals. You can update this information as needed, and we encourage you to do so regularly. (Should you elect to be part of our professional directory, this is the information that will be used.)

- **Start a New Project:** The information that you provide about your project will enable us to verify that your project is eligible for a rating within our program, and assign the appropriate Rating and AEGB staff to the project.

- **Accept the Terms and Conditions:** Once AEGB has accepted the project and assigned AEGB representatives to your project, we will send you an e-mail requesting you log-on to the system and accept the Terms and Conditions for participation.

Now that you have accepted the Terms and Conditions, you will find new tabs are available on the web page.

- **“Worksheet” Tab:** This is where you will find all of the specific information about the requirements for achieving and documenting points in the Rating.

- **“Team” Tab:** Invite the other professionals working on the project to participate in the online AEGB Rating System. Click on “Add Team Member”. In the “Select Organization” field begin typing the name of the Organization you wish to add. The Organization you are adding may already have a profile- it is important to select their name from the drop down menu, if it is available. Failure to do so will result in multiple profiles for an Organization and confusion. If the Team member you wish to add does not have a User Profile, add them and include an e-mail address so that we can contact them. Team members you may want to include are: the project owner, architect, interior designer, commissioning agent, engineers (mechanical, electrical, structural, and civil), landscape architect, and the general contractor.

- **“Documents” Tab:** Here you will find important documents such as the Terms and Conditions and the Letter of Intent (LOI). It is also a great place to upload your SMART Housing Certificate, if you have one. As you achieve milestones, additional documents will become available to you.

**An Important Note about the Letter of Intent:** When zoning or other City of Austin criteria requires an AEGB Rating, please download, execute and upload the signed AEGB Letter of Intent. This will enable AEGB staff to sign and return the LOI. You will need to present the completed LOI to Land Use Review in order to receive a Site Development Permit.

The Planning Phase: The planning phase is the time for planning, meeting, establishing goals, and developing plans and designs.

- **Meeting:** AEGB Staff would like to meet with the entire design team as early in the process as possible. This will provide an opportunity to walk through the online AEGB Rating System, introduce features of the Commercial Rating program you might not be
familiar with and provide an opportunity to answer any questions you may have. Meeting early in the process is a great way to set the tone for a successful project.

- **Fees**: AEGB cannot approve planning phase documents until receipt of Registration Fee.
- **Regular Updates to the online AEGB Rating System**: The system should be updated at the following project milestones: Schematic Design, 50% and 100% Design Development, 50% Construction Documents, the Building Permit Set, and Pre-Construction. Take note that the Online Rating System details when specific information should be uploaded.
- **Approval**: AEGB will “Approve” requirements and points in the planning phase, indicating that the contract documents reflect that the team is on track to achieve the point. This approval does not guarantee award of any requirement or point, but enables project teams to assess likelihood of credit achievement and requires follow-through to ensure the design is executed in the construction phase according to the design specifications.

An Important note about Conditional Approval: Upon satisfactory review of these documents AEGB will issue Conditional Approval. This document will appear within the “Documents” tab. When zoning or other City of Austin criteria require an AEGB Rating, the **AEGB Conditional Approval letter must be attached to the front of the Building Permit set** at the time of intake with the Planning and Development Review Department (PDRD).

The Construction Phase: This is the time for action by following through with the well laid plans and updating AEGB on a monthly basis with your progress towards your goals.

- **Regular Updates to the AEGB Rating System**: During Construction, provide monthly updates of the “Worksheet” tab including: building materials information, construction waste management calculations, and submittals.
- **Fees**: Payment of the Services Fee is due before AEGB can perform site visits.
- **Site Visits**: Please coordinate access to the building site with your AEGB project representatives, as necessary.
- **Approval**: AEGB will “Approve” requirements and points in the Construction phase, indicating the requirement or point has been awarded.

An Important note about Final Approval: Upon satisfactory review, AEGB will issue a Final Approval. This document will appear in the “Documents” Tab after the Rating Requirements for the project have been met. **When zoning or other City of Austin criteria require an AEGB Rating, this Final Approval may be necessary to acquire a Certificate of Occupancy.**

The Close-Out Phase: This phase will give you an opportunity to reflect on the project’s accomplishments and celebrate the team’s successes.

- **Professional Directory**: Ensure that the Company profile is correct, and indicate whether or not you want to be added to the AEGB Professional Directory.
- **Publish Case Studies**: Work with AEGB to publish a case study on the AEGB website celebrating the project’s accomplishments.

If you have any questions regarding any of these deliverables, please feel free to contact your AEGB project representatives. The Guidebook is a great resource, as are the many links we have provided within the online Rating System. Throughout the rating process, you will be receiving feedback at every step, letting you know how your building is being rated.

For technical assistance with the online AEGB Rating System, contact the System Administrators at **Frontier Associates**, (512) 697-9093, **greenbuilding@frontierassoc.com**.

Congratulations on your commitment to build a better Austin. We look forward to working with you!
Austin Energy Green Building Commercial Program: Introduction

Fees

A registration fee and an AEGB services fee is accessed per project based on the size of the built structures.

<table>
<thead>
<tr>
<th>Project Size</th>
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Invoicing

Registration fee

Once your project application has been accepted, the primary contact will receive an electronic invoice via email from AE Accounts Receivable for the registration fee. The primary contact is the person or team that initiated the project in the AEGB online rating system. Your AEGB representative cannot approve your planning phase documents until the fee has been paid.

AEGB Services Fee

When AEGB has received and approved all design documents and your project has advanced to the construction phase, the primary contact will receive an electronic invoice via email for the AEGB Services Fee. Your AEGB representative cannot perform site visits until the fee has been paid.

Payment Reminders

The primary contact will receive a payment reminder via email every 20 days until your fees have been paid.

How to Pay

Fees can be paid by check only, made out to AE Cash Receipts, with the invoice number printed on the check. Mail the check to the address designated in the invoice.

Waivers

By City code, only S.M.A.R.T. housing and other affordable housing developments are eligible to receive fee waivers. AEGB staff reviews eligibility before the registration fee is invoiced.
About the Guidebook

The Austin Energy Green Building Rating is organized into eight categories: Basic Requirements, Team, Site, Energy, Water, Indoor Environmental Quality, Materials and Resources, and Education. An additional category, Innovation, addresses sustainable building measures not covered in the eight primary categories. This Guidebook is a supporting document to the AEGB Rating. It 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. The following template is applied to each measure.

**Intent** – The purpose of the measure and the benefits

**Requirements** – Criteria to earn points

**Required Documentation** – Documentation demonstrating compliance with the requirements

**Strategies** – A suggested plan of action to meet the goal

**References** – Supporting resources

The title line for each measure includes the number of points awarded for achieving the measure as well as any rebate, indicated by a $, through Austin Energy. Additional information specifically addressing rebates and general information about green building is referenced in the Appendix. Due to the dynamic nature of websites, please bring to the attention of AEGB any referenced websites that are non-functioning.

Disclaimer

AEGB 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 online rating system are unintended and will be resolved by AEGB.
### Austin Energy Green Building Commercial Program: Rating Score Card

#### Rating Score Card

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<td><strong>GRAND TOTAL MAXIMUM POINTS</strong></td>
<td><strong>80</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**AEGB Commercial Ratings:**

- 1 Star       Basic Requirements
- 2 Star       30-36 points
- 3 Star       37-43 points
- 4 Star       44-58 points
- 5 Star       59 or more points
BASIC REQUIREMENTS

1. Plans and Specifications

Intent
Provide the plans and specifications at each of the following milestones, at a minimum: 100% Design Development, 50% Construction Documents, Building Permit Set.

Requirements
Provide one of the following:

► Deliver Hard Copies to AEGB
Provide one half size set of drawings and one set of specifications to AEGB Offices/Attn Sophie Roark/811 Barton Springs Road, 3rd Floor/Austin TX 78704

► Provide Access to FTP Site
In the space provided on the AEGB Rating Website, please provide the URL, User Name, and Password your AEGB Representative is to use. E-mailing the Username and Password directly to the Representative is also acceptable. Plans should be PDFs.

► Upload Plans and Specifications
In the space provided on the AEGB Rating Website, provide the plans (in PDF format) and specifications.

Required Documentation
Project Team should provide:
- 100% Design Development Plans and Specifications, if available.
- 50% Construction Documents Plans and Specifications.
- Building Permit Plans and Specifications.
- As-Built Drawings.

References

2. Current Regulations

Intent
A green building rated project must comply, at a minimum, with all current codes and laws associated with the built environment. These codes are in place to assure energy efficient, quality buildings and protect the health and safety of building occupants, our community, and the natural environment.

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).
Required Documentation
- Project Team should provide a schedule of applicable codes in Construction documents.
- Project Team should provide an approved Water Quality Control Plan.
- Project Team should provide a roof plan and submittals indicating SRI or reflectance, and/or vegetated roof areas (IECC 2009 Section 502.5).
- Project Team should provide signed and sealed Energy Code compliance documents (COMcheck™ or IECC 2009 Section 506 compliance report).

Resources
Watershed Ordinances Regulations - City of Austin:
www.ci.austin.tx.us/watershed/regulation.htm
Environmental Criteria Manual – Section 1.9.0
Online Code Library - City of Austin:
austintech.amlegal.com/nxt/gateway.dll/?f=templates$fn=default.htm$3.0$vid=amlegal:austin_all_mc$anc
Edwards Aquifer Recharge Zone Map:
www.tceq.state.tx.us/compliance/field_ops/eapp/mapdisclaimer.html
Adopted Codes and Ordinances - City of Austin:
http://www.ci.austin.tx.us/development/bpinfo1.htm
Energy Code Ordinance and Amendments - City of Austin:
www.ci.austin.tx.us/edims/document.cfm?id=135892
Energy Star Roof Products:
www.energystar.gov/index.cfm?c=products.pr_find_es_products
Energy Star Roof Savings Calculator:
www.roofcalc.com
Green Roof Directory:
www.greenroofs.com
COMcheck™:
www.energycodes.gov/comcheck/

3. Building Systems Commissioning

Intent
A commissioning authority with documented commissioning experience on at least two other building projects will verify and ensure that mechanical, electrical, and all other energy using systems are installed and calibrated to operate according to the Owner Project Requirements (OPR) and Basis of Design (BOD). This reduces operating costs by keeping mechanical and electrical building systems compliant with warranties and operating as designed, resulting in a comfortable environment for building occupants.

Requirements
Owner shall develop Owner Project Requirements document.
Design Team shall develop Basis of Design document.
Project Team shall include commissioning requirements in the construction documents.
Project Team and Commissioning Authority shall develop and utilize a Commissioning Plan.
Commissioning Authority shall verify installation, functional performance, and training of maintenance staff.
Austin Energy Green Building Commercial Program: Basic Requirements

Mechanical Designer shall include control sequencing and set points for all design conditions in the construction documents.
Project Team shall provide O&M documentation.
Commissioning Authority shall complete a Commissioning Report.
Owner shall provide training for maintenance staff.
Owner shall register building with ENERGY STAR Portfolio Manager.

Required Documentation
- Project owner should provide Owner Project Requirements early in the Design Process. The Owner Project Requirements should be updated to reflect any changes.
- Project Team should provide Basis of Design early in the Design Process. The Basis of Design should be updated to reflect any changes.
- Project Team should include Commissioning in the project specifications.
- Commissioning Authority should provide a Commissioning Plan once a contractor has been selected and before construction begins. The Commissioning Plan should be updated to reflect any changes.
- Commissioning Authority should provide a Commissioning Report upon project completion. Report should include verification of installation, functional performance, and training of maintenance staff.
- Project Team should upload O & M documentation upon occupancy.
- Owner should provide the Statement of Energy Performance report from ENERGY STAR Portfolio Manager.

References
Austin Energy Code:
Energy Code Ordinance and Amendments, Section 503.2.9 - City of Austin: www.ci.austin.tx.us/edims/document.cfm?id=135892
Commissioning guidance and procurement - Energy Design Resources: www.energydesignresources.com/category/commissioning/
Association of Certified Commissioning Authorities AABC Commissioning Group (ACG): www.commissioning.org
ENERGY STAR Portfolio Manager: www.energystar.gov/benchmark
4. Building Energy Use Efficiency

Intent
The Energy Code establishes minimum standards for energy-efficient buildings. Outperforming these standards reduces building energy demand and consumption. These reductions result in lower greenhouse gas emissions and building operating costs.

Requirements
Complete the following requirements and either OPTION 1 or OPTION 2.

Establish an energy performance rating goal using ENERGY STAR Target Finder.

Surpass current Austin Energy Code cooling system efficiency requirements.

OPTION 1 - Demonstrate a 7.5% improvement in the proposed building energy performance compared with the baseline building energy performance that complies with Appendix G of ASHRAE/IESNA Standard 90.1-2007.

OPTION 2 - Surpass current Austin Energy Code building interior lighting requirement by 15%.

Required Documentation
- Project Team should provide a narrative describing the building envelope, systems, and energy saving measures incorporated into the building.
- Project Team should provide Target Energy Performance Results and Inputs from the ENERGY STAR Target Finder rating tool.
- Mechanical Systems Designer should provide HVAC load calculation assumptions in the plan set.
- Mechanical Systems Designer should include all HVAC equipment efficiency ratings in the mechanical schedules.
- Project Team should provide product specifications and submittals for envelope materials and mechanical and lighting systems highlighting pertinent performance values.
- Project Team should provide energy model inputs and results recorded in the AEGB Energy Analysis Summary Form. The energy model demonstrates building design performance over Energy Code baseline using a Building Energy Hourly Simulation and Load Program such as: Energy Plus\(^1\), Carrier HAP\(^1\), Trane Trace\(^1\), EnergyGauge Summit\(^1\), Energy 10, eQUEST\(^1\), DOE-2\(^1\) for Option 1.
- Project Team should provide a signed and sealed COMcheck™ Interior Lighting Code Compliance Certificate for Option 2.

References
Energy Code Ordinance and Amendments - City of Austin:
www.cityofaustin.org/edims/document.cfm?id=135892
ENERGY STAR Target Finder rating tool – EPA:
www.energystar.gov/index.cfm?c=new_bldg_design.bus_target_finder
National Institute of Building Sciences - Whole Building Design Guide:
www.wbdg.org/index.php
Austin Energy Green Building Commercial Program: Basic Requirements

www.ashrae.org/technology/page/548

‘IRS Qualified Energy Modeling Software List for Energy Efficiency Tax Deduction:
www1.eere.energy.gov/buildings/info_software.html

COMcheck™:
www.energycodes.gov/comcheck/

Business Energy Advisor – for buying and maintaining equipment and efficiency advice per facility type:

5. Building Water Use Reduction

Intent
High efficiency plumbing fixtures reduce consumption of water for indoor use, thus lessening the impact on the water supply and treatment facilities and reducing building operating costs by saving water and associated energy use.

Requirements
Install water efficient flush and flow fixtures that meet the current Uniform Plumbing Code with Austin amendments. The volume and flow rates for standard plumbing fixtures are set by the current ASME/ANSI Standards and City of Austin Ordinance No. 20100624-146

Water Closets 1  1.28 gpf average maximum
Urinals 0.5 gpf maximum (waterless permitted Section 402.3.1)
Public Lavatory 0.5 gpm maximum
Private Lavatory 2.2 gpm maximum
Kitchen Sink 2  2.2 gpm maximum
Showerhead 2  2.5 gpm maximum

1Water 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.
2Flow rates apply to both public and private installations.

Required Documentation
- Design Team should provide an AEGB Building Water Use Reduction Calculator. The calculator should be updated to reflect any changes throughout the project.
- Design Team should provide the plumbing fixture schedule specifying flush and flow rates.
- Contractor should provide approved indoor plumbing fixture submittals with flush and flow rates highlighted for the fixtures installed on site.
- Design Team should provide calculations from the AEGB Rainwater and Condensate Calculator, if auxiliary water is used. The calculator should be updated to reflect any changes throughout the project.
- Project Owner or Tenant should provide projected actual building occupancy and occupancy schedules.
REFERENCES
Plumbing fixtures and rainwater harvesting - City of Austin Water Conservation:
www.ci.austin.tx.us/watercon/

<table>
<thead>
<tr>
<th>TYPES OF WATER SAVING FIXTURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOILETS</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>Power-Assisted Low Flush</td>
</tr>
<tr>
<td>Dual Flush</td>
</tr>
<tr>
<td>Power-Assisted Dual Flush</td>
</tr>
<tr>
<td>Composting Toilets</td>
</tr>
</tbody>
</table>

Energy Star Appliance listings:
http://www.energystar.gov
EPA WaterSense® labeled High Efficiency Toilets and Faucets:
www.epa.gov/watersense

Rainwater and condensate collection systems can also be of use in reducing the amount of potable water used in the plumbing system.

Water Conservation -Texas Water Development Board:
www.twdb.state.tx.us/assistance/conservation/consindex.asp

6. Low VOC Interior Paints and Coatings

Intent
Low VOC (volatile organic compound) interior paints and coatings reduce toxic pollution and contribute to good indoor air quality for the benefit of the health and productivity of building occupants and those applying the paints and coatings.

Requirements
I. 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, Second Edition, 2008, Section 4.4.

<table>
<thead>
<tr>
<th>Paint Type</th>
<th>VOC Limit (g/L)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-flat Topcoat</td>
<td>100</td>
</tr>
<tr>
<td>Flat Topcoat</td>
<td>50</td>
</tr>
<tr>
<td>Primer</td>
<td>100</td>
</tr>
<tr>
<td>Anti-Corrosive Coating</td>
<td>250</td>
</tr>
</tbody>
</table>

* The calculation of VOC shall exclude water and colorants added at the point-of-sale.
II. Coatings applied on-site to the interior of the building must not exceed the current VOC limit of 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, contact your AEGB representative for approval prior to application.

Required Documentation
- Project Team should provide the product specifications and approved submittals with the VOC content of the product highlighted.
- Project Team should provide a tabulation of products using the AEGB Low Emitting Materials Form.

References

7. Storage and Collection of Recyclables

Intent
The collection of recyclables reduces waste generated by building occupants and building operations that is directed to the landfill extending the life of the landfill and saving energy and resources through the recycling process.

Requirements
Provide an easily-accessible, clearly-marked area dedicated to the separation, collection, and storage of materials for recycling for the entire facility. Recyclable materials include, at a minimum, the top four identified recyclable waste stream items (e.g., paper, cardboard, plastic bottles, aluminum and tin cans, glass containers, kitchen scraps and compost). Building loading dock or pick-up location must be sized appropriately to handle the recycling material volumes generated by the building occupants.

Required Documentation
- Project Team should provide a site plan indicating recycling collection center.
- Project Owner should provide a completed City of Austin Solid Waste Services - Multi-family or Commercial Recycling Plan form.

References
Recycling Ordinance and Recycling Plan Forms - City of Austin: www.ci.austin.tx.us/sws/commercial_recycling.htm
8. **Construction Waste Management**

**Intent**
Construction waste management includes recycling or salvaging of construction, demolition/deconstruction and land-clearing waste to reduce the amount of waste destined for the landfill or incineration disposal thus, saving in disposal costs, extending the life of the landfill, and saving energy, resources, and material costs in their reuse.

**Requirements**
Project shall recycle and/or salvage at least 50% (by weight) of non-hazardous construction and demolition waste, excluding excavated soil and stone. Demonstrate results by completing the AEGB Construction Waste Calculator and submitting weight tickets.

The following table shall be used to calculate percentage of construction waste diverted when weight tickets are not available:

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>DENSITY, (lbs/CY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed Waste</td>
<td>350</td>
</tr>
<tr>
<td>Wood</td>
<td>300</td>
</tr>
<tr>
<td>Cardboard</td>
<td>100</td>
</tr>
<tr>
<td>Gypsum Wallboard</td>
<td>500</td>
</tr>
<tr>
<td>Rubble</td>
<td>1400</td>
</tr>
<tr>
<td>Steel</td>
<td>1000</td>
</tr>
</tbody>
</table>

**Required Documentation**
- Project Team should provide specifications for Construction Waste Management in the Contract Documents.
- Contractor should provide a Construction Waste Management Plan.
- Contractor should provide calculations from AEGB Construction Waste Calculator. The calculator should be kept up to date to reflect the project’s current status.
- Contractor should provide copies of weight tickets for all of the waste recycled, salvaged, or brought to the landfill. Tickets should be submitted as they are accrued.

**References**
The Waste Reduction Assistance Program is available to assist with all aspects of solid and hazardous waste management through the on-site waste reduction assessment service, materials exchange, and business information-clearing house. Have a waste reduction assessment conducted for facility operation; contact City of Austin Solid Waste Services Waste Reduction Assistance Program at 974-9043.

[www.ci.austin.tx.us/sws/commercial_wrap.htm](http://www.ci.austin.tx.us/sws/commercial_wrap.htm)
Austin Energy Green Building Commercial Program: Team

TEAM
Integrating the Design Team, Setting and Achieving Sustainability Goals

1. Integrated Project Design 1 point

Intent
High performance buildings require integrated design. Develop an early understanding of the relationship of built and natural environments. Set sustainability goals early in the design process to implement the necessary strategies and ultimately achieve a sustainable building. An integrated design offers opportunities for synergies that can reduce costs in the project as a whole.

Requirements
Demonstrate that a thorough understanding of key systems informs basic design decisions. Provide brief summary of at least two analyses and indicate how these analyses shape the building or project design:

- Energy Modeling – The analysis should demonstrate a systematic comparison of building elements and aspects. Demonstrate how this parametric analysis informs design decisions relating to building massing, apertures, envelope performance, energy using systems, location, orientation, landscape features, etc.

- Daylight Modeling – The analysis should demonstrate a systematic comparison of exterior skin elements and features that indicate optimal levels of daylight efficiency as demonstrated by footcandle contour models, lighting model renderings, or photographs of study models. Demonstrate how this analysis informs the design of lighting controls and the integration of daylight and electrical lighting.

- Water Balancing/ Budgeting -- The analysis should demonstrate understanding of all water input and output to and from the building and site with the goal of living within the site’s annual rainfall budget.

- Water Quality and Conservation, Habitat, Building Massing Studies – The study should analyze at least one of the following:
  - water quality and conservation
  - habitat studies (plant and animal)
  - building massing and location

Required Documentation
- Project Team should provide a summary of the data, analysis, results and project design demonstrating how design decisions were influenced by these studies, no later than the end of design development.

Strategies
✅ Engage key team members to determine specific research and analysis to be conducted, based on issues that might be most critical to project.
Engage experts to assist in designing and conducting specific research and analysis tasks – energy modelers, ecologists, lighting consultants, water conservation professionals, green roof consultants, etc.

Focus on systems-level analysis – look for patterns, connections, relationships among elements, how one element affects the others and the whole system, how changes in one or more elements affects the others and the whole system.

Look for opportunities for synergies; in many cases, these will reduce costs in the project as a whole.

Keep track of progress, results and decisions within the AEGB web application tool so that all team members are aware of goals and process.

References

SITE
Sustainability through Site Selection

1. Site Selection

Intent
Population projections for Central Texas predict a two-fold increase in the next two to three decades. Careful site selection for development can help manage the impact of this growth by utilizing existing municipal infrastructure and preserving our natural resources.

1a. Environmental Sensitivity 2 points

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. Also, project site is not a Greenfield defined as a parcel of land not previously developed beyond that of agriculture or forestry use.

Required Documentation
- Project Team should provide a print out of the GEO Profile identifying site location and Watershed Classification from the Watershed Development Map GIS Viewer. Include site address.
Austin Energy Green Building Commercial Program: Site

- Project Team should provide a pre-construction description of site as a non-greenfield site.

References
Watershed Development Map GIS Viewer - City of Austin:
http://coagis1.ci.austin.tx.us/website/COAViewer_dev/viewer.htm

Watershed Classification Report using the GIS Viewer. First, select Address from the Viewer Tools menu on the left menu bar. Enter the address or street name and intersection. The Development GIS will bring up the map. To see on the map the Watershed Regulation Area, select Austin Watershed Regulation Areas from the Layers Menu on the right, then refresh map. Select the LEGEND tab on the right to see if the address is located in the Suburban or Urban (Site 1b) Watershed Regulation Area. To get a report of the Watershed Classification, (set browser to allow pop-ups), Select Geo Profile from the left menu bar and point and click to the location on the map and a GeoProfile Search Results page will open. Scroll down to page 2 to see Watershed Classification. If the SDE. Waterreg. Watername is Suburban or Urban, this address qualifies for Site1a. Urban also qualifies for Site1b. BSZ, Water Rural and Water Supply Suburban do not qualify for Site1a or Site1b.

Watershed Ordinance Map - City of Austin:
www.ci.austin.tx.us/watershed/ordinance_map.htm

1b. Desired Development Area

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

Required Documentation
- Project Team should provide a print out of the GEO Profile identifying site location and Watershed Classification from the Watershed Development Map GIS Viewer. Include site address.

References
Watershed Development Map GIS Viewer - City of Austin:
http://coagis1.ci.austin.tx.us/website/COAViewer_dev/viewer.htm
Watershed Ordinance Map - City of Austin:
www.ci.austin.tx.us/watershed/ordinance_map.htm

2. Diverse, Walkable Communities

Intent
Promote livable, walkable, and bikeable communities that encourage efficient transportation and a mix of community-oriented businesses. Promote safe pedestrian access between proposed building(s) and neighborhood paths as well as safe connections to nearby destinations.

Requirements
Building(s) connects with neighboring properties with pedestrian and/or bicycle only paths (shading is preferred) that are separate from vehicular traffic.
Austin Energy Green Building Commercial Program: Site

Project includes or is located within ½ mile walking distance of residences and at least 10 Basic Services:

Basic Services include, but are not limited to:

Basic services must be accessible via a safe route explicitly intended for use by the pedestrian that does not require crossing a road more than 5 lanes wide or 35 miles per hour.

Required Documentation
- Design Team should provide a vicinity plan with Residences and Basic Services highlighted and pedestrian path distance measured between project and each location.
- Design Team should provide a narrative describing how a pedestrian makes the connection between the proposed building(s) and the Basic Services. Include suggested route to cross vehicular traffic and photographs of difficult to describe connections.

References
To identify basic services and distances for a given address - Walk Score® Maps: http://www.walkscore.com
City of Austin Design Standards and Mixed-Use Subchapter, Section 2.3 Connectivity: http://www.ci.austin.tx.us/development/downloads/final.pdf

3. Brownfield Redevelopment 1 point

Intent
Revitalize communities, utilize existing infrastructures, ease development pressure on undeveloped, open land, and improve and protect the environment by redeveloping brownfield sites. Brownfield sites are real property in which the expansion, redevelopment, or reuse may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant as defined by CERCLA §104(k) the Comprehensive Environmental Response, Compensation, and Liability Act of 1980.

Requirements
Project demonstrates effective remediation of site contamination (using established technologies that have minimal disruption on the site's natural features above and below ground).

Required Documentation
- Owner should provide documentation on the Brownfield classification and verification of remediation efforts.
Austin Energy Green Building Commercial Program: Site

References
EPA Preliminary Remediation Goals:
www.epa.gov/region09/waste/sfund/prg/index.html
EPA Sustainable Redevelopment of Brownfields Program, legal definition, grants and loans:
www.epa.gov/brownfields/
Brownfields Redevelopment Office Services - City of Austin:
www.ci.austin.tx.us/watershed/brownfields.htm
Brownfields Site Assessment Program – Texas Commission on Environmental Quality:
www.tceq.state.tx.us/remediation/bsa/bsa.html

4. Site Characteristics Study  1 point

Intent
Reduce the impact of the structures on the environment and optimize building placement on a site.

Requirements
Assess site conditions prior to design in order to evaluate sustainable options and inform related decisions about site design. Design Team shall complete and document a site survey that includes the following information:

- Topography: Contour mapping noting unique topographic features and slope stability risks.
- Hydrology: 100-year floodplain, wetlands, lakes, streams, rain/storm water collection/reuse opportunities, and initial water storage capacity of site.
- Climate: Site True North, solar exposure and seasonal sun angles, prevailing winds, monthly precipitation and temperature ranges.
- Vegetation: Primary vegetation types, greenfield area, significant tree mapping, threatened or endangered species, ecosystems and natural habitats, and invasive plants.
- Soils: Identify soils composition, prime farmland, healthy soils, and previously developed areas.
- Human Use: Views, cultural significance, adjacent transportation infrastructure and potential impact of traffic, recyclable/reusable on-site construction materials, and sources of pollution (including noise pollution).

Design Team shall create a plan to maintain or restore existing site features. Design Team shall develop recommendations for building placement on site to minimize impact on the environment and to take advantage of natural features.

Required Documentation
- Project Team should provide a site survey with all relevant information using the Site Survey Guidelines.
- Design Team should provide a brief narrative addressing how each element of the site survey influenced project design.
Austin Energy Green Building Commercial Program:  Site

References
Watershed Development Map GIS Viewer - City of Austin:
http://coagis1.ci.austin.tx.us/website/COAViewer_dev/viewer.htm
Weather data - Austin, Texas:
www.ci.austin.tx.us/library/ea_weath.htm
Texas Climate Data:
http://web2.iadfw.net/danb1/climate.htm
Sun Path Chart useful in passive design considerations:
http://solardat.uoregon.edu/SunChartProgram.html
Texas Historical Commission Online Atlas of historic sites:
http://atlas.thc.state.tx.us/shell-county.htm
City of Austin Historic Preservation Office list of historic landmarks:
www.ci.austin.tx.us/historic/hist_ldm.htm
## SITE SURVEY GUIDELINES

Conduct a site survey to identify the following conditions.

<table>
<thead>
<tr>
<th>Site Overview</th>
<th>Topography and significant site features (rocks, steep topography, large trees, hardscape, structures, overland flow direction) on the proposed site</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Any unique microclimate factors that may affect the site design decisions and plant selections</td>
</tr>
<tr>
<td>Site Climate &amp; Energy</td>
<td>Solar access (sun angles and internal or external conditions impacting solar access) to the site</td>
</tr>
<tr>
<td></td>
<td>Prevailing and seasonal winds to the site</td>
</tr>
<tr>
<td></td>
<td>Average annual and seasonal temperatures of the site area</td>
</tr>
<tr>
<td></td>
<td>Average annual and average monthly precipitation, and ETo (evapotranspiration) for the site</td>
</tr>
<tr>
<td></td>
<td>Locations of prime farmland soils, healthy soils, and previously disturbed and/or compacted soils</td>
</tr>
<tr>
<td>Soils</td>
<td>On-site soil types and locations</td>
</tr>
<tr>
<td>Site Hydrology</td>
<td>Location of project site within its watershed</td>
</tr>
<tr>
<td></td>
<td>Existing surface water resources (such as lakes, streams, wetlands), including associated buffers and other regulated or protected hydrologic areas (such as recharge zones)</td>
</tr>
<tr>
<td></td>
<td>Existing wastewater and stormwater infrastructure available for project use</td>
</tr>
<tr>
<td></td>
<td>Opportunities for water reuse on the site, including precipitation harvesting and/or access to sources of greywater or reclaimed water</td>
</tr>
<tr>
<td></td>
<td>Initial water storage capacity of the site</td>
</tr>
<tr>
<td></td>
<td>100-year floodplain, as determined by FEMA (or using calculations specific to the site if no 100-year floodplain elevations have been calculated for the site)</td>
</tr>
<tr>
<td>Site Vegetation</td>
<td>Locations of significant vegetation that can be incorporated into site design, including:</td>
</tr>
<tr>
<td></td>
<td>a. Threatened or endangered species habitat</td>
</tr>
<tr>
<td></td>
<td>b. Blocks of habitat and corridors or connections between habitat parches</td>
</tr>
<tr>
<td></td>
<td>c. Native plant communities</td>
</tr>
<tr>
<td></td>
<td>d. Locations of invasive plants and noxious weed species</td>
</tr>
<tr>
<td></td>
<td>e. Vegetation that could provide shade to building, parking lots, or other program</td>
</tr>
<tr>
<td></td>
<td>f. Areas of wildfire risk</td>
</tr>
</tbody>
</table>
Identify and map and/or document the following information.

<table>
<thead>
<tr>
<th>Human Use of Site</th>
<th>Existing and future transportation infrastructure (including mass transit, bicycle, and pedestrian facilities, and roadways) within 1/2 mile of the project boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Locations of interesting or unique features that will visually or physically enhance the user experience and encourage site use, for example: adjacent features, view corridors, large trees and water.</td>
</tr>
<tr>
<td></td>
<td>On-site elements with known or perceived cultural and historical significance, including cultural or historic landscapes</td>
</tr>
<tr>
<td></td>
<td>Existing adjacent land uses, including off-site habitat for wildlife, migratory routes and wildlife corridors</td>
</tr>
<tr>
<td></td>
<td>Existing stressful and pollution factors, including noise, odor or excessive light that could affect the building users</td>
</tr>
<tr>
<td>Regional Resources</td>
<td>Existing construction materials (on- and off-site) such as structures, building materials, vegetation, roads, parking lots, and pathways, that may be reused or recycled to benefit project</td>
</tr>
</tbody>
</table>

5. Transportation Alternatives

Intent
Reduce pollution and development impact from automobile use.

5a. Public Transportation

Requirements
Building entrance is located within 1/4 mile of bus stops serving at least 2 Capital Metro bus routes or within 1/2 mile of a rail stop or future rail stop with proposed completion within 5 years.

Required Documentation
- Design Team should provide area site plan highlighting the public transportation lines and stops with distance from the building’s main entry to each indicated.

References
Austin Capital Metro Transit identifies services near a given location: [www.capmetro.org/gismaps/localroutes.html](http://www.capmetro.org/gismaps/localroutes.html)
Envision Central Texas: [www.envisioncentraltexas.org](http://www.envisioncentraltexas.org)
5b. Bicycle Use

Requirements
Project incorporates bicycle securing areas and shower / changing facilities that accommodate 10% or more of the building occupants.
Provide one bicycle parking space for each rider and one shower for every twenty-five riders.
Provide a bikeway for safe connectivity from public corridors to building facilities.

Required Documentation
- Design Team should provide calculations demonstrating total building occupancy, required quantity of bicycle securing areas and shower / changing locations as indicated above.
- Design Team should provide building and/or site plan indicating bicycle rack locations and capacities.
- Design Team should provide building plans indicating locations and capacities of shower and changing areas.
- Project Team should provide specifications of bicycling securing systems.
- Project Team should provide a site plan indicating safe bicycle/pedestrian routes.

References
City of Austin Bicycle and Pedestrian Program including Bicycle Route Map:
www.ci.austin.tx.us/publicworks/ncd.htm
Bicycle Austin discusses bicycle transportation issues in Austin:
bicycleaustin.info/
Oregon Bicycle and Pedestrian Planning and Design Manual:
www.oregon.gov/ODOT/HWY/BIKEPED/planproc.shtml

5c. Parking Capacity

Requirements
Parking does not exceed minimum local zoning requirements.
Parking area provides preferred parking for carpools for at least 5% of building occupants.

Required Documentation
- Project Team should provide a copy of the local zoning requirements highlighting the minimum parking capacity criteria.
- Design Team should provide a parking plan highlighting the total parking capacity and preferred parking locations for carpools.
- Owner should provide documentation demonstrating that carpool programs serve 5% of the building occupants.

References
City of Austin Land Development Code Ch 25-6-471, Off-street parking and loading:
5d. Electric Vehicle Charging Station 1 point

Requirements
Install Level 2 electric vehicle charging station(s). The charging station may be accessible to the general public, building occupants, and/or company fleet vehicles. Signage shall be provided.

Required Documentation
- Project Team should provide plans that identify the location of the EV charging station, service panel, and conduit.
- Project Team should provide EV charging station specifications in construction documents.
- Project Team should provide a narrative of scope of use for the EV charging station.

Definitions
Level 1 Electric Vehicle Charging. Electric vehicle charging systems using 120 volt AC 15-20 AMP electric circuits. Typical equipment configuration is standard 3 prong NEMA 5-15R/20R outlet.

Level 2 Electric Vehicle Charging. Electric vehicle charging systems using 208 to 240 volt single phase 40-70 AMP electric circuits. Equipment configuration is compliant with the SAE J1772™ standard.

References
City of Austin Design Criteria Manual – Section 4: http://austintech.amlegal.com/nxt/gateway.dll/?f=templates$fn=default.htm$3.0$vid=aml egal:austin_all_mc$anc=1
Fuel Economy with additional PEV and PHEV resources - U.S. Dept. of Energy: www.fueleconomy.gov

6. Protect or Restore Habitat 1 point

Intent
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 all development and construction activity.

And
Restore 30% of all portions of the site identified as previously developed with native or adapted vegetation.
Green roof areas may be included in the restored area calculations if the plants meet the definition of native/adapted. Wetlands or naturally designed ponds may be included in restored area calculations.

**Required Documentation**
- Project Team should provide a site plan clearly indicating limits of construction (site disturbance boundaries), tree protection, and area calculations demonstrating that at least 40% of all greenfield areas are preserved and protected.
- Project Team should provide a landscaping plan, including plant list and area calculations, demonstrating that at least 30% of the previously developed areas are vegetated with native or adapted plants.

**Definitions**
- **Greenfield areas** are those that are not previously developed or graded and remain in a natural state.
- **Previously developed areas** are those that previously contained buildings, roadways, parking lots or were graded or altered by direct human activities.
- **Native or adapted vegetation** are indigenous plants that are adapted to the local climate and are not considered invasive species or noxious weeds.

**References**
Grow Green Guide for native and adapted plant listings - City of Austin: [www.ci.austin.tx.us/growgreen/plants.htm](http://www.ci.austin.tx.us/growgreen/plants.htm)

**7. Beneficial Open Space**

**Intent**
Create beneficial exterior open space to provide for interaction with the outdoor environment including opportunities for social interaction, passive recreation and/or physical activities.

**Requirements**
Provide outdoor open space equal to 30% of the total site area. A minimum of one quarter of this outdoor open space must be vegetated with native/adapted plants or have equivalent overhead vegetated canopy coverage*. Beneficial Open Space must be exterior space incorporating appropriate shading that is physically accessible and must be one of the following to qualify:
- Pedestrian-oriented hardscape area with physical site elements to accommodate outdoor dining, meetings, classes or other social activities.
- Recreation-oriented area with physical site elements to provide for physical activity such as play grounds, pools, athletic courts or fields and linkages to off-site pedestrian/bike paths.
- Garden space with a diversity of native or adapted vegetation types and species that provide passive recreation opportunities and/or year-around visual benefit to users.
- Garden space dedicated to communal food growing.
Austin Energy Green Building Commercial Program: Site

- A "Protected or Restored Habitat" that provides elements of human interaction such as trail access, viewing platforms or an interpretive signage component.
- Wetlands or naturally designed ponds whose side slope gradients average 1:4 (vertical: horizontal) or less and are vegetated.

*Accessible green roofs qualify.

**Required Documentation**
- Project Team should provide a site/landscape plan indicating vegetated open areas including plant list.
- Project Team should provide area calculations of project site and vegetated open areas.

**References**
Grow Green Guide native and adapted plant listings - City of Austin: [www.ci.austin.tx.us/growgreen/plants.htm](http://www.ci.austin.tx.us/growgreen/plants.htm)

---

8. **Access to Local and Regional Produce** 1 point

**Intent**
Support local, regional and urban agriculture and decrease the reliance on globally-sourced food production. Make local and regional healthy produce available to residents or employees to improve their health and productivity by removing some of the key barriers that people face in eating fresh fruits and vegetables.

**Requirements**
Select one of the following:
- Implement a weekly local produce delivery program available on an elective basis to employees or residents at the building.
- Implement a local produce purchasing policy for the building’s cafeteria.
- 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.

**Situation Description**

<table>
<thead>
<tr>
<th>Site Description</th>
<th>F.A.R.</th>
<th>Percent of Total Site for Food Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural to General Urban</td>
<td>&lt;0.49</td>
<td>5.0%</td>
</tr>
<tr>
<td>Urban Core Zone</td>
<td>≥0.50</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

**Required Documentation**
- Project Owner should provide documentation of the local produce delivery program.
- Project Owner should provide the cafeteria purchasing policy identifying local produce sources.
- Project Team should provide the landscape plan indicating areas for food production and area calculations for the site demonstrating the minimum requirements are met.
Strategies

- Partner with the Sustainable Food Center to provide a Farm to Work, Farm to School or Farm to Cafeteria program.
- Provide for an Organic Company Garden where staff volunteers tend to plots and keep shares of the produce and donate excess to a local food bank.

References

Sustainable Food Center, Austin, Texas:
http://www.sustainablefoodcenter.org/GL_overview.html

“Farm to Work Toolkit”, rev. 2008 - Texas Department of State Health Services:
http://www.dshs.state.tx.us/obesity/pdf/F2WToolkit1008.pdf

“Living Building Challenge™ 2.0” - International Living Building Institute:
http://ilbi.org/the-standard/LBC2-0.pdf

9. Additional Heat Island Reduction 1 point

Intent

Urban Heat Island is characterized by increased temperatures which affect the formation of ground-level ozone or smog, local weather patterns and the performance of air conditioning and refrigeration equipment. Heat island effects can be reduced by designing site impervious surfaces to include vegetated open-grid pavement systems, high albedo surface treatments, and vegetative shading and roofing surfaces with high reflectance coatings. The resulting reduction in the heat island effect for the microclimate surrounding the building contributes to improved air quality and building cooling energy savings.

Requirements

Comply with either of the following Site options.

OPTION 1 – Provide any combination of the following strategies for 50% of the site hardscape.

- Vegetated open-grid pavement system (at least 50% pervious).
- High-albedo paving materials with a Solar Reflectance Index of at least 29.
- Vegetative shading planted over the non-roof impervious surfaces within five years.

OPTION 2 - At least 50% of the parking spaces located underground or in structured parking with a top deck surface SRI of at least 29.

Required Documentation

- Project Team should provide a copy of site plan and narrative indicating method utilized at various locations and their associated areas.
- Project Team should provide area calculations for the entire site demonstrating that the minimum requirements are met.
- Project Team should provide product specifications.

References

Design strategies and benefits to mitigating Heat Island – Heat Island Group:
eetd.lbl.gov/HeatIsland/
Design strategies to mitigate Heat Island affect - EPA:
10. **Light Pollution Reduction**  

**Intent**  
Design efficient outdoor lighting systems to reduce light pollution, i.e., any adverse effect of artificial light including sky glow, glare, light trespass, and light clutter to preserve nocturnal environments.

**Requirements**  
**OPTION 1** - Exterior lighting systems shall meet the maximum allowable zonal lumen thresholds for Backlight, Uplight and Glare Ratings per IESNA TM-15 Addendum A for each luminaire as specified.

All luminaries* shall meet the maximum allowable Backlight (B), Uplight (U), and Glare (G) Ratings in Table 1.

*Exceptions:  
1. Lighting in lighting zones 3 and 4, solely for uplighting structures, building facades, or landscaping.  
2. Lighting in lighting zones 1 and 2, solely for uplighting structures, building facades, or landscaping provided the applicable lighting power densities do not exceed 50% of the lighting power allowance in ASHRAE 90.1-2007 Table 9.4.6 with Addendum I.

<table>
<thead>
<tr>
<th>Table 1: Maximum Allowable Backlight, Uplight, and Glare Ratings¹</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Allowed Backlight Rating</strong></td>
</tr>
<tr>
<td>&gt;2 mounting heights from property line</td>
</tr>
<tr>
<td>1 to 2 mounting heights from property line</td>
</tr>
<tr>
<td>0.5 to 1 mounting height to property line</td>
</tr>
<tr>
<td>&lt;0.5 mounting height to property line</td>
</tr>
<tr>
<td><strong>Allowed Uplight Rating</strong></td>
</tr>
<tr>
<td><strong>Allowed Glare Rating</strong></td>
</tr>
<tr>
<td>Building-mounted &lt; 2 mounting heights from property line</td>
</tr>
</tbody>
</table>

¹Notes to Table 1:  
1. Fixtures mounted two mounting heights or less from a property line shall have backlight towards the property line, except when mounted on buildings.  
2. 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.

3. The rating shall be determined by the actual photometric geometry of the luminaire at the specified installation orientation and tilt.

**OPTION 2** - The exterior lighting system shall be analyzed using photometric calculations to meet the maximum allowable percentage of uplight and the maximum trespass illuminance at any point 6 feet above grade in the vertical plane of the property line in Table 2.

<table>
<thead>
<tr>
<th>Table 2: Maximum Allowable Uplight and Trespass</th>
<th>LZ0</th>
<th>LZ1</th>
<th>LZ2</th>
<th>LZ3</th>
<th>LZ4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Uplight - Percentage of total exterior fixture lumens allowed to be emitted &gt; 90 degrees from nadir (straight down)</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>2%</td>
<td>5%</td>
</tr>
<tr>
<td>Maximum Trespass - Line of Sight Illuminance at any point 6 feet above grade in the plane of the property line</td>
<td>0.05 fc</td>
<td>0.1 fc</td>
<td>0.3 fc</td>
<td>0.8 fc</td>
<td>1.5 fc</td>
</tr>
</tbody>
</table>

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 nonexempt 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 and registered historic landmark structures or buildings.

**Required Documentation**
- Design Team should provide exterior lighting plan and schedule.
- Design Team should provide a tabulation of luminaries with BUG rating and mounting heights from property line.
- Design Team should provide product submittals including zonal lumen distribution with BUG Rating for Option 1 or ISO footcandle chart for Option 2.
- Design Team should provide a photometric study of the percentage of lumens leaving the site (uplight) for Option 2.
- Design Team should provide a photometric study of the Maximum Trespass using illuminance modeling software such as AGI32 or equivalent for Option 2. This should include a site drawing with a single line of points 6 feet in the vertical plane around the property line with the maximum illuminance point highlighted.
Austin Energy Green Building Commercial Program: Site

References
Addendum A for IESNA TM-15-07: Backlight, Uplight, and Glare (BUG) Ratings:
International Dark-Sky Association:
www.darksky.org
“Lighting for Exterior Environments” - IESNA RP-33-99, Illuminating Engineering Society of North America:
www.iesna.org

Definitions
LZ 0: For undeveloped areas of open space, wilderness parks and preserves, or any other area where the protection of a dark environment is critical.

LZ 1: For population densities less than 200 people per square mile according to the last US Census, also for development areas in state and national parks, areas near astronomical observatories, zoos, and ANY area where residents have expressed a desire to maintain a natural nighttime environment.

LZ 2: For population densities of 200-3,000 people per square mile according to the last US Census, this would include most areas zoned “residential”, and is the default zone for residential areas.

LZ 3: For population densities greater than 3,000 people per square mile according to the last US Census, this lighting density is intended for high urban density neighborhoods, shopping and commercial districts and industrial parks. This is the default zone for commercial and industrial areas.

LZ 4: This is for major city centers (with population densities greater than 100,000 per square mile according to the last US Census), thematic attractions, entertainment districts, and major auto sale districts.

11. Integrated Pest Management

Intent
Integrated pest management (IPM) is an environmentally-sound method that focuses on long-term prevention of pests in and around buildings using a least-toxic approach. The use of native and adapted plants that are naturally resistant to pests and diseases, as well as physical barriers to prevent termite infestation are a few examples of ways to control pests over the life of the building and landscape. IPM preserves the site’s ecological integrity, enhances biological diversity, and protects wildlife and worker/public health and safety, and may reduce maintenance costs.

Requirements
Implement an Integrated Pest Management Plan and practices appropriate for the site and building use.

Required Documentation
  o Project Team should provide a copy of the Integrated Pest Management Plan.
References
City of Austin Integrated Pest Management:
www.ci.austin.tx.us/watershed/ipm.htm
Grow Green Guide native and adapted plants lists - City of Austin:
www.ci.austin.tx.us/growgreen/plants.htm
Massachusetts Integrated Pest Management Kit for Building Managers:
Austin Energy Green Building Commercial Program: Energy

E N E R G Y
Save Energy, Use Clean Energy

1. Additional Energy Use Efficiency
   1 - 12 points, $

Intent
The energy code establishes minimum regulations for energy-efficient buildings using prescriptive and performance-related provisions. It is founded on broad-based principles that make possible the use of new materials and innovative techniques that conserve energy. Utilizing an energy modeling program as a design tool enables effective analysis of design strategies which may result in lower operating costs, increased occupancy comfort and lower carbon dioxide emissions.

Requirements
Choose one of the following energy performance options.

OPTION 1 - Meet the prescriptive component recommendations as outlined in Table 1 Small Retail Buildings. (1 point)
The following restrictions apply:
- Buildings no greater than 20,000 square feet.
- Buildings must be retail occupancy

OPTION 2 - Demonstrate a 10% improvement in the proposed building energy performance compared with the baseline building energy performance that complies with Appendix G of ASHRAE/IESNA Standard 90.1-2007. One point is earned for each additional 2.5% energy savings.

<table>
<thead>
<tr>
<th>Percent Savings</th>
<th>10.0</th>
<th>12.5</th>
<th>15.0</th>
<th>17.5</th>
<th>20.0</th>
<th>22.5</th>
<th>25.0</th>
<th>27.5</th>
<th>30.0</th>
<th>32.5</th>
<th>35.0</th>
<th>37.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Points</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
</tbody>
</table>

Required Documentation
- Project Team should provide a narrative describing the building envelope, systems, and energy saving measures incorporated into building.
- Project Team should provide product specifications and submittals for envelope materials, mechanical and lighting systems highlighting pertinent performance values.
- Project Team should provide proposed design component values recorded in Table 1, for Small Retail buildings, and included in the plan set.
- Project Team should provide energy model inputs and results recorded in the AEGB Energy Analysis Summary Form. The energy model demonstrates building design performance over Energy Code baseline building using Building Energy Hourly Simulation and Load Software such as: Energy 10, eQUEST, DOE-2, Energy Plus, Carrier HAP, Trane Trace, and EnergyGauge Summit for Option 2.
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References
Energy Code Ordinance and Amendments - City of Austin:
www.ci.austin.tx.us/edims/document.cfm?id=135892
www.ashrae.org/technology/page/548
www.ashrae.org/publications
Building Energy Software Tools – U.S. Department of Energy:
www1.eere.energy.gov/buildings/info_software.html
National Institute of Building Sciences - Whole Building Design Guide:
www.wbdg.org/index.php
Business Energy Advisor – for buying and maintaining equipment and efficiency advice per facility type:

Table 1: SMALL RETAIL BUILDING PRESCRIPTIVE
This table replaces the Climate Zone 2 Recommendation Table for Small Retail Buildings in the "ASHRAE Advanced Energy Design Guide for Small Retail Buildings". ISBN: 1933742062

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>AEGB Prescriptive Requirements (Minimum or Maximum)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Roof</strong></td>
<td>Insulation entirely above deck</td>
<td>R - 20 continuous insulation assembly U ≤ 0.048</td>
</tr>
<tr>
<td></td>
<td>Metal building</td>
<td>R-13 + R-13 assembly U ≤ 0.065</td>
</tr>
<tr>
<td></td>
<td>Attic and other</td>
<td>R-38 assembly U ≤ 0.027</td>
</tr>
<tr>
<td></td>
<td>Solar Reflectance Index (SRI)</td>
<td>&lt; 2:12 = min. reflectance 0.70 or SRI 78</td>
</tr>
<tr>
<td></td>
<td>Mass</td>
<td>&gt; 2:12 = min. reflectance 0.35 or SRI 29</td>
</tr>
<tr>
<td>Envelope</td>
<td></td>
<td>R - 5.7 continuous insulation assembly U ≤ 0.151</td>
</tr>
<tr>
<td><strong>Walls</strong></td>
<td>Metal building</td>
<td>R - 16 assembly U ≤ 0.113</td>
</tr>
<tr>
<td></td>
<td>Metal framed</td>
<td>R - 13 assembly U ≤ 0.124</td>
</tr>
<tr>
<td></td>
<td>Wood framed and other</td>
<td>R - 13 assembly U ≤ 0.089</td>
</tr>
<tr>
<td></td>
<td>Below grade walls</td>
<td>No requirement</td>
</tr>
<tr>
<td><strong>Floors</strong></td>
<td>Mass</td>
<td>R - 6.3 continuous insulation assembly U ≤ 0.107</td>
</tr>
<tr>
<td></td>
<td>Steel joist/Wood framed</td>
<td>R - 19 assembly U ≤ 0.052</td>
</tr>
<tr>
<td>Slabs</td>
<td>Unheated</td>
<td>No requirement</td>
</tr>
<tr>
<td></td>
<td>Heated</td>
<td>R - 7.5 for 12 in. below F - 1.020</td>
</tr>
</tbody>
</table>
### Austin Energy Green Building Commercial Program: Energy

| Doors (opaque) |  |  |
|----------------|--------------------------|
| Swinging       | U ≤ 0.070                |
| Non-swinging   | U ≤ 1.45                 |
| Area (percent of gross wall) | ≤ 40%             |
| Thermal transmittance | U ≤ 0.49             |
| Solar Heat Gain Coefficient (SHGC) | SGHC ≤ 0.4 |
| Exterior Shading Devices | All store fronts: Projection Factor ≥ 0.5 |

<table>
<thead>
<tr>
<th>Vertical Fenestration Including Doors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Area (percent of gross wall)</td>
<td>3%</td>
</tr>
<tr>
<td>Thermal transmittance</td>
<td>U ≤ 0.75</td>
</tr>
<tr>
<td>Solar Heat Gain Coefficient (SHGC)</td>
<td>SGHC ≤ 0.19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skylights</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighting Power Density (LPD)</td>
<td>1.3 W/ft²</td>
</tr>
<tr>
<td>Dimming controls for daylight harvesting under skylights</td>
<td>Dim fixtures within 10 ft of skylight edge</td>
</tr>
<tr>
<td>Occupancy Controls</td>
<td>Auto-off all non-sales rooms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lighting</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional LPD for adjustable lighting equipment that is specifically designed and directed to highlight merchandise and is automatically controlled separately from the general lighting</td>
<td>0.4 W/ft² spaces not listed below</td>
</tr>
<tr>
<td>Façade and externally illuminated signage lighting LPD</td>
<td>0.6 W/ft² sporting goods, small electronics</td>
</tr>
<tr>
<td></td>
<td>0.9 W/ft² furniture, clothing, cosmetics, and artwork</td>
</tr>
<tr>
<td></td>
<td>1.5 W/ft² jewelry, crystal, china</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interior Lighting</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Air conditioner (0-65 kBtuh)</td>
<td>13.0 SEER</td>
</tr>
<tr>
<td>Air conditioner (&gt;65-135 kBtuh)</td>
<td>11.3 EER / 11.5 IPLV</td>
</tr>
<tr>
<td>Air conditioner (&gt;135-240 kBtuh)</td>
<td>11.0 EER / 11.5 IPLV</td>
</tr>
<tr>
<td>Air conditioner (&gt;240 kBtuh)</td>
<td>10.6 EER / 11.2 IPLV</td>
</tr>
<tr>
<td>Gas furnace (0-225 kBtuh SP)</td>
<td>80% AFUE OR E_t</td>
</tr>
<tr>
<td>Gas furnace (0-225 kBtuh Split)</td>
<td>80% AFUE OR E_t</td>
</tr>
<tr>
<td>Gas furnace (&gt;225 kBtuh)</td>
<td>80% E_c</td>
</tr>
<tr>
<td>Heat pump (0-65 kBtuh)</td>
<td>13 SEER / 7.7 HSPF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exterior Lighting</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Façade and externally illuminated signage lighting LPD</td>
<td>ref. IECC 2009 Table 505.6.2(2) for designated lighting zone</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Component</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economizer</strong></td>
<td>Heat pump (&gt;65 - 135 kBtuh) 11.0 EER / 11.2 IEER / 3.3 COP</td>
</tr>
<tr>
<td></td>
<td>Heat pump (&gt;135 kBtuh) 10.6 EER / 10.7 IEER / 3.2 COP</td>
</tr>
<tr>
<td></td>
<td>Air conditioners &amp; heat pumps</td>
</tr>
<tr>
<td></td>
<td>Outdoor air damper Motorized control</td>
</tr>
<tr>
<td><strong>Ventilation</strong></td>
<td>Demand control CO2 sensors</td>
</tr>
<tr>
<td></td>
<td>Friction rate 0.08 in. w.c./100 ft</td>
</tr>
<tr>
<td></td>
<td>Sealing ref. IECC 2009 Section 503.2.7</td>
</tr>
<tr>
<td><strong>Ducts</strong></td>
<td>Location Interior only</td>
</tr>
<tr>
<td></td>
<td>Insulation level R - 6</td>
</tr>
<tr>
<td><strong>Service Water Heating</strong></td>
<td>Gas storage (&gt; 75 kBtuh) 90% Et</td>
</tr>
<tr>
<td></td>
<td>Gas instantaneous 0.81 EF or 81% Et</td>
</tr>
<tr>
<td></td>
<td>Electric storage (≤ 12 kW and &gt; 20 gal) EF &gt; 0.99 - (0.0012 x volume)</td>
</tr>
<tr>
<td></td>
<td>Pipe insulation 1½ in. / 2 in.</td>
</tr>
</tbody>
</table>

### 2. Green Energy 1 point

**Intent**

Green Power, electricity generated from clean, renewable sources such as wind, solar, and biomass, lowers fossil fuel burning emissions which cause global warming and pollution. Purchasing green power supports the development of renewable power in Texas. Additionally, the Austin Energy GreenChoice® fixed rate rider may result in lower operating costs as fossil fuel prices fluctuate throughout the term.

Renewable Energy Certificates (RECs) support the development of the renewable power industry in Texas or nationwide.

**Requirements**

Subscribe to Austin Energy GreenChoice®.

If GreenChoice® subscriptions are not available choose one of the following RECs options.

**OPTION 1** - Obtain a 2-year contract for Texas RECs for 100% of the building’s annual electricity use.
OPTION 2 – Obtain a 2-year contract for other national RECs that satisfy the technical requirements of the Green-e certification program for 100% of the building’s annual electricity use.

The building’s electricity use may be estimated using a Building Energy Hourly Simulation and Load program or the electricity intensity factors per building type from the DOE Commercial Buildings Energy Consumption Survey 2003 in the table below.

<table>
<thead>
<tr>
<th>Building Type</th>
<th>Median Electricity Intensity (kWh/sf-yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>8.9</td>
</tr>
<tr>
<td>Food Sales</td>
<td>48.0</td>
</tr>
<tr>
<td>Food Service</td>
<td>37.4</td>
</tr>
<tr>
<td>Health Care</td>
<td>12.0</td>
</tr>
<tr>
<td>Inpatient</td>
<td>24.0</td>
</tr>
<tr>
<td>Outpatient</td>
<td>11.3</td>
</tr>
<tr>
<td>Lodging</td>
<td>11.9</td>
</tr>
<tr>
<td>Retail (other than mall)</td>
<td>9.4</td>
</tr>
<tr>
<td>Office</td>
<td>11.5</td>
</tr>
<tr>
<td>Public Assembly</td>
<td>5.1</td>
</tr>
<tr>
<td>Public Order and Safety</td>
<td>7.9</td>
</tr>
<tr>
<td>Religious Worship</td>
<td>3.5</td>
</tr>
<tr>
<td>Service</td>
<td>6.3</td>
</tr>
<tr>
<td>Warehouse and Storage</td>
<td>3.1</td>
</tr>
<tr>
<td>Other</td>
<td>7.2</td>
</tr>
<tr>
<td>Vacant</td>
<td>1.7</td>
</tr>
</tbody>
</table>

Required Documentation

- Project Owner should provide a copy of the commercial agreement with Austin Energy GreenChoice®.
- Project Owner should provide a copy of the RECs contract including name of REC vendor and value of RECs purchased (kWh) and total annual electricity consumption (kWh).

References

GreenChoice® - Austin Energy Renewable Power Program: www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Choice/
General guide to purchasing green power and RECs - EPA & Green Power Partnership: http://epa.gov/greenpower/buygp/guide.htm
Companies selling Green-e certified RECs in Texas: www.green-e.org/
3. Renewables 1 - 2 points, $

Intent
On-site generation of energy through the use of renewable energy technologies such as photovoltaic panels, solar thermal, and wind turbines will lower operating costs and fossil fuel burning emissions.

Requirements
On-site renewable energy system installed for 2% or 5% of the building’s annual electricity use.

The building’s electricity use may be estimated using a Building Energy Hourly Simulation and Load program or the electricity intensity factors per building type from the DOE Commercial Buildings Energy Consumption Survey 2003 in the table shown above in Energy Credit 2.

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

Required Documentation
- Project Team should provide calculations indicating the annual electricity requirements and amount of energy to be generated by on-site renewable energy technology.
- Project Team should provide copies of the required documentation from the Austin Energy PV Solar Rebate and Solar Water Heater Programs.
- Project Team should provide wind system sizing and performance documentation.

References
Learn about renewable energy - National Renewable Energy Laboratory: www.nrel.gov/learning/
DSIRE (Database of State Incentives for Renewables and Efficiency): http://www.dsireusa.org/incentives/index.cfm?re=1&ee=1&spv=0&st=0&srp=1&state=TX

4. Additional Commissioning 1 point

Intent
This systematic process of ensuring that the building and all of its systems perform interactively according to the Owner’s Project Requirements (OPR), the Basis of Design (BOD), and the owner’s operational needs through the design, construction, and warranty phases with actual verification through review, testing, and documentation of performance will result in proper and efficient equipment operations, lower operating and
Austin Energy Green Building Commercial Program: Energy

maintenance costs, improved indoor air quality, increased occupancy comfort and productivity, and lower energy production emissions.

Requirements
Commissioning Authority shall at a minimum conduct a design document review prior to 50% CDs.
Demonstrate that all energy systems operate according to OPR and BOD narratives (lighting systems & controls, HVAC & controls, transport systems, etc.).
Demonstrate that the building structure and envelope perform according to OPR and BOD narratives.
Provide seasonal re-commissioning through the warranty period.
Complete a commissioning report.
Owner shall register building with ENERGY STAR Portfolio Manager.

Required Documentation
- Commissioning Authority should provide a commissioning report demonstrating that the energy systems, building structure and envelope all operate according to OPR and BOD.
- Commissioning Authority should provide a signed letter of certification confirming that the commissioning plan has been successfully executed and the OPR and BOD have been achieved.
- Owner should provide the Statement of Energy Performance report from ENERGY STAR Portfolio Manager.

References
Commissioning and Functional Testing and Design Guides - Portland Energy Conservation, Inc.:
www.peci.org/large-commercial/tools-guides-research/tools-guides.html
Commissioning Guides - Energy Design Resources:
www.energydesignresources.com/category/commissioning/
ENERGY STAR Portfolio Manager:
www.energystar.gov/benchmark
Business Energy Analysis – Aclara Software, Inc.:

5. District Cooling 1 point

Inten
A district cooling plant distributes chilled water from a central plant to individual buildings through a network of underground pipes. A single district cooling plant can satisfy the cooling needs of several buildings and customers.

Austin Energy chilled water plants use a combination of Thermal Storage, heat recovery driven Absorption Chillers, or high efficiency electric chillers to reduce electric consumption and peak demand. District cooling contributes to the reduction of conventional power plant construction, associated greenhouse emissions, and building operating costs.
Operational benefits of district cooling are proven reliability, convenience and simplicity and risk mitigation. Building costs are reduced initially by substantially reducing the capital investment for a cooling system. Throughout the life of the building the use of district cooling offers lower operational and energy expenses for the entire facility and stable, predictable cooling costs over the long term which will increase the net operating income. From a logistics standpoint, the use of district cooling will conserve space by eliminating the need for a chiller plant, reduce noise and potential environmental hazards and improve facility comfort.

Any building within a few blocks of existing chilled water should consider district cooling.

Requirements
Tie into an Austin Energy district cooling loop.

Required Documentation
- Project Team should provide drawings demonstrating the tie from the building into an Austin Energy district cooling loop for the building’s cooling energy needs.
- Project Owner should provide a signed contract with Austin Energy District Cooling.

References
Austin Energy District Cooling Services:
www.austinenergy.com/Commercial/Other%20Services/On-Site%20Energy%20Systems/districtcooling.htm

*W A T E R*
Better Water Quality, Water Conservation, Rainwater Catchment

1. **Irrigation Water Minimization**  1 - 3 points

*Intent*
Minimizing potable water use for landscape irrigation by designing water conserving landscapes, using drip irrigation and “smart” technology irrigation systems, and utilizing rainwater catchment systems will reduce the load on municipal water systems saving water and energy and lower building operating costs.

*Requirements*
Reduce potable water used for irrigation by at least 50%. One point is earned for each additional 25% savings.

*Required Documentation*
- Project Team should provide landscape design drawings indicating areas of the site that will require irrigation.
Austin Energy Green Building Commercial Program: Water

- Project Team should provide drawings and a narrative describing the captured rainwater system or recycled site water system with the capacity of the system highlighted.
- Project Team should provide drawings and a narrative describing the type of irrigation system.
- Calculations from the AEGB Irrigation Calculator.
- Calculations from the AEGB Rainwater & Condensate Calculator, if applicable

Or

- Design narrative of the landscape design and describe why a permanent landscape irrigation system is not necessary.
- Calculations from the AEGB Irrigation Calculator.

Strategies

Potable water used for irrigation can be reduced through a number of methods.

- Retaining existing established plant material on a site will drastically reduce the amount of irrigation required to get new plant material healthily established in the site.
- Minimizing use of manicured grass.
- Landscape design and plant material choices that are appropriate to the climate will reduce the amount of water required by depending more on the natural rain cycles than the irrigation system.
- High-efficiency irrigation systems that include moisture sensors, clock timers and weather data-base controllers are widely available. These “smart” technologies ensure that plant material is being watered only when required and eliminate the waste associated with over-watering.
- Stormwater, rainwater, and condensate collection systems can also be of use in reducing the amount of potable water used for irrigation. This water will not be potable but can be used with no or minimal further treatment for irrigation purposes.

References

Water Conservation Program provides information and assistance – City of Austin: www.ci.austin.tx.us/watercon/
Landscaping for water quality protection - Grow Green City of Austin: www.ci.austin.tx.us/growgreen/
The Irrigation Association: www.irrigation.org/
Rainwater Harvesting (including calculator) - Texas A & M: rainwaterharvesting.tamu.edu/
Texas Evapotranspiration: texaset.tamu.edu/

2. Indoor Potable Water Use Reduction 1 - 5 points

Intent

High efficiency plumbing fixtures and use of auxiliary water (rainwater, condensate, etc.) reduce consumption of potable water for indoor use thus lessening the impact on the
Austin Energy Green Building Commercial Program: Water

water supply and treatment facilities and reducing building operating costs by saving water and associated energy use.

Requirements
Reduce planned indoor potable water consumption below the baseline by 10%, 15%, 20%, 25%, or 30%. The volume and flow rates for standard plumbing fixtures used to establish the baseline are set by the current ASME/ANSI Standards and City of Austin Ordinance No. 20100624-146.

Required Documentation
- Design Team should provide calculations from the AEGB Building Water Use Reduction Calculator.
- Design Team should provide the plumbing fixtures schedule specifying flush and flow rates.
- Contractor should provide plumbing fixtures submittals with flush and flow rates highlighted for the fixtures installed on site.
- Design Team should provide calculations from the AEGB Rainwater and Condensate Calculator if auxiliary water is used. The calculator should be updated to reflect any changes throughout the project.
- Project Owner or Tenant should provide projected actual building occupancy and occupancy schedules.

References
Toilet listings and rainwater harvesting - City of Austin Water Conservation: www.ci.austin.tx.us/watercon/

<table>
<thead>
<tr>
<th>TYPES OF WATER SAVING FIXTURES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOILETS</strong></td>
</tr>
<tr>
<td>Power-Assisted Low Flush</td>
</tr>
<tr>
<td>Dual Flush</td>
</tr>
<tr>
<td>Power-Assisted Dual Flush</td>
</tr>
<tr>
<td>Composting Toilets</td>
</tr>
</tbody>
</table>

EPA WaterSense® labeled High Efficiency Toilets and Faucets: www.epa.gov/watersense

Rainwater and condensate collection systems can also be of use in reducing the amount of potable water used in the plumbing system.

Water Conservation -Texas Water Development Board: www.twdb.state.tx.us/assistance/conservation/consindex.asp
3. **Stormwater Management**  

**Intent**  
Manage stormwater using innovative water quality controls to reduce the impact of flood, erosion, and water pollution on the environment and properties.

**Requirements**  

**Case 1**: Sites not requiring a Site Plan review (building renovation only)

- **Stormwater Quality** (1 – 2 points)  
  Use innovative water quality controls as outlined in ECM 1.6.7 to treat 50% or 100% of the water quality volume (WQV), as defined by the calculation in the City of Austin Environmental Criteria Manual (ECM).

**Case 2**: Sites requiring a Site Plan review (new construction and renovations including site work)

- **Stormwater Quality** (1 point)  
  Use innovative water quality controls as outlined in ECM 1.6.7 to treat 100% of the water quality volume (WQV), as defined by the calculation in the City of Austin Environmental Criteria Manual (ECM).

- **Stormwater Quantity** (1 point)  
  Capture 50% of the WQV and retain it on site.

**Required Documentation**
- Civil Engineer should provide a Drainage Plan showing the stormwater management controls
- Civil Engineer should provide a narrative describing contribution of each Best Management Practice (BMP).
- Civil Engineer should provide calculations of total stormwater run-off from ECM 1.6.2.A.

**References**

City of Austin. Environmental Criteria Manual 1.6.2A and 1.6.7:  
“Guidance Specifying Management Measures for Sources of Non-point Pollution in Coastal Waters” - EPA:  
[www.epa.gov/owow/nps/MMGI/](http://www.epa.gov/owow/nps/MMGI/)  
Strategies and tools to comply with EPA regulations - Stormwater Manager’s Resource Center:  
[www.stormwatercenter.net](http://www.stormwatercenter.net)  
Innovative Water Technologies -Texas Water Development Board:  
[www.twdb.state.tx.us/iwt/aboutiwt.asp](http://www.twdb.state.tx.us/iwt/aboutiwt.asp)  
Low Impact Development design strategies and case studies – Urban Design Tools:  
[www.lid-stormwater.net/](http://www.lid-stormwater.net/)  
“Water Quality Management Technical Manual” includes best management practices - LCRA:  
1. **Indoor Air Quality Monitoring**  
   **1 point**

**Intent**  
Monitor Indoor Air Quality to maintain adequate volume of fresh air within a building by measuring the carbon dioxide concentrations for the health and productivity of the occupants.

**Requirements**  
Install permanent carbon dioxide monitoring system interlocked with the ventilation system.  
Commission all systems to the preferred set point parameters and optimal performance for all operating conditions.

**Required Documentation**  
- Mechanical Designer should provide drawings and narratives describing the monitoring and control system.
- Mechanical Designer should provide monitoring system specifications and cut sheets.
- Commissioning Authority should provide documentation of the commissioning efforts associated with the monitoring and control system.

**References**  
Indoor Air Quality guidance tools - EPA:  
[www.epa.gov/iaq/index.html](http://www.epa.gov/iaq/index.html)

2. **Indoor Chemical & Pollutant Sources**  
   **1 point**

**Intent**  
Minimize contamination of indoor pollutants created by particulate matter generated by certain types of equipment and chemical use inside a building that affect the health, comfort, and performance of occupants.

**Requirements**  
Identify and isolate pollution point sources which may include: copy rooms, print shops, janitorial closets/rooms, laboratories, chemical storage, etc. (Complete all below)

- Provide ventilation directly to the outside of the building.
- Between these areas and occupied spaces construct a full height deck to deck partition or construct a hard lid ceiling enclosure.
- Operate at a negative pressure relative to surrounding areas under all operating conditions by testing.
Required Documentation

- Project Team should provide plans locating copy rooms, print shops, laboratories, and janitorial chemical storage rooms.
- Project Team should provide details and partition schedule indicating types of full height partitions used.
- Mechanical Designer should provide mechanical and plumbing construction documents demonstrating ventilation, drainage and pressure requirements.

References

Indoor Air Quality in Large Buildings guidance tool - EPA: http://www.epa.gov/iaq/largebldgs/i-beam/index.html

3. Green Housekeeping 1 point

Intent

Reduce the impact of housekeeping and cleaning products on the environment, building occupants, and maintenance staff. Reduce the waste stream generated by housekeeping activities. Exposure to hazardous chemicals adversely affects human health, air quality, water quality, building finishes, building systems and the environment.

Requirements

Develop a housekeeping program, supported by a green cleaning policy that addresses the following:

- Owner shall provide an appropriate staffing plan. Include training of maintenance personnel in the hazards, use, maintenance, disposal and recycling of cleaning chemicals, dispensing equipment and packaging.
- Owner shall submit vendor housekeeping contracts with products and materials listed.
- Owner shall implement sustainable purchasing for cleaning materials and products, floor finishes and strippers, disposable janitorial paper products, and trash bags. Cleaning product and material purchases include items used by in-house staff or outsourced service providers.

Required Documentation

Owner should provide a housekeeping plan confirming that each product meets at least one of the applicable standards listed in Tables 1 - 5.
### Table 1: CLEANING PRODUCTS

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>bathroom, glass, carpet, general cleaning</td>
<td>cleaning and degreasing compounds</td>
<td>hard surface cleaners</td>
<td>carpet and upholstery care</td>
<td>floor care</td>
<td>hard floor care</td>
<td>cleaning products</td>
</tr>
</tbody>
</table>

### References

Green Seal Standards:  
[www.greenseal.org/](http://www.greenseal.org/)

Ecologo™ – Environmental Choice:  

Design for the Environment (DfE) – U.S. Environmental Protection Agency:  
[http://www.epa.gov/dfe/](http://www.epa.gov/dfe/)

Guide to Green Cleaning Products – ISSA:  
[www.issa.com/?id=green_cleaning_products&lg=](http://www.issa.com/?id=green_cleaning_products&lg=)

### Table 2: DISINFECTANTS, METAL POLISH, OTHER (not addressed in other Tables)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>digestion additives for cleaning and odor control</td>
<td>drain or grease traps additives</td>
<td>odor control additives</td>
<td>maximum allowable VOC levels</td>
<td>odor removal and other</td>
</tr>
</tbody>
</table>

### References

Ecologo™ – Environmental Choice:  

California Code of Regulations, Article 2- Regulation for Reducing Emissions from Consumer Products:  
[http://www.arb.ca.gov/consprod/regs/gencpregs.htm](http://www.arb.ca.gov/consprod/regs/gencpregs.htm)

Design for the Environment (DfE) – U.S. Environmental Protection Agency:  
[http://www.epa.gov/dfe/](http://www.epa.gov/dfe/)

### Table 3: DISPOSABLE JANITORIAL PAPER PRODUCTS

<table>
<thead>
<tr>
<th>EPA Comprehensive Procurement Guidelines</th>
<th>Green Seal GS-09 or Ecologo™ CCD-082</th>
<th>Ecologo™ CCD-086</th>
<th>Green Seal GS-01</th>
<th>FSC or SFI Certification</th>
<th>Labeled -made from rapidly renewable sources or tree-free fibers</th>
</tr>
</thead>
<tbody>
<tr>
<td>janitorial paper</td>
<td>paper towels and napkins</td>
<td>hand towels</td>
<td>tissue paper</td>
<td>janitorial paper</td>
<td>janitorial paper</td>
</tr>
</tbody>
</table>
References
EPA Comprehensive Procurement Guidelines:
EPA Comprehensive Procurement Guidelines for Commercial/Industrial Sanitary Tissue:
http://www.epa.gov/epawaste/conserve/tools/cpg/products/tissue.htm
Green Seal Standards:
www.greenseal.org/
Forest Stewardship Council (FSC):
http://www.fsc.org/
Sustainable Forest Initiative (SFI):
www.sfiprogram.org/find-sfi-forest-products/index.php

Table 4: DISPOSABLE JANITORIAL PLASTIC PRODUCTS

<table>
<thead>
<tr>
<th>EPA Comprehensive Procurement Guidelines</th>
<th>California Integrated Waste Management Certification</th>
</tr>
</thead>
<tbody>
<tr>
<td>plastic trash bags</td>
<td>plastic trash bags</td>
</tr>
</tbody>
</table>

References
EPA Comprehensive Procurement Guidelines for Plastic Trash Bags:
www.epa.gov/epawaste/conserve/tools/cpg/products/trashbag.htm
CalRecycle Recycled-Content Trash Bag Program:
http://www.calrecycle.ca.gov/buyrecycled/trashbags/
http://www.calrecycle.ca.gov/buyrecycled/trashbags/ComplyList/

Table 5: HAND SOAPS & SANITIZERS

<table>
<thead>
<tr>
<th>No antimicrobial agents (except as a preservative)</th>
<th>Green Seal GS-41</th>
<th>Ecologo™ CCD-104</th>
<th>Ecologo™ CCD-170</th>
<th>US EPA DfE</th>
</tr>
</thead>
<tbody>
<tr>
<td>except where required by health codes and other regulations (e.g., food service and health care)</td>
<td>industrial and institutional hand cleaners</td>
<td>hand cleaners</td>
<td>hand sanitizers</td>
<td>hand soaps and sanitizers</td>
</tr>
</tbody>
</table>

References
Green Seal Standards:
www.greenseal.org/
Ecologo™ – Environmental Choice:
Design for the Environment (DfE) – U.S. Environmental Protection Agency:
http://www.epa.gov/dfe/
4. **Daylighting**

**Intent**
Integrate effective daylighting systems, electric lighting systems and controls to optimize daylighting strategies and minimize energy consumption and heat generation.

**Requirements**
Provide adequate daylighting that minimizes glare and integrate daylighting systems with electric lighting systems and controls. Integrated controls are not required for dwelling units.

**Required Documentation**
- Lighting Designer should provide a lighting plan and sections showing daylighting penetration and electrical controls and photoelectric sensors.
- Lighting Designer should provide a narrative highlighting the methods used to provide sufficient daylighting for the task, shading strategies, depth of daylight, quality and quantity of daylight, surface colors, contrast ratio < 4:1, percentage of building day lit, and orientation.
- Lighting Designer should include in the specifications the requirement for calibration of controls and calibration logs to be submitted by the contractor and verified by the Commissioning Authority.

**References**
Electric Lighting Controls - Whole Building Design Guide:

5. **Views to Outside**

**Intent**
Provide a connection between the indoor and outdoor environments by providing visual access to windows.

**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**
- Project Team should 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
- Project Team should provide 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).

References

6. **Individual Controllability**  
1 point

**Intent**  
Provide a high level of individual environmental control for thermal and air flow systems to support optimum health, productivity, and comfort conditions for the occupants.

**Requirements**  
Install and commission systems for individual occupant controllability for thermal comfort for 75% of the occupants.

**Required Documentation**  
- Mechanical systems designer should provide a narrative describing the individual control system and controls and calculations that show that 75% of the building occupants have individual control.

**References**  
Research and articles on building energy performance - New Buildings Institute: newbuildings.org/

7. **Low-Emitting Materials**

**Intent**  
Low-emitting building materials reduce toxic pollution and waste thus conserving natural resources and habitats and minimizing global warming and ozone depletion, in addition to contributing to good indoor air quality for the benefit of the health and productivity of building occupants.

7a. **Sealants and Adhesives**  
1 point

**Requirements**  
All sealants and adhesives applied on-site to building interior meet South Coast Air Quality Management District (SCAQMD) standards Rule 1168. If a specialty product does not have a low VOC option, contact your AEGB representative for approval prior to application.

**Required Documentation**  
- Project Team should provide approved submittals and/or MSDS sheet for each sealant and adhesive with VOC content highlighted.
- Project Team should provide a tabulation of products using the AEGB Low Emitting Materials Form.
7b. **Flooring System** 1 point

**Requirements**
- All carpet must be Green Label Plus certified.
- All carpet cushions must be Green Label certified.
- All carpet adhesives must have VOC content of 50 g/L or less.
- All of the hard surface flooring must be FloorScore® certified. Flooring products covered by FloorScore® include vinyl, linoleum, laminate flooring, and rubber flooring.
- All engineered wood flooring and laminate flooring must contain no added urea-formaldehyde resins.
- Concrete, tile, wood, bamboo, and cork floor finishes, such as sealers and stains, must meet the requirements of South Coast Air Quality Management District (SCAQMD) Rule 1113.
- Tile setting adhesives and grout must meet South Coast Air Quality Management District (SCAQMD) Rule #1168.

**Required Documentation**
- Project Team should provide approved submittals for carpets with listed Green Label Plus certification and carpet cushions with Green Label certification.
- Project Team should provide approved submittals for hard surface flooring with listed FloorScore® certification.
- Project Team should provide a tabulation of products using the AEGB Low Emitting Materials Form.

**References**
Green Label Plus approved products - Carpet & Rug Institute:
[www.carpet-rug.org/drill_down_2.cfm?page=8&sub=17&requesttimeout=350](http://www.carpet-rug.org/drill_down_2.cfm?page=8&sub=17&requesttimeout=350)
Certified hard flooring products – FloorScore®:

7c. **Composite Wood and Agrifiber Products** 1 point

**Requirements**
All installed composite wood and agrifiber products shall contain no added urea-formaldehyde.

Composite wood and agrifiber products are defined as: particleboard, medium density fiberboard (MDF), wheatboard, strawboard, panel substrates, door cores, and plywood.
Austin Energy Green Building Commercial Program: Indoor Environmental Quality

Required Documentation
- Project Team should provide manufacturer’s information or MSDS for composite wood and agrifiber products (including all engineered wood and laminate flooring) indicating no added urea-formaldehyde.
- Project Team should provide a tabulation of products using the AEGB Low Emitting Materials Form.

References
“Particleboard and Medium Density Fiberboard” recommendations - Green Seal: www.greenseal.org/resources/reports/CGR_particleboard.pdf

7d. Insulation 1 point

Requirements
All installed insulation (excluding piping) contains no added urea-formaldehyde.

Required Documentation
- Project Team should provide manufacturer’s information or MSDS for insulation indicating no added urea-formaldehyde.
- Project Team should provide a tabulation of products using the AEGB Low Emitting Materials Form.

References
GREENGUARD IAQ Certified Products®: http://www.greenguard.org/
Products meeting CHPS Low-Emitting Materials criteria - Collaborative for High Performance Schools (CHPS): www.chps.net/dev/Drupal/node/287

8. Moisture Protection 1 point

Intent
Protect against building moisture infiltration through direct rainwater intrusion, water vapor transmission, and negative pressurization. Avoid potentially damaging results of condensation that may occur within an exterior wall system. This affects the health of the occupants, air conditioning costs, and building integrity and durability.

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. Tenant agreements state that no vinyl wall coverings or other vapor barriers may be installed as the finish material on the interior of any exterior wall.

Install building envelope drainage plane systems, including flashing and overhang systems.

Document building will be pressurized.
Required Documentation
- Project designers should provide wall sections for each exterior wall type indicating all materials, thermal characteristics, and permeability. Provide a temperature gradient for each wall section for heating, cooling, and dew point design conditions.
- Project designers should provide typical building details of building envelope drainage systems, including flashing and overhang systems.
- Project designers should provide a narrative describing rain or bulk water drainage plane performance.
- Copy of tenant agreement, if applicable.
- Mechanical designer should provide the Building Pressurization Schedule and Schematic.
- Design Team should provide a Basis of Design which describes building pressurization under all operating conditions.

References
ASHRAE Handbook – Fundamentals:
www.ashrae.org/

9. Acoustic Quality 1 point

Intent
Provide a building environment free from disturbing mechanical equipment noise and vibration and excessive sound reverberation and designed with sufficient acoustical privacy and adequate sound isolation. Minimize tonal noise and intermittent noise sources in occupied spaces, as these noise sources are particularly troublesome.

Requirements
- Define appropriate background sound levels, reverberation decay times, speech intelligibility, and sound isolation for the building use. Identify spaces where impact noises are likely and address the potential problem.
- Provide mechanical and duct systems designed to meet guideline RC, NC or NCB provided by current copy of ASHRAE Applications Design Guidelines for HVAC Sound and Vibration Control Chapter.
- Provide appropriate vibration isolation for mounted equipment.
- Select equipment that could not be characterized as “tonal”.
- Specify surface finishes and/or masking systems to provide appropriate sound intelligibility and privacy.
- Specify partitions, ceilings, floor/ceiling assemblies, building layouts, and vestibules to provide adequate sound isolation between spaces.
- Mitigate intermittent noise sources such as footfall and loading dock noise.

Required Documentation
- Project Owner should provide a narrative of the Acoustical Requirements and the Design Team should provide a Basis of Design.
- Mechanical systems designers should provide one third 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
Austin Energy Green Building Commercial Program: Indoor Environmental Quality

- pumps
- chillers
  - Mechanical systems designers should provide a vibration isolation schedule.
  - Design Team should provide surface finish schedules including NRC and CAC Ratings as applicable.
  - Design Team should provide schedule of partition and floor/ceiling assembly cross sections. Indicate STC, CAC and IIC ratings of partitions, ceilings and floor/ceilings on plans.

References
“A Practical Guide to Noise and Vibration Control for HVAC Systems” and “Applications of Manufacturers Sound Data” by Mark E. Schaffer
ASHRAE Online Store: www.techstreet.com/ashraegate.html
Acoustics.com – acoustic considerations and strategies www.acoustics.com/
Acoustical Society of America Store asastore.aip.org/

10. Outdoor Pollutant Control 1 point

Intent
Avoid exposure of building occupants to potentially hazardous particulates and chemical pollutants (vehicle exhaust, natural pollens/allergens, biological pollutants, etc.) that can enter the building through air intakes and entryways.

Requirements
Entrances, operable windows 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 STD. 62.1-2004, Table 5-1. Install appropriate signage to clearly designate where smoking is permitted and not permitted.

Install permanent entryway systems (grills, grates, mats), a minimum 6 feet long (10 feet recommended), in the primary direction of travel to capture dirt from entryways directly connected to the outdoors.

Mitigate air borne contaminates from outdoor air pollutant sources.

Required Documentation
- Design Team should provide plans indicating the location of the smoking sections, the 30 foot radius around the areas and all entrances, operable windows and air intakes.
- Project Owner should provide signage plans denoting smoking and no smoking areas.
- Design Team should provide 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 STD. 62.1-2004, Sections 4.1, 4.2, and 4.3.
Austin Energy Green Building Commercial Program: Indoor Environmental Quality

- Design Team should provide a narrative of design strategies to mitigate airborne contaminants from the outdoors.

References
City of Austin Smoking in Public Places Ordinance:
www.amlegal.com/austin_nxt/gateway.dll/Texas/austin/title10publichealthservicesandsanitation/chapter10-6smokinginpublicplaces?f=templates$fn=altmain-nf.htm$3.0#JD_10-6-8
IAQ Design Tools for Schools Graphic - U.S. EPA:
www.epa.gov/iaq/schooldesign/controlling.html
Fundamentals of IAQ in Buildings - U.S. EPA – I-BEAM Text Modules:
http://www.epa.gov/iaq/largebldgs/i-beam/text/

11. Construction Indoor Air Quality 1 point

Intent
Prevent indoor air quality problems that result from the construction process.

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.

Protect stored on-site or installed absorptive materials from moisture damage.

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
- Contractor should provide a copy of the Construction IAQ Management Plan, highlighting the five requirements of the SMACNA IAQ Guidelines for Occupied Buildings Under Construction
- Contractor should provide photographs of on-site construction IAQ measures, such as duct protection and on-site storage of absorptive materials.
- Contractor should provide cut sheets of filtration media used during construction with MERV values highlighted.

References
IAQ Guidelines for Occupied Buildings Under Construction - Sheet Metal and Air Conditioning National Contractor's Association:
www.smacna.org/bookstore/
1. Additional Construction Waste Management 1 point

Intent
Divert construction, demolition, and land clearing debris from landfill disposal. Redirect recyclable material back to the manufacturing process.

Requirements
Recycle and/or salvage at least 75% (by weight) of non-hazardous construction and demolition waste excluding excavated soil and stone.

The following table shall be used to calculate percentage of construction waste diverted when weight tickets are not available:

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>DENSITY, (lbs/CY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed Waste</td>
<td>350</td>
</tr>
<tr>
<td>Wood</td>
<td>300</td>
</tr>
<tr>
<td>Cardboard</td>
<td>100</td>
</tr>
<tr>
<td>Gypsum Wallboard</td>
<td>500</td>
</tr>
<tr>
<td>Rubble</td>
<td>1400</td>
</tr>
<tr>
<td>Steel</td>
<td>1000</td>
</tr>
</tbody>
</table>

Required Documentation
- Project Team should provide specifications for Construction Waste Management in the Contract Documents.
- Contractor should provide a Construction Waste Management Plan
- Contractor should provide calculations from the AEGB Construction Waste Calculator. The calculator should be kept up to date to reflect the project’s current status.
- Contractor should provide copies of weight tickets for recycling, salvage and landfill. Tickets should be submitted as they are accrued.

References
The Waste Reduction Assistance Program is available to assist with all aspects of solid and hazardous waste management through the on-site waste reduction assessment service, materials exchange, and business information-clearing house. Have a waste reduction assessment conducted for facility operation; contact City of Austin Solid Waste Services Waste Reduction Assistance Program at 974-9043.

www.ci.austin.tx.us/sws/commercial_wrap.htm
2. **Building Reuse**

**Intent**
Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste, and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.

**2a. Envelope and Structure**

**Requirements**
Incorporate at least 40% or 80% (surface area) of existing non-hazardous building envelope (including exterior skin and framing, excluding window assemblies and non-structural roofing material) and structure (including structural floor and roof decking) in the new building.

**Required Documentation**
- Project Team should provide plans and elevations indicating pre-construction existing building shell and structure and intended area to be preserved.
- Project Team should provide calculations from the AEGB Building Reuse Calculator. The calculator should be updated to reflect any changes throughout the project.

**References**

**2b. Interior Non- Structural Elements**

**Requirements**
Incorporate at least 50% (surface area) of existing non-hazardous interior non-structural elements (walls, doors, floor coverings and ceiling surfaces) in the new building.

**Required Documentation**
- Project Team should provide plans and elevations indicating pre-construction existing building interior elements and intended areas to be reused.
- Project Team should provide calculations from the AEGB Building Reuse Calculator. The calculator should be updated to reflect any changes throughout the project.

**References**

3. **Salvaged Materials**

**Intent**
Extend the life cycle of targeted building materials by reducing environmental impacts related to materials manufacturing and transport.
Austin Energy Green Building Commercial Program: Materials & Resources

Requirements
Salvaged or refurbished materials account for 5% or 10% (dollar value) of total project building materials cost.

Mechanical, electrical and plumbing components as well as specialty items should not be included in the calculations. Only include materials permanently installed in the project.

Required Documentation
- Contractor should provide calculations from the AEGB Building Materials Calculator.
- Contractor should provide a narrative identifying the source of materials salvaged.

References
Salvaged Building Materials Business Directory - Building Materials Reuse Association
www.ubma.org/directory/
ReStore Salvaged Building Materials Outlet - Austin Habitat for Humanity
www.re-store.com/

4. Recycled Content

Intent
Increase demand for building products that have incorporated recycled content materials, therefore reducing the impacts resulting from the extraction of new materials.

Requirements
Building materials contain recycled content (the sum of post-consumer recycled content plus one-half of the pre-consumer content) of at least 10% or 20% (dollar value) of total project building materials cost.

Mechanical, electrical and plumbing components as well as specialty items should not be included in the calculations. Only include materials permanently installed in the project.

Required Documentation
- Contractor should provide calculations from the AEGB Building Materials Calculator.

References
EPA Comprehensive Procurement Guidelines:
www.epa.gov/cpg/
Recycled Content Product Database – California Integrated Waste Management Board:
www.ciwb.ca.gov/rcp/
Recycled Content Product Database from Texas Manufacturers - Clean Texas:
www.tceq.state.tx.us/assistance/P2Recycle/TXrecy/resources.html
5. **Texas Sourced Materials**  

**Intent**  
Increase demand for materials that are manufactured in Texas, thereby reducing the environmental impacts resulting from their transportation and supporting the State economy.

**Requirements**  
Building materials and products are extracted and/or manufactured (final assembly) regionally within Texas for at least 30% or 50% (dollar value) of the project materials cost.

Mechanical, electrical and plumbing components as well as specialty items should not be included in the calculations. Only include materials permanently installed in the project.

**Required Documentation**  
- Contractor should provide calculations from the AEGB Building Materials Calculator.

**References**  
Recycled Content Product Database from Texas Manufacturers - Clean Texas:  
[www.tceq.state.tx.us/assistance/P2Recycle/TXrecy/resources.html](http://www.tceq.state.tx.us/assistance/P2Recycle/TXrecy/resources.html)

6. **Certified Wood**  

**Intent**  
Encourage environmentally responsible forest management.

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

**Required Documentation**  
- Contractor should provide calculations from the AEGB Certified Wood Calculator.

**References**  
FSC Certified Products Database:  
Forest Stewardship Council:  
[www.fsc.org](http://www.fsc.org)

7. **PVC and Phthalate Free**  

**Intent**  
Reduce human exposure to polyvinyl chloride (PVC) materials containing phthalates plasticizers. Human exposure to phthalates via inhalation or ingestion of dust has been linked to asthma and other respiratory symptoms, and phthalates are suspected to be
Endocrine Disrupting Chemicals (EDC). The manufacturing of PVC products is responsible for release of toxic byproducts into the environment, including dioxin, ethylene dichloride, and vinyl chloride.

Requirements
Eliminate PVC from the following systems:

- Flooring Systems
- Roofing Systems
- Wall Systems including Siding, Wall Coverings, Windows and Doors

And

- Plumbing Systems
  - Or
- Electrical Systems

Required Documentation
- A list of alternative materials that are PVC and phthalate free.
- Specifications stating which materials will not be made with PVC.
- Cut sheet submittal or manufacturer documentation demonstrating no PVC.

Strategies
- Review Perkins and Will Precautionary List for product alternatives.
- Obtain documentation from manufacture in design phase assuring that products do not contain PVC.

References
Perkins+Will Precautionary List:
http://transparency.perkinswill.com/
“Endocrine Disrupting Chemicals”, 2009 – The Endocrine Society:

8. Low VOC Paints, Coatings, Adhesives, and Sealants 1 point

Intent
Reduce the quantity of air contaminants that are odorous or potentially irritating to installer and occupant health and comfort.

Requirements
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 as shown below. All coatings, adhesives, and sealants applied on-site to the building exterior must not exceed the current VOC limit of South Coast Air Quality Management District (SCAQMD) Rule 1113 and Rule 1168. If a specialty product does not have a low VOC option, contact your AEGB representative for approval prior to application.
## Paint Type

<table>
<thead>
<tr>
<th>Paint Type</th>
<th>VOC Limit (g/L)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-flat Topcoat</td>
<td>100</td>
</tr>
<tr>
<td>Flat Topcoat</td>
<td>50</td>
</tr>
<tr>
<td>Primer</td>
<td>100</td>
</tr>
<tr>
<td>Anti-Corrosive Coating</td>
<td>250</td>
</tr>
</tbody>
</table>

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

## Required Documentation

- Project Team should provide tabulation of products using the AEGB Low Emitting Materials Form.
- Project Team should provide product specifications.
- Contractor should provide approved product submittals.

## References

E D U C A T I O N
Environmental Awareness and Contribution

1. Educational Outreach   1 point

Intent
Provide public education highlighting the green building strategies implemented in this project. A green building can be an effective educational tool and can have a significant impact on the users’ (occupants and visitors) understanding of the built and natural environment.

Requirements
Provide at least 2 Educational Services to include:

- A comprehensive signage program built into the building and site to educate the occupants and visitors on the benefits of green building. This program may include windows to view energy saving mechanical equipment and signs to call attention to water conserving plumbing fixtures or landscape features.
- A case study to showcase the green building strategies implemented to educate design professionals and general public. This case study may be published online at www.austinenergy.com at the discretion of AEGB.
- An educational outreach program to educate the community on sustainable living using this project as an example. This program may include guided tours of the facility, pamphlets, and display boards highlighting the sustainable features.

Required Documentation
- Project Owner should provide a narrative describing the signage program. Include design drawings of the educational displays and locations within the building and site.
- Project Team should provide a Case Study using the AEGB Commercial Program Case Study Form or similar.
- Project Owner should provide a narrative describing the educational outreach program including the content and means of implementation.

References
Case Study Form – AEGB Commercial Program:
www.austineenergy.com/Energy%20Efficiency/Programs/Green%20Building/Resources/Case%20Studies/CommCaseStudy.rtf
Case Studies – AEGB:
http://greenbuilding.austinenergy.com
I N N O V A T I O N
Creative, New Sustainable Solutions

1 - 5 points

Intent
Develop sustainable solutions that demonstrate a comprehensive approach and quantifiable environmental and/or health benefits beyond the requirements of measures defined in this program.

Requirements
Submit a proposal of the innovation measure to Austin Energy Green Building for approval. Include the intent of the measure, requirements for compliance, documentation to demonstrate compliance, and the design approach (strategies) that will be used to meet the requirements. One point may be earned for each Innovation measure; a maximum of five Innovation measures are possible.

Required Documentation
   o A narrative meeting the requirements listed above.

References
Appendix: General Green Building Resources

Austin Energy, Commercial Programs and Rebates $:
www.austinenergy.com/Commercial/index.htm
www.austinenergy.com/Energy%20Efficiency/Programs/Rebates/Commercial/

Energy Improvement and Extension Act of 2008 Summary including energy efficiency
tax incentives for: commercial buildings, combined heat and power systems (CHP) and
for plug-in hybrid purchases

IRS publications:
- Energy Savings Modeling and Inspection Guidelines for Commercial Building Federal
  www.nrel.gov/docs/fy07osti/40467.pdf
- Notice 2006-52: Deduction for Energy Efficient Commercial Buildings:

Austin Energy Green Building:
http://greenbuilding.austinenergy.com

Austin Environmental Directory. Paul Robbins, editor. 2010 edition:
A sourcebook for environmental issues, products, services, and organizations in the
Austin area
http://environmentaldirectory.info/

Austin Water Utility, Commercial Programs and Rebates $, and Water Efficient
Equipment and Design:
www.ci.austin.tx.us/watercon/default.htm

BuildingGreen, LLC:
www.buildinggreen.com
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.

Business Energy Advisor, Austin Energy 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.
energyAdvisor.htm.

Center for Maximum Potential Building Systems:
www.cmpbs.org/
Energy Design Resources:  
[www.energydesignresources.com](http://www.energydesignresources.com)

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.

Environmental Building News and *GreenSpec® Guide*:  
[www.buildinggreen.com/](http://www.buildinggreen.com/)  

Green Building Pages – building materials database and design tool:  
[www.greenbuildingpages.com](http://www.greenbuildingpages.com)

Green Building Resource Guide:  
[www.greenguide.com](http://www.greenguide.com)

Healthy Building Network – advocates healthier building materials:  
[www.healthybuilding.net/](http://www.healthybuilding.net/)

Lawrence Berkeley National Laboratory, *The Cost-Effectiveness of Commercial-Buildings Commissioning*:  

New Buildings Institute:  
[newbuildings.org/](http://newbuildings.org/)

Rocky Mountain Institute:  
[www.rmi.org/](http://www.rmi.org/)

Smart Growth Network:  
[www.smartgrowth.org](http://www.smartgrowth.org)

Sustainable Building Sourcebook:  
[www.greenbuilder.com/sourcebook/](http://www.greenbuilder.com/sourcebook/)

Sustainable Design Resource Guide of Colorado:  
[www.aiasdrg.org](http://www.aiasdrg.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:  

U.S. Green Building Council:  
[www.usgbc.org/](http://www.usgbc.org/)
Texas Organizations

Austin Sustainable Building Coalition:  
www.greenbuilder.com/sbc/

Build a Better Austin – Workers Defense Project:  
http://buildaustin.org/

Infinite Power of Texas – technology/concept fact sheets:  
www.infinitepower.org

Solar Austin – advocacy group:  
www.solaraustin.org/

TREIA (Texas Renewable Energy Industries Association):  
www.treia.org

TXSES (Texas Solar Energy Society):  
www.txses.org