## TERMINAL OCCUPANTS
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INTRODUCTION

Many companies have chosen to conduct business at the airport. These companies have a lease to utilize airport infrastructure and services. They are an integral part of any airport’s day-to-day functions, and therefore inherently part of the overall service any airport provides to both the travelling and neighboring public.

Airport concessions provide an important passenger service amenity while providing significant financial benefits to the airport. Concessions include news and gifts, specialty retail stores, food and beverage, duty-free shops and many other services. Passengers arrive early for a departing flight or they have time before their connecting flight to shop, grab a bite to eat, or relax in the spa. Many airports have become shopping destinations with retail and food options typical of a shopping mall.

Terminal tenants include a wide range of organizations and services, ranging from advertising, airlines, government agencies, organizations providing aircraft and aviation services, and often non-aviation businesses as well.

The Sustainable Airport Manual (SAM) Green Airplane Rating System for Terminal Occupants (TO) is also designed to certify the sustainability of concession and tenant activities, including daily operations as well as design and construction of new facilities within the terminals.

Concessionaires and tenants that are not located in a terminal or passenger facility but within an existing building or other conditioned space should refer to the Design & Construction or Operations & Maintenance chapters for guidance. Examples of these tenants include but are not limited to FBO tenants, cargo/freight operations, or other commercial or retail entities.

Non-tenant renovations within the terminals undertaken by the airport owner should follow the guidance of the SAM TO chapter.

This chapter is divided into two types of activities:

**Design & Construction** - Pertains to the build-out or interior renovations within the terminals

**Operations & Maintenance** - Pertains to all terminal tenants with customer/passenger interaction

Due to the variation in the types of tenants, general Terminal Occupant types have been defined based on their location and general nature of service. These are defined as:

**Design & Construction**

- **Food Service**: Terminal occupants located within the terminal or other existing conditioned spaces that provide food services for a majority of their operations to passengers or customers. Examples include but are not limited to restaurants, taverns, snack shops, coffee shops, and bakeries.
• **Non-Food Service**: Terminal occupants located within the terminal or other existing conditioned space that do not provide food services for a majority of their operations to passengers or customers. Examples include but are not limited to book stores, gift shops, newspaper stands, and other retail merchandise venues.

**Operations & Maintenance**

*Food Service*: Terminal occupants located within the terminal or other existing conditioned spaces that provide food services for a majority of their operations to passengers or customers. Examples include but are not limited to restaurants, taverns, snack shops, coffee shops, and bakeries.

• **Full Service**: Terminal occupants that have table service (i.e. a restaurant with a wait staff) and have some measure of control over the consumables and waste generated by the customers within their space.

• **Counter Service**: Terminal occupants that provide mainly carry-out service by means of a counter. While tables may be present within/near the space, the tenant does not provide service via wait staff.

• **To-Go, Kiosk**: Terminal occupants that sell food products from a free standing location, such as a kiosk. All products are prepared off-site and sold pre-packaged.

**Non-Food Service**: Terminal occupants located within the terminal or other existing conditioned spaces that do not provide food services for a majority of their operations to passengers or customers. Examples include but are not limited to book stores, gift shops, newspaper stands, other retail merchandise venues, Chicago Department of Aviation (CDA), government entities, banks, airlines, and other airport amenities.

• **Buildout**: Terminal occupants that provide products or services within a space where the occupant has control over layouts, configuration, lighting, etc.

• **Free-Standing, Kiosk**: Terminal occupants that provide products or services in a free-standing area within the terminal corridors.

**APPLICABILITY**

SAM Terminal Occupants (TO) focuses on the evaluation of all occupants within the terminals who have direct customer interaction. Tenants who are not located in the terminals should refer to the Design & Construction (DC) and Operations & Maintenance (OM) chapters of the SAM. Some tenants may have operations that include both non-customer interaction and direct customer interaction. An airline, for example, has both types of operations and would be evaluated under multiple chapters; the terminal activities (with direct customer interaction) would be reviewed following this TO chapter, while the DC and OM chapters would be applied where no direct customer interaction occurs, such as activities on the aircraft apron or at the maintenance hangars.

Given the nature of the construction activities that may go on inside terminal spaces, all tenant build-out projects and minor interior rehabilitation not involving exterior work, regardless of owner, would fall
under the TO Design & Construction section. As an example, a Chicago Department of Aviation (CDA) food court renovation would be rated under the TO chapter because it is an interior-focused project. In the case where a tenant is building a new, stand-alone facility, e.g. a car rental facility that is not within an existing airport building or terminal, then the tenant should use the Design & Construction (DC) chapter of the SAM. A tenant build-out involving an existing building where the core and shell are reused but the interior requires a major interior rehabilitation including HVAC and envelope modifications and includes exterior civil work would also fall under the Design & Construction (DC) chapter.

**TERMINAL OCCUPANTS SECTIONS**

This chapter is divided into two sections: the TO-Design & Construction (TO-DC) section and the TO-Operations & Maintenance (TO-OM) section. The TO-Design & Construction section only pertains to the build-out or interior renovations within the terminals or existing buildings. Any construction or major exterior renovations of non-terminal tenant spaces would follow the guidelines of the SAM Design & Construction (DC) chapter. The TO-Operations & Maintenance section pertains to all tenants with customer/passenger interaction.

Terminal Occupants are rated on the achievement of credits depending on the appropriate category of the initiative/effort, based on sustainable elements included in the project from the following categories:

**TO – Design & Construction**

1.0 Administrative Policy & Procurement  
2.0 Water Efficiency  
3.0 Energy & Atmosphere  
4.0 Materials & Resources  
5.0 Indoor Environmental Quality  
6.0 Construction Practices  
7.0 Innovation for Terminal Occupants in Design & Construction

**TO – Operations & Maintenance**

8.0 Administrative Policy & Procurement  
9.0 Responsible Procurement  
10.0 Green Interiors  
11.0 Water Management  
12.0 Energy Management  
13.0 Waste Stream Management  
14.0 Innovation for Terminal Occupants in Operations & Maintenance
Each category contains a specific number of credits, against which each Terminal Occupant or project is evaluated in order to determine the total number points earned. A list of the applicable credits is summarized in Appendix TO-A – Sustainable Airport Manual Green Airplane Rating System – Terminal Occupants.

PROCESS

Within the Manual's main body, each sustainable credit has five subsections: Intent, Requirements, Submittals, Technology/Strategy, and Case Studies, as described below:

- **Intent**: The primary motivations for any sustainable practice.
- **Requirements**: Specifies institutional, operational, and mechanical design or construction elements that satisfy the intent. The prerequisites must be achieved; the credits are optional, but contribute to the overall rating.
- **Submittals**: Required and supporting documentation and/or information required to achieve applicable prerequisites or credits. This documentation may include calculations, data, short narratives, policies, documents or references to specification sections or design drawings indicating how the requirements are being met.
- **Technology/Strategy**: Highlights specific ways of meeting the recommendations within the scope for each specific credit. Case studies where available, are presented to help guide the application of sustainable credits to Terminal Occupant projects and efforts. While the entity may undertake the above Technologies/Strategies at other airports, for the purposes of this credit activities only apply to operations at CDA Airports. To aid with consideration of applicable strategies and technologies, they are organized into the following three categories; “Standard Practice,” “Recommended Practice,” and “Best Available Practice.”
  - **Standard Practice**: These are requirements that may be due to standards, specifications, codes, general best management or construction practices. They are practices already in place, and SAM prerequisites, which also serve to meet sustainable goals.
  - **Recommended Practice**: These include recommendations that are expected to have insignificant impacts to cost and are therefore, encouraged to be incorporated.
  - **Best Available Practice**: These are strategies and practices that are expected to enhance the sustainability efforts of the Chicago Department of Aviation (CDA), but are anticipated to potentially have an impact on the cost and/or schedule. Terminal Occupants are encouraged to explore the cost/environmental benefit ratio for such guidelines to the greatest extent practicable.
- **Case Study**: Examples of credit intent “in action” at airports and/or other industry facilities.

While not all strategies will be applicable, concessionaires and tenants are highly encouraged to think creatively and to consider the intent of each issue throughout the decision process.
SUBMITTALS

Sustainable Airport Manual (SAM) Checklists

Incorporation of sustainable elements into terminal occupant’s design and construction are tracked using the SAM TO-Design & Construction Checklist. Incorporation of sustainable initiatives and practice into terminal occupants’ daily operations are tracked using the SAM TO-Operations & Maintenance Checklist. The checklists are provided in Appendix TO-B – Terminal Occupants Checklist.

In order to achieve points, certain requirements need to be met, as outlined in each credit. In some instances, studies and calculations would be appropriate. In other instances, this will be accomplished through product and material data or through referenced standards or specifications.

In addition to review of the checklist, the Sustainable Review Panel (SRP) will review any supporting documentation including calculations, specifications, and contractor’s submittals as needed to support the achievement of the credit(s). See Section titled Implementation and Review Process for detailed information about the SRP.

NOTE:
When submitting electronic files, include the name of the project and CDA project number in the file name for ease of processing. Submittal dates, milestones, and/or contractor names may also be included in file names. Submitting a filename such as “SAM Checklist” is not acceptable. An example of an appropriate file name is:

SAM Checklist_CT-DC_JDesign Inc_TH0000.00_T3 Retail Renovation_100%_20181102.xls
SAM Checklist_[SAM Chapter]_[Contractor]_[Project Number]_[Project Name]_[Milestone]_[Submittal Date]

Submittals should be sent to SAMdocs@cityofchicago.org and must include the CDA Project Number and CDA Project Name in the subject line.
SAM GREEN AIRPLANE RATING SYSTEM

TERMINAL OCCUPANTS – DESIGN & CONSTRUCTION

The SAM Green Airplane Rating System for TO – Design & Construction uses a five-tier approach to rating a Terminal Occupant similar to the Design & Construction rating system. “Green Airplane Certification” symbols are used to designate achievement levels. The levels are:

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TERMINAL OCCUPANTS – OPERATIONS & MAINTENANCE

The SAM Green Airplane Rating System for TO – Operations & Maintenance uses a three-tier approach to rating a terminal occupant. “Green Airplane Certification” levels are used to designate achievements. The levels are:

**Achiever**: Terminal Occupant has completed the SAM review process and, at a minimum, accomplished all SAM Prerequisites.

**Leader**: Terminal Occupant has gone beyond the minimum expectations of the SAM Prerequisites and demonstrated a commitment to sustainable initiatives.

**Mentor**: Terminal Occupant has achieved the highest level of green airplane certification and meets several CDA requirements above and beyond the prerequisite credits. Entity is a resource and a good example to other terminal occupants and regularly promotes, advocates and improves upon their sustainability achievements.
### IMPLEMENTATION AND REVIEW PROCESS

The SAM and its supporting documentation are administered by the Sustainable Review Panel (SRP), which consists of representatives of the CDA Management Staff and Airport Planners actively involved in CDA projects. The composition of the SRP is intended to be dynamic depending on needs.

The SRP is responsible for the review of submittals with respect to sustainability and provides technical support to each project in relation appropriate to sustainable practices. The SRP is responsible for review of every checklist and for the awarding of “Green Airplane Certification” ratings based on the extent of incorporation of sustainable practices as outlined in this Manual and as documented on the submitted SAM Checklist(s).

Other responsibilities of the SRP include preparation and review of sustainable design related specifications, technical memoranda, and miscellaneous documents, as necessary. In addition, the SRP is responsible for presentations and training to project team members with respect to the application of this Manual. The primary tasks of the SRP are to oversee the application of the Manual and review submittals for their compliance with the Manual.

All projects conducted by or under management of the CDA will follow these procedures. For any and all sustainability-related questions and/or submittals, please use the following email address to submit forms electronically (preferred method): SAMdocs@cityofchicago.org. Submittals must include the Terminal Occupant’s name in the subject line.

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GREEN CONCESSIONS POLICY

In order to assist Concessions at O'Hare and Midway Airports in their efforts to minimize waste, enhance recycling, generate demand for eco-friendly products, and provide healthier foods for passengers and employees, the Chicago Department of Aviation (CDA) has developed a set of guidance and standards. These exist within the SAM TO – Operations & Maintenance chapter; and these Prerequisites form the Green Concessions Policy. All concessionaires must adhere to the Policy shown below. Compliance with the policy is reviewed with concessionaires on a bi-annual basis. Should a concessionaire not comply with the Policy, they are required to submit a response to CDA indicating why they are not in compliance and what efforts are being undertaken to achieve compliance, including target dates for completion.

1) Hold Green Meetings (SAM Credit 1.1)
2) Assign Environmental Liaison (SAM Credit 8.2)
3) Eliminate the Use of Polystyrene Foam (Styrofoam) (SAM Credit 9.1)
4) Procure sustainable foods and consumer products to a minimum of 10 percent of total costs (SAM Credit 9.2)
5) Use only Environmentally-friendly cleaning and hygiene products (SAM Credit 10.1)
6) Source-separate all solid waste refuse into recyclables, compostables, and refuse (SAM Credit 13.1)
7) Donate surplus food to the greatest extent allowable by food safety regulations (SAM Credit 13.2)
8) Ban all petroleum-based plastic bags, plastic disposable consumer containers and utensils (SAM Credit 13.3)
9) Utilize biodegradable trash bags (SAM Credit 13.4)
For comments, case studies, lessons-learned, new technologies or for any and all project submittal forms, please email:

SAMdocs@cityofchicago.org
Chicago Department of Aviation

SUSTAINABLE AIRPORT MANUAL

TERMINAL OCCUPANTS

DESIGN & CONSTRUCTION SECTION

NOTE:
Please refer to page TO-5 for introduction and applicability of this section.
1.0 ADMINISTRATIVE POLICY & PROCUREMENT

1.1 Prerequisite 1 – Green Meetings

Required

INTENT

Green meeting practices are intended to guide meeting hosts, planners, and attendees toward more eco-friendly meetings. A few extra efforts to incorporate environmental considerations into planning and conducting meetings will help to minimize the negative impact on the environment and educate all participants regarding sustainable meetings.

Green meeting practices are intended to:

- Conserve resources
- Reduce environmental impacts
- Save money
- Support Chicago’s commitment to environmental stewardship

REQUIREMENTS

Whenever applicable, follow the green meeting practices outlined below, or your existing corporate sustainability policy, whichever is more stringent.

SUBMITTALS

Include descriptive narrative on the SAM Checklist and if following your own corporate sustainability policy, please include with submittal for this section.

TECHNOLOGY/STRATEGY

Meeting Planning

Meeting hosts should consider the following when planning for a meeting:

Reduce the number of copies produced by:

- Sharing meeting materials
- Digitizing materials and distributing presentations via email prior to meetings
- Placing materials on the wall (one large print or presented with projector equipment)
If handouts are needed at the meeting, produce handouts:

- Locally
- Double-sided
- Using high post-consumer recycled content paper

Exhibits and presentation materials:

- Same suggestions as handouts above
- Reuse display boards, utilize both front and back sides
- Use low-emitting materials for exhibit displays
- Recycle cardboard and other packaging materials

For participants not in the building: can they participate by internet/phone?

- Contact the expected meeting participants ahead of time and present them with the option of a video/phone conference via the internet/phone, if appropriate. Costs associated with technical support may still be less than travel/fuel costs in some cases.

What if travel cannot be avoided?

- Can attendees carpool/carshare?
- Provide attendees with mass transit options, such as CTA or Pace Bus, including directions.
- Encourage walking and biking by selecting accessible venues, including directions.
- If overnight stays are involved, suggest hotels nearest the meeting venue that are the most environmentally friendly (www.greenhotels.com). Consider moving the meeting to the hotel if majority of participants are staying at the same hotel, reducing the need for transportation to and from the hotel.

If the meeting is all day or multiple days in a row, how can it be catered in an environmentally friendly way?

- Serve drinks from pitchers, reusable utensils and dishes, and request local produce to cut down on waste when catering for large groups.
- Utilize condiments in bulk dispensers to reduce waste.
- Plan for the pick-up and compost or donation of leftover food to reduce waste.

What if the meeting is held annually?

- Plan for annual meetings at times of the year when temperatures are less extreme to reduce energy consumption due to the use of air conditioning/heat.
Meeting Room

- Use the recycle bins for recyclable items at the end of the meeting.
- Collect reusable business card holders/name tags in a bin after last meeting.
- Collect presentation materials that are not needed by the attendees that can be donated to local schools, reused or recycled.
- Have attendees fill out an online survey allowing for feedback about the meeting and vendors for future reference and improvement.
- Follow up after the meeting with participants to share green success stories and lessons-learned including statistics from the meeting, such as quantities of recycled materials. Also include a summary document that provides details of the green meeting.
- Help to ensure the lights are turned off as attendees leave the meeting room.

Additional details if conducting off-site meetings, such as a conference or workshop...

- Ensure that off-site meeting locations accommodate opportunities for recycling.
- Recycle newspapers, cans, and glass, including those from your guest room, in marked containers in the conference area.
- Participate in the hotel's water, energy, and detergent conservation efforts by following the instructions posted in your room.
- Note the conference's efforts to reduce the use of paper by limiting conference handouts at registration, using folders or handouts printed on high post-consumer recycled content paper, using vegetable-based ink, and encouraging presenters to limit handouts.
- Thank the hotel or off-site location host for providing recycling opportunities, reusable utensils and dishes for breaks, etc.

IMPLEMENTATION

- Make certain that all appropriate recycling bins are located in public meeting areas and conference rooms.
- Develop message boards for conference rooms, meeting areas, and copy/production areas. (see following pages)
- Provide routine reminders of green meeting practices and during annual team meetings.
1.0 ADMINISTRATIVE POLICY & PROCUREMENT

1.2 Corporate Sustainability Policy

1 Point

INTENT

In keeping with the spirit and intent of this Manual, it is strongly encouraged that companies working in support of CDA on any project establish and adopt their own corporate policy on sustainable practices.

REQUIREMENTS

Establish and adopt a Corporate Sustainability Policy.

SUBMITTALS

Provide an electronic copy or website link to the company’s Corporate Sustainability Policy.

NOTE: If available, please provide an electronic copy of your annual sustainability report documenting any new measures and results.

CASE STUDY

Starbucks Global Social Impact

Starbucks

The corporation has undertaken actions to reduce their environmental impact and share in their customer’s commitment to the environment. An annual environmental stewardship report is produced to highlight the company’s efforts and successes. At the store level, energy and water conservation and other green building strategies are key priorities. Starbucks strives to elevate their partners, customers, suppliers and neighbors to create positive change. This is being accomplished by offering high-quality, ethically purchased and responsibly produced products; investing in paths to opportunity through education, training and employment; minimizing their environmental footprint and inspiring others to do the same; while offering Starbucks as a place for public conversation and elevating civic engagement through service and promoting voter registration.

https://www.starbucks.com/responsibility
1.0 ADMINISTRATIVE POLICY & PROCUREMENT

1.3 Green Procurement Policy

1 to 4 points

INTENT

Reduce the environmental impact of products and services by developing a Green Purchasing Program.

REQUIREMENTS

Refer to the U.S. EPA Greener Products and Services listing at [www.epa.gov/greenerproducts/identify-greener-products-and-services](http://www.epa.gov/greenerproducts/identify-greener-products-and-services) for products and their minimum required content levels. Points for this credit will be awarded based on the number of green products, procured for general day-to-day office use. The party completing the checklist should only count green products procured for the local office, as opposed to a global level policy.

Points are awarded as follows*:

<table>
<thead>
<tr>
<th>Number of Green Products Procured</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>1</td>
</tr>
<tr>
<td>3-5</td>
<td>2</td>
</tr>
<tr>
<td>6-11</td>
<td>3</td>
</tr>
<tr>
<td>12+</td>
<td>4</td>
</tr>
</tbody>
</table>

* Green products not listed in above must be approved by the SRP in order to receive points.

Example: An A/E firm responsible for the design of a terminal tenant space office uses, in their own office, bathroom tissue with a recycled content of 30%, paper towels with a recycled content of 10%, disposable cutlery with a biobased content of 100%, and glass cleaners with a biobased content of 35%. Although there are four items that would earn 2 points according to the table above, two of the items do not meet the minimum requirements of the U.S. EPA Greener Products and Services standards. In this case, the correct number of points to be claimed for the two qualified items is 1 point.

SUBMITTALS

Include descriptive narrative in the SAM Checklist of items purchased and used.

NOTE: If available, please provide an electronic copy of your green procurement policy.
TECHNOLOGY/STRATEGY

Introduce environmentally conscious purchasing into company practices. The policy needs to clearly define an objective and establish a sustainability claims verification procedure that can be replicated as necessary. Verification procedures may rely on product certifications such as Green Seal and ENERGY STAR. Evaluate the items that are purchased, identify more environmentally friendly alternatives, and establish a policy to purchase these alternatives when economically feasible. Work with suppliers to identify sustainable products that meet the company’s needs.

Standard Practice

None

Recommended Practice

- Purchase items with the minimum content levels specified in the U.S. EPA Greener Products and Services listing at [www.epa.gov/greenerproducts/identify-greener-products-and-services](http://www.epa.gov/greenerproducts/identify-greener-products-and-services)
- Purchase items in bulk to reduce packaging, transportation impacts and costs
- When using a company-developed policy, the following resources can be used to create a Procurement Policy. Resources include but are not limited to:
  - U.S. Environmental Protection Agency’s Comprehensive Procurement Guidelines (CPG) – The CPG includes an index of products and their recommended recycled content. More information can be found on the associated website: [www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program](http://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program)
  - U.S. Environmental Protection Agency’s Water Sense – The partnership program by promoting water efficiency and enhancing the market for water-efficient products, programs and practices. More information can be found on the associated website: [www.epa.gov/WaterSense/](http://www.epa.gov/WaterSense/)
  - DOE’s Alternative Fuels and Advanced Vehicles Data Center – The data center provides a wide range of information and resources to enable the use of alternative fuels, in addition to other petroleum reduction options such as advanced vehicles, fuel blends, idle reduction and fuel economy. More information can be found on the website: [www.afdc.energy.gov/afdc/](http://www.afdc.energy.gov/afdc/)
  - Fair Trade Products – Purchase fair trade products instead of regular products in order to build equitable and sustainable trading partnerships. Examples of some fair trade products include; coffee, bags, boxes, artwork, chocolate, sugar, etc. More information can be found on the Fair Trade Federation’s website: [www.fairtradefederation.org](http://www.fairtradefederation.org)
  - USDA’s BioPreferred Designated Products – The program aims to increase the purchase and use of renewable, environmentally friendly biobased products while providing “green” jobs and new markets for farmers, manufacturers and vendors. More information can be found on the associated website: [www.biopreferred.gov/BioPreferred/](http://www.biopreferred.gov/BioPreferred/)
CASE STUDY

Sustainable Purchasing Policy
Vancouver International Airport – Vancouver, British Columbia, Canada

Sustainability is a corporate priority for the Vancouver Airport Authority. One of their goals is to embed sustainability into our purchasing decisions and ensure meaningful consideration of social and environmental criteria when selecting suppliers, products, and services. Their purchasing decisions will drive innovation, improve workplace and environmental outcomes, and support their commitment to be accountable to the communities that they serve. In evaluating suppliers and their subcontractors, the Airport Authority will include sustainability as a weighted component of the evaluation criteria, to address sustainability risks and capitalize on opportunities. In the procurement of goods and services, for both operating and capital spending, their consideration of sustainability gives priority focus to issues pertaining to their four pillars of sustainability; environment, social, economic, and governance.

1.0 ADMINISTRATIVE POLICY & PROCUREMENT

1.4 Recycled Content Paper

1 to 3 points

INTENT

Reduce the need for virgin materials, energy, and waste associated with the production of paper by promoting the use of recycled content paper.

REQUIREMENTS

For all office paper purchased for routine daily business administration and operations, point values will be assigned based on the recycled content of the paper. Up to 3 points are available by using paper with the following attributes:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Post-consumer recycled content</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4.1</td>
<td>30%</td>
<td>1</td>
</tr>
<tr>
<td>1.4.2</td>
<td>50%</td>
<td>2</td>
</tr>
<tr>
<td>1.4.3</td>
<td>100%</td>
<td>3</td>
</tr>
</tbody>
</table>

Calculate post-consumer recycled content of office paper using a weighted average based on estimated usage. If the paper is chlorine-bleached, for the purposes of the calculation, it shall be assumed that the post-consumer recycled content is 0% regardless of what it actually is.

Example: Annually, an office uses 50 boxes of chlorine-free paper with a post-consumer recycled content of 30%, 50 boxes of chlorine-free paper with a post-consumer recycled content of 90%, and 20 boxes of chlorine-bleached paper with a post-consumer recycled content of 100%. The weighted average of all the paper used is 50% and therefore 2 points would be awarded for this credit. Note that the 20 boxes of chlorine-bleached paper are assumed to have 0% recycled content for the purposes of the calculation.

\[
(50/120)(30\%) + (50/120)(90\%) + (20/120)(0\%) = 50\% \text{ recycled content}
\]

SUBMITTALS

Include descriptive narrative on the SAM Checklist.
TECHNOLOGY/STRATEGY

The purchase and use of recycled paper assist in closing the recycling loop by utilizing paper that is made from recovered waste paper.

This credit is intended to:

- Conserve natural resources
- Save energy
- Reduce environmental impacts
- Reduce pollution
- Reduce paper waste

Standard Practice

None

Recommended Practice

- Whenever applicable, purchase and utilize recycled office paper in daily business administration and operations.

Best Available Practice

None
2.0 Water Efficiency

2.1 Prerequisite 1 – Water Use Reduction

Required

INTENT

Increase water efficiency within terminal spaces to reduce the burden on municipal water supply and wastewater systems.

REQUIREMENTS

Employ strategies that in aggregate use less water. The baseline shall meet the requirements of the Energy Policy Act (EPAct) of 1992 and subsequent rulings by the Department of Energy, requirements of the Energy Policy Act of 2005, and the plumbing code requirements as stated in the 2006 editions of the Uniform Plumbing Code or International Plumbing Code as to fixture performance. Calculations are based on estimated occupant usage and may include the following fixtures and fixture fittings (as applicable to the tenant space): water closets, urinals, lavatory faucets, showers, kitchen sink faucets and pre-rinse spray valves.

<table>
<thead>
<tr>
<th>Commercial Fixtures and Fittings</th>
<th>Minimum Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Toilets</td>
<td>1.28 gallons per flush (gpf)*&lt;br&gt;Except blow-out fixtures: 3.5 gpf&lt;br&gt;1.6/1.1 gpf – Dual Flush</td>
</tr>
<tr>
<td>Commercial Urinals</td>
<td>0.8 gpf</td>
</tr>
<tr>
<td>Commercial Lavatory (restroom) Faucets</td>
<td>1.8 gallons per minute gpm at 60 pounds per square inch (psi), private applications only&lt;br&gt;(hotel or motel guest rooms, hospital patient rooms)&lt;br&gt;0.5 gpm at 60 psi** all others except private applications&lt;br&gt;0.25 gallons per cycle for metering faucets</td>
</tr>
<tr>
<td>Commercial Pre-Rinse Spray Valves (for food service applications)</td>
<td>Flow rate ≤ 1.6 gpm&lt;br&gt;(no pressure specified; no performance requirement)</td>
</tr>
<tr>
<td>Commercial Clothes Washing–less than 80lbs</td>
<td>9 gallon/CF/cycle</td>
</tr>
<tr>
<td>Commercial Dishwashers</td>
<td></td>
</tr>
<tr>
<td>Undercounter – high temp</td>
<td>1.98 gallon/rack</td>
</tr>
<tr>
<td>Undercounter – low temp</td>
<td>1.95 gallon/rack</td>
</tr>
<tr>
<td>Door type – high temp</td>
<td>1.44 gallon/rack</td>
</tr>
<tr>
<td>Door type – low temp</td>
<td>1.85 gallon/rack</td>
</tr>
<tr>
<td>Commercial Fixtures and Fittings</td>
<td>Minimum Requirement</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Single tank rack conveyor – high temp</td>
<td>1.13 gallon/rack</td>
</tr>
<tr>
<td>Single tank rack conveyor – low temp</td>
<td>1.23 gallon/rack</td>
</tr>
<tr>
<td>Multi-tank rack conveyor – high temp</td>
<td>1.1 gallon/rack</td>
</tr>
<tr>
<td>Multi-tank rack conveyor – low temp</td>
<td>0.99 gallon/rack</td>
</tr>
<tr>
<td>Flight type</td>
<td>180 gallon/hour</td>
</tr>
<tr>
<td>Commercial Ice Machines</td>
<td></td>
</tr>
<tr>
<td>ice machine (ice making head) IMH H &lt;450 lb/day</td>
<td>&lt;25 gal/100 lb ice</td>
</tr>
<tr>
<td>ice machine (ice making head) IMH H&gt;450lb/day</td>
<td>&lt;25 gal/100 lb ice</td>
</tr>
<tr>
<td>ice machine (w/o remote compressor) H&lt; 1000lb/day</td>
<td>&lt;25 gal/100 lb ice</td>
</tr>
<tr>
<td>ice machine (w/o remote compressor) H&gt; 1000 lb/day</td>
<td>&lt;25 gal/100 lb ice</td>
</tr>
<tr>
<td>ice machine (w/o remote compressor) H&gt; 934 lb/day</td>
<td>&lt;25 gal/100 lb ice</td>
</tr>
<tr>
<td>ice machine self contained unit</td>
<td>&lt;35 gal/100 lb ice</td>
</tr>
<tr>
<td>ice machine water cooled</td>
<td>MUST BE ON CHILLED LOOP</td>
</tr>
<tr>
<td>Ice machines once through water cooled</td>
<td>BANNED</td>
</tr>
<tr>
<td>Food Steamers</td>
<td></td>
</tr>
<tr>
<td>Steam cooker – batch cooking</td>
<td>815 gallon/hour/plan</td>
</tr>
<tr>
<td>Steam cooker – high production/cook to order</td>
<td>84 gallon/hour/plan</td>
</tr>
<tr>
<td>Combination Oven</td>
<td></td>
</tr>
<tr>
<td>Countertop or stand mounted</td>
<td>40 gph</td>
</tr>
<tr>
<td>Roll-in</td>
<td>60 gph</td>
</tr>
<tr>
<td>Other Equipment</td>
<td>Performance baseline based on industry standards</td>
</tr>
</tbody>
</table>

*Based on 15 inch fryer

**AV = adjusted volume = (1.63 x freezer volume) + refrigerator volume

**SUBMITTALS**

Include descriptive narrative and calculations in the SAM Checklist.

**TECHNOLOGY/STRATEGY**

WaterSense™-certified fixtures and fixture fittings should be used where available. Use high-efficiency fixtures (water closets and urinals) and dry fixtures such as composting toilet systems to reduce the potable water demand. Consider the use of alternate on-site sources of water, (e.g., rainwater, stormwater, or air conditioner condensate), and graywater for non-potable applications (e.g., toilet and urinal flushing), as approved by the manufacturer, and for custodial uses.

Special consideration should be used to distinguish applicability of these technologies in high-volume passenger terminal areas versus office facilities, especially with respect to maintenance.
Standard Practice


Recommended Practice

- Use high-efficiency fixtures and valves, automatic flush sensors, aerators on faucets and dual-flush toilets
- Use local generation of domestic hot water, as much as possible, to eliminate long piping runs associated with recirculation piping. Unless connecting to an existing hot water recirculating system.
- Domestic hot water for general plumbing fixtures should be designed for a temperature of 140°F maximum, but not less than 120°F

Best Available Practice

- Install dry fixtures such as composting toilets and waterless urinals to reduce wastewater volumes
- Use instantaneous hot water heating systems (i.e., tankless, on-demand hot water heating)
- Use zoned or sub-metering to measure and audit water consumption rates at points of use
2.0 Water Efficiency

2.2 Water Use - Additional Reduction

1 to 3 Points

INTENT

Further increase water efficiency within terminal space to reduce the burden on municipal water supply and wastewater systems.

REQUIREMENTS

Employ strategies that in aggregate use less water than the water use baseline calculated for the terminal occupant’s space.

The minimum water savings percentage for each point threshold is as follows:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Water Reduction</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2.1</td>
<td>30%</td>
<td>1</td>
</tr>
<tr>
<td>2.2.2</td>
<td>35%</td>
<td>2</td>
</tr>
<tr>
<td>2.2.3</td>
<td>40%</td>
<td>3</td>
</tr>
</tbody>
</table>

Calculate the baseline according to the commercial baselines outlined below. Calculations are based on estimated occupant usage and must include only the following fixtures and fixture fittings (as applicable to the project scope): water closets, urinals, lavatory faucets, showers, kitchen sink faucets and pre-rinse spray valves.

<table>
<thead>
<tr>
<th>Commercial Fixtures and Fittings</th>
<th>Current Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Toilets</td>
<td>1.6 gallons per flush (gpf)*</td>
</tr>
<tr>
<td></td>
<td>Except blow-out fixtures: 3.5 (gpf)</td>
</tr>
<tr>
<td>Commercial Urinals</td>
<td>1.0 (gpf)</td>
</tr>
<tr>
<td>Commercial Lavatory (restroom) Faucets</td>
<td>2.2 gallons per minute (gpm) at 60 pounds per square inch (psi), private applications only (hotel or motel guest rooms, hospital patient rooms)</td>
</tr>
</tbody>
</table>

1 Tables adapted from information developed and summarized by the U.S. Environmental Protection Agency (EPA) Office of Water based on requirements of the Energy Policy Act (EPAct) of 1992 and subsequent rulings by the Department of Energy, requirements of the EPAct of 2005, and the plumbing code requirements as stated in the 2006 editions of the Uniform Plumbing Code or International Plumbing Code pertaining to fixture performance.
<table>
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<tr>
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<tr>
<td></td>
<td>0.5 (gpm) at 60 (psi)** all others except private applications</td>
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<td>Combination Oven</td>
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</tr>
<tr>
<td>Countertop or stand mounted</td>
<td>40 gph</td>
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<tr>
<td>Roll-in</td>
<td>60 gph</td>
</tr>
<tr>
<td>Other Equipment</td>
<td>Performance baseline based on industry standards</td>
</tr>
</tbody>
</table>

*Based on 15 inch fryer

**AV = adjusted volume = (1.63 x freezer volume) + refrigerator volume
SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist.

TECHNOLOGY/STRATEGY

For many retail applications, process water (water use related to the product of service provided) far outweighs water used for toilets, sinks and showers. Process water also includes water used in cooling systems or any other equipment not directly related to the Energy Policy Act of 1992 (e.g. faucets, toilets, urinals, and showerheads). In addition to specifying water-efficient fixtures and appliances, consider alternative sources of water for non-potable applications such as toilet and urinal flushing, mechanical systems, cleaning, vehicle washing and other applications that do not require potable water.

WaterSense™-certified fixtures and fixture fittings should be used where available. Use high-efficiency fixtures (water dispensers, water closets and urinals) and dry fixtures such as composting toilet systems to reduce the potable water demand. Consider the use of alternate on-site sources of water, such as rainwater, stormwater, or air conditioner condensate, and graywater for non-potable applications such as toilet and urinal flushing, as approved by the manufacturer, and custodial uses.

Standard Practice

None

Recommended Practice

- Use high-efficiency fixtures and valves, such as automatic sensors, aerators on lavatories and dual-flush toilets

Best Available Practice

- Dry fixtures such as composting toilets and waterless urinals to reduce wastewater volumes
3.0 ENERGY & ATMOSPHERE

3.1 Prerequisite 1 – Fundamental Systems Commissioning

Required

INTENT

Verify that the project’s energy related systems are installed, calibrated and perform according to the owner’s project requirements, basis of design, and construction documents.

REQUIREMENTS

- The following commissioning process activities shall be completed by the commissioning team. Designate an individual as the Commissioning Authority (CxA) to lead, review and oversee the completion of the commissioning process activities.
  - The CxA shall have documented commissioning authority experience in at least two building projects.
  - The individual serving as the CxA shall be independent of the project’s design and construction management, though they may be employees of the firms providing those services. The CxA may be a qualified employee or consultant of the Owner.
  - The CxA shall report results, findings and recommendations directly to the Owner.
  - For projects smaller than 50,000 gross square feet, the CxA may include qualified persons on the design or construction teams who have the required experience.
- The Owner shall document the Owner’s Project Requirements (OPR). The design team shall develop the Basis of Design (BOD). The CxA shall review these documents for clarity and completeness. The Owner and design team shall be responsible for updates to their respective documents.
- Develop and incorporate commissioning requirements into the construction documents.
- Develop and implement a commissioning plan.
- Verify the installation and performance of the systems to be commissioned.
- Complete a summary commissioning report.
COMMISSIONED SYSTEMS

Commissioning process activities shall be completed for the following energy-related systems, at a minimum:

- Heating, ventilating, air conditioning and refrigeration (HVAC&R) systems (mechanical and passive) and associated controls
- Lighting and daylighting controls
- Domestic hot water systems
- Renewable energy systems (wind, solar etc.)

SUBMITTALS

Include descriptive narrative in the SAM Checklist.

TECHNOLOGY/STRATEGY

Engage a CxA as early as possible in the design process. Determine the owner's project requirements, develop and maintain a commissioning plan for use during design and construction and incorporate commissioning requirements in bid documents. Assemble the commissioning team, and prior to occupancy verify the performance of energy consuming systems. Complete the commissioning reports with recommendations prior to accepting the commissioned systems. Owners are encouraged to seek out qualified individuals to lead the commissioning process. Qualified individuals are identified as those who possess a high level of experience in the following areas:

- Energy systems design, installation and operation
- Commissioning planning and process management
- Hands-on field experience with energy systems performance, interaction, start-up, balancing, testing, troubleshooting, operation, and maintenance procedures
- Energy systems automation control knowledge

Although the commissioning process should start as early in the design process as possible, it is allowable to engage a CxA agent to execute fundamental commissioning after construction has begun.

Standard Practice

- Commissioning Agents are typically engaged to conduct fundamental commissioning

Recommended Practice

- Review the design intent and the basis of design documentation
- Incorporate commissioning requirements into the construction documents
- Develop and utilize a commissioning plan
- Verify installation, functional performance, training, operations and maintenance documentation
- Complete a commissioning report
- Provide the owner with a single manual that contains the information required for re-commissioning systems
- Engage a commissioning team that does not include individuals directly responsible for project design or construction management to evaluate both building and site systems as part of the commissioning plan
- Priority Systems – high energy consuming systems
  - Central Building Automation system
  - All HVAC system equipment
  - Lighting controls and sensors
  - Site Lighting
  - Refrigeration systems
  - Vertical Transport
  - Building Envelope
  - Baggage handling systems (included in process loads: to promote energy savings, use the exceptional calculation method described in ANSI/ASHRAE/IESNA 90.1-2010 G2.5)
  - Information Technology Systems – IT (included in process loads: to promote energy savings, use the exceptional calculation method described in ANSI/ASHRAE/IESNA 90.1-2010 G2.5)
- Lower Priority Systems – low energy consuming system.
  - Emergency Power Generators and Automatic Transfer Switching
  - Uninterruptible Power Supply systems
  - Life Safety systems; Fire protection Fire alarm, Egress pressurization
  - Lightning Protection
  - Domestic and Process water pumping and mixing systems
  - Equipment sound control systems
  - Data and Communication systems
  - Paging systems
  - Security systems
  - Irrigation systems
  - Plumbing
  - Illuminated guidance signage
- For Runways, Civil/Stormwater and Roadways/Rail projects this scope should include the following project components.
  - For support and ancillary buildings include all of the applicable systems and assemblies noted above
  - Runway lighting and illuminated signage
  - Runway NAVAIDS
  - Site lighting systems
  - Traffic signals
  - Stations (e.g., pump stations, lift stations, drainage pumps)
- Heating/Deicing systems
- Oil/water separators

**Best Available Practice**

None
3.0 ENERGY & ATMOSPHERE

3.2 Prerequisite 2 – Minimum Energy Performance

Required

INTENT

Establish the minimum level of energy efficiency for the terminal space systems to reduce environmental and economic impacts associated with excessive energy use.

REQUIREMENTS

Design portions of the terminal occupant’s space to comply with the ANSI/ASHRAE/IESNA Standard 90.1-2010 (with errata but without addenda) to complete the following:

- Comply with the mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4) in Standard 90.1-2010 (with errata but without addenda)
- Achieve the prescriptive requirements (Sections 5.5, 6.5, 7.5 and 9.5) or performance requirements (Section 11) of ANSI/ASHRAE/IESNA Standard 90.1-2010 (with errata but without addenda)
- Reduce connected lighting power density 10% below that allowed by ANSI/ASHRAE/IESNA Standard 90.1-2010 (with errata but without addenda) using either the Space-by-Space Method or by applying the whole lighting power allowance to the entire terminal space
- Install ENERGY STAR equipment for 50% (by rated-power) of ENERGY STAR eligible items. This requirement includes; appliances, office equipment, electronics, and commercial food service equipment. Excluded are heating, ventilating and air conditioning (HVAC) and lighting.

SUBMITTALS

Include descriptive narrative in the SAM Checklist.

TECHNOLOGY/STRATEGY

Design the terminal occupant space and systems to meet baseline requirements. Use a computer simulation model, where applicable, to assess the energy performance and identify the most cost-effective energy efficiency measures.

If a local code has demonstrated quantitative and textual equivalence following, at a minimum, the U.S. Department of Energy (DOE) standard process for commercial energy code determination, then the

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2 Project teams wishing to use ASHRAE approved addenda for the purposes of this credit may do so at their discretion. Addenda must be applied consistently across all SAM credits.
The results of that analysis may be used to correlate local code performance with ASHRAE 90.1-2010. Details on the DOE process for commercial energy code determination can be found at: [http://www.energycodes.gov/regulations/determinations](http://www.energycodes.gov/regulations/determinations).

**Standard Practice**


**Recommended Practice**

- Design terminal occupant space using the more current ASHRAE/IESNA 90.1-2010 standard

**Best Available Practice**

None
3.0 ENERGY & ATMOSPHERE

3.3 Optimize Energy Performance

1 to 6 Points

INTENT

Achieve increasing levels of energy performance beyond the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.

REQUIREMENTS

Comply with the prescriptive measures identified below. The terminal occupant space must meet the following requirements below. Points will be awarded based on the number of appliance types or technologies implemented from the tables below. Points earned for this credit are as follows:

<table>
<thead>
<tr>
<th>Number of Technologies/ Strategies Implemented from Table 1</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3-4</td>
<td>3</td>
</tr>
<tr>
<td>5-6</td>
<td>4</td>
</tr>
<tr>
<td>7-8</td>
<td>5</td>
</tr>
<tr>
<td>9+</td>
<td>6</td>
</tr>
</tbody>
</table>

Example: A food service tenant uses CFL lighting for 90% of its lighting load, has Energy Star rated reach-in refrigerators, and an Energy Star rated ice machine that meet the requirements of Tables 1 and 2 below. Therefore, for these three item types, 3 points would be earned for this credit.

Table 1 - All Terminal Occupants:

<table>
<thead>
<tr>
<th>Technology/Strategy</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED Lighting</td>
<td>For at least 60% of lighting load</td>
</tr>
<tr>
<td>CFL Lighting</td>
<td>For at least 80% of lighting load</td>
</tr>
<tr>
<td>Energy-Efficient Halogen Lamps</td>
<td>High pressure, krypton or xenon containing lamps (argon not acceptable)</td>
</tr>
<tr>
<td>Appliance Type</td>
<td>Power Source</td>
</tr>
<tr>
<td>----------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Fryers</td>
<td>elec</td>
</tr>
<tr>
<td>Large vat fryers</td>
<td>elec</td>
</tr>
<tr>
<td>Steam cooker-batch coating</td>
<td>elec</td>
</tr>
<tr>
<td>Steam cooker- high production/cook to order</td>
<td>elec</td>
</tr>
<tr>
<td>Hot food holding cabinets</td>
<td>elec</td>
</tr>
<tr>
<td>Solid door reach-in refrigerators</td>
<td>elec</td>
</tr>
<tr>
<td>Solid door reach-in freezers</td>
<td>elec</td>
</tr>
<tr>
<td>Solid door reach-in refrigerator/freezer</td>
<td>elec</td>
</tr>
<tr>
<td>Glass door reach-in refrigerators</td>
<td>elec</td>
</tr>
<tr>
<td>Ice cream freezer</td>
<td>elec</td>
</tr>
<tr>
<td>Undercounter dish machines-high temp</td>
<td>elec</td>
</tr>
<tr>
<td>Undercounter dish machines-low temp</td>
<td>elec</td>
</tr>
<tr>
<td>Door type dish machine- high temp</td>
<td>elec</td>
</tr>
<tr>
<td>Door type dish machine- low temp</td>
<td>elec</td>
</tr>
<tr>
<td>Appliance Type</td>
<td>Power Source</td>
</tr>
<tr>
<td>---------------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Single tank rack conveyor dish machine- high temp</td>
<td>elec</td>
</tr>
<tr>
<td>Single tank rack conveyor dish machine- low temp</td>
<td>elec</td>
</tr>
<tr>
<td>Multi-tank rack conveyor dish machine- high temp</td>
<td>elec</td>
</tr>
<tr>
<td>Multi-tank rack conveyor dish machine- low temp</td>
<td>elec</td>
</tr>
<tr>
<td>Ice machine [ice making head] IMH H&lt;450 lb/day</td>
<td>elec</td>
</tr>
<tr>
<td>Ice machine [ice making head] IMH H ≥ 450 lb/day</td>
<td>elec</td>
</tr>
<tr>
<td>Ice machine [w/o remote compressor] H&lt; 1000 lb/day</td>
<td>elec</td>
</tr>
<tr>
<td>Ice machine [w/o remote compressor] H ≥ 1000 lb/day</td>
<td>elec</td>
</tr>
<tr>
<td>Ice machine [w remote compressor] H&lt; 934 lb/day</td>
<td>elec</td>
</tr>
<tr>
<td>Ice machine [w remote compressor] H ≥ 934 lb/day</td>
<td>elec</td>
</tr>
<tr>
<td>Ice machine self-contained unit H&lt; 175 lb/day</td>
<td>elec</td>
</tr>
<tr>
<td>Ice machine contained unit H≥ 175 lb/day</td>
<td>elec</td>
</tr>
<tr>
<td>Ice machine water cooled IMH H&lt;500 lb/day [note: must be on a chilled loop]</td>
<td>elec</td>
</tr>
<tr>
<td>Ice machine water cooled IMH H≥ 500lb/day &lt;1436 lb/day [note: must be on a chilled loop]</td>
<td>elec</td>
</tr>
<tr>
<td>Ice machine water cooled IMH H≥ 1436 lb/day [note: must be on a chilled loop]</td>
<td>elec</td>
</tr>
<tr>
<td>Ice machine water cooled SCU H&lt;200 lb/day [note: must be on a chilled loop]</td>
<td>elec</td>
</tr>
<tr>
<td>Ice machine water cooled SCU H≥200 lb/day [note: must be on a chilled loop]</td>
<td>elec</td>
</tr>
<tr>
<td>Ice machine water cooled once-through [open loop]</td>
<td>BANNED</td>
</tr>
<tr>
<td>Griddles</td>
<td>elec</td>
</tr>
<tr>
<td>Range</td>
<td>elec</td>
</tr>
<tr>
<td>Convection ovens [full size]</td>
<td>elec</td>
</tr>
<tr>
<td>Combination ovens [countertop or island]</td>
<td>elec</td>
</tr>
<tr>
<td>Combination ovens [roll-in]</td>
<td>elec</td>
</tr>
<tr>
<td>Appliance Type</td>
<td>Power Source</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Bread toaster [light duty] elec</td>
<td></td>
</tr>
<tr>
<td>Pre-rinse spray valves n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Kitchen exhaust hood n/a</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Fryers gas</td>
<td>gas</td>
</tr>
<tr>
<td>Large vat fryers gas</td>
<td>gas</td>
</tr>
<tr>
<td>Steam cooker- bach coating gas</td>
<td>gas</td>
</tr>
<tr>
<td>Steam cooker- high production/ cook to order gas</td>
<td>gas</td>
</tr>
<tr>
<td>Griddles gas</td>
<td>gas</td>
</tr>
<tr>
<td>Convection ovens [full size] gas</td>
<td>gas</td>
</tr>
<tr>
<td>Combination ovens gas</td>
<td>gas</td>
</tr>
<tr>
<td>Combination ovens gas</td>
<td>gas</td>
</tr>
<tr>
<td>Rack ovens- single gas</td>
<td>gas</td>
</tr>
<tr>
<td>Rack ovens- double gas</td>
<td>gas</td>
</tr>
<tr>
<td>Broiler [underfired] gas</td>
<td>gas</td>
</tr>
<tr>
<td>Conveyor oven [small = &lt; 25 inch bell]</td>
<td>gas</td>
</tr>
<tr>
<td>Conveyor oven [large = &gt; 25 inch bell]</td>
<td>gas</td>
</tr>
<tr>
<td>Clothes washer</td>
<td></td>
</tr>
</tbody>
</table>

*Based on 15 inch fryer
**AV = adjusted volume = (1.63 x freezer volume) + refrigerator volume

**SUBMITTALS**

Include descriptive narrative and calculations in the SAM Checklist.
TECHNOLOGY/STRATEGY

For some occupants, regulated loads will represent the primary energy use. For others, process loads will be the biggest energy use. In either case, look at the equipment and systems that use energy and identify strategies to reduce energy use. Consider first cost, maintenance, replacement costs, and any potential benefit or detriment to staff or customers when selecting strategies. Design the terminal occupant space and systems to maximize energy performance. Use a computer simulation model to assess energy performance and identify the most cost-effective energy efficiency measures. Quantify energy performance compared with the baseline benchmark. Install energy efficient equipment, such as retail display lighting, dishwashers and enclosed refrigerator cases. Utilize heat recovery and heat rejection strategies. Work with equipment manufacturers to improve energy efficiency, particularly for volume build applications. Small independent tenants can use historic utility bills from similar stores, generic retail energy data, and data from their local utility or computer modeling. Regardless of the methodology used by any entity in setting their energy budget, the credit narrative should include a description of the methodology used and assumptions made.

Standard Practice


Recommended Practice

- Use a computer simulation model to assess energy performance and identify the most cost effective energy measures
- Provide high-efficiency motors and variable-speed pumping systems
- Provide energy efficient lighting systems including LED, fluorescent lighting, solar lighting and the use of lighting sensors or timers
- Organize circuiting of lighting and space systems so that individual areas may be separately controlled relative to daylight and heating/cooling zones
- Optimize architectural features for daylighting and glare control. Consider light shelves, ceiling design, window placement, and window treatments
- Provide motion sensors in stairs, toilet rooms, storage rooms and equipment rooms unless life safety is compromised
- Provide ENERGY STAR compliant equipment and appliances
- Use LED lighting, wherever applicable
- Optimize lighting controls for energy savings and function
- Provide daylight harvesting control systems
- Use high performance glazing (double glazed, low-e) and window systems
- Utilize high efficiency motors, generators and pumps where applicable
Best Available Practice

- Consider the following for terminal occupant spaces:
  - Use spectrally selective glazing
  - Evaluate underfloor air distribution systems in office-type spaces
  - Evaluate “green walls” for use
    Utilize premium efficiency motors where applicable
4.0 MATERIALS & RESOURCES

4.1 Prerequisite 1 – Storage and Collection of Recyclables

Required

INTENT

Facilitate the reduction of waste generated by terminal occupants that is hauled to and disposed of in landfills.

REQUIREMENTS

Provide an easily accessible dedicated area or areas that serve the space for the collection and storage of materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics and metals. An area should also be dedicated to collection and storage of compostable food waste.

SUBMITTALS

Include descriptive narrative in the SAM Checklist.

TECHNOLOGY/STRATEGY

Designate an area for recyclable collection and storage that is appropriately sized and located in a convenient area. These areas would likely be designed and sized differently depending on the ultimate use and waste stream of the facility (e.g. office, airlines, concessionaires, etc.) Identify local waste handlers and buyers for glass, plastic, office paper, e-waste, newspaper, cardboard, metals, fluids, fixtures, and organic wastes. Instruct employees, occupants, and contractors on the recycling procedures. Consider employing cardboard balers, aluminum can crushers, recycling chutes and other waste strategies to further enhance the recycling program.

Standard Practice

- Investigate and incorporate collection rooms for recycling streams that make sense for each terminal occupant’s space
- Designate an area for recyclable collection and storage that is appropriately sized and located in a convenient area

Recommended Practice

- Coordinate recyclable waste collection with hauler capability
- Recycle the following waste, whenever feasible:
  - Aluminum
  - Glass
- Paper, newspapers, magazines and cardboard
- Carpet
- Wood (pallets/crates, etc.)
- Food waste/grease and compostables
- Organic waste and compostables
- Gas & oil filters
- Motor oil and Anti-freeze
- Scrap metal
- Batteries
- Light bulbs
- Toner cartridges
- Tires
- Electrical wiring
- Electronics including monitors
- Deicing fluid
- “Foreign Object Debris” (FOD)

- Instruct employees, users and occupants on recycling procedures

**Best Available Practice**

- Employ cardboard balers, aluminum can crushers, recycling chutes and other technologies to enhance the recycling program
4.0 MATERIALS & RESOURCES

4.2 Construction Waste Management

1 to 3 Points

INTENT

Divert construction and demolition debris from disposal in landfills and incineration facilities. Redirect recyclable recovered resources back to the manufacturing process and reusable materials to appropriate sites.

REQUIREMENTS

Recycle and/or salvage nonhazardous construction and demolition debris. Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site. Calculations must be done by weight (conversion may be necessary) and must be consistent throughout. The minimum percentage debris to be recycled or salvaged for each point threshold is as follows:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Recycled or Salvaged</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.2.1</td>
<td>50%</td>
<td>1</td>
</tr>
<tr>
<td>4.2.2</td>
<td>75%</td>
<td>2</td>
</tr>
<tr>
<td>4.2.3</td>
<td>100%</td>
<td>3</td>
</tr>
</tbody>
</table>

Section 11-4-1905 of the Chicago City Code, includes applicability requirements. For CDA purposes, all airport projects are applicable regardless of Section 11-4-1905.

SUBMITTALS

Include descriptive narrative on the SAM Checklist indicating the name of the project that will utilize the material, if other than current project or temporary storage locations, and the following:

- A design estimate using the construction waste management form in CDA Specification 01524 – Construction Waste Management, to be provided by the designer with the SAM Design Checklist.
- A Waste Management Plan as outlined in CDA Specification 01524 to be provided by the Contractor no later than 30 days prior to start of construction.
- Monthly construction waste management forms provided by the Contractor during construction.
- A final construction waste total provided by the Contractor prior to final payment.
The submittal requirements follow the City of Chicago waste ordinance (Chicago Code Section 11-4-1905) with the following exceptions:

- All airport projects, including those not subject to Section 11-4-1905 of the Chicago Code, shall be subject to the submittal requirements of this credit
- Submit documentation to CDA for tracking purposes in addition to documentation required by the ordinance

Note that the requirements of this credit are very similar to the Chicago construction waste ordinance and CDA Specification 01524 with the exceptions as noted above. The specification follows the City ordinance with additional provisions for submittal requirements and project applicability.

TECHNOLOGY/STRATEGY

Note that the City of Chicago waste ordinance mandates that a minimum of 50% of construction and demolition (C&D) waste produced on-site (as measured by weight) is recycled.

It is expected that these practices may lead to savings in material costs due to resource coordination and income generation from recycled/salvaged materials.

Standard Practice

- Utilize designated areas for recycling construction debris on-site

Recommended Practice

- Establish goals for diversion from disposal in landfills and incineration facilities and adopt a construction waste management plan to achieve these goals
- Consider recycling cardboard, metal, brick, mineral fiber panel, concrete, plastic, wood, glass, gypsum wallboard, carpet and insulation
- Construction debris processed into a recycled content commodity that has an open market value (e.g., wood derived fuel [WDF], alternative daily cover material, etc.) may be applied to the construction waste calculation
- Designate a specific area(s) on the construction site for segregated collection and labeling of recyclable materials, and track recycling efforts throughout construction
- Identify construction haulers and recyclers to handle the designated materials. Note that diversion may include donation of materials to charitable organizations and salvage of materials on-site
- Implement deconstruction planning and techniques into all demolition activities. Careful and planned deconstruction of a facility can provide sustainable benefits related to disposal, reuse of materials, etc.
- Ensure that employees are aware of waste management and recycling procedures
Best Available Practice

- Evaluate use, as appropriate, of pre-cast or pre-fabricated units whenever possible, to reduce on-site waste generation during construction
4.0 MATERIALS & RESOURCES

4.3 Material Reuse

1 to 3 Points

INTENT

Reuse building materials and products to reduce demand for virgin materials and reduce waste, thereby lessening impacts associated with the extraction and processing of virgin resources.

REQUIREMENTS

Use salvaged, refurbished or reused materials, the sum of which constitutes at least 5% or 10%, based on cost, of the total value of materials on the project. The minimum percentage materials reused for each point threshold is as follows:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Reused Materials</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.3.1</td>
<td>5%</td>
<td>1</td>
</tr>
<tr>
<td>4.3.2</td>
<td>10%</td>
<td>2</td>
</tr>
<tr>
<td>4.3.3</td>
<td>20%</td>
<td>3</td>
</tr>
</tbody>
</table>

Only include materials in Construction Specification Institute (CSI) MasterFormat 1995 Divisions 2-10 in the calculations.

Mechanical, electrical and plumbing components and specialty items such as elevators and equipment cannot be included in this calculation. Include only materials permanently installed in the project. Furniture may be included if it is included consistently in SAM Credit 4.3 Materials Reuse through SAM Credit 4.7 Certified Wood. For terminal tenant spaces, do not include the existing shell of the space, i.e. walls, floor, ceiling, if not included in original project scope of work.

SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist.

Indicate the name of the project that will utilize the material, if other than current project and temporary storage locations if known.

TECHNOLOGY/STRATEGY

Identify opportunities to incorporate salvaged materials into the space design, and research potential material suppliers. Consider salvaged materials such as beams and posts, flooring, paneling, doors
and frames, masonry, and metal railing (CSI Divisions 2 through 10, note: CSI Divisions 11 through 16 are counted in SAM Credit 4.9 – Equipment Salvage and Reuse).

Use a “virtual warehouse” to maintain a current listing of materials available for reuse on other projects.

**Standard Practice**

- Prior to the demolition and removal of existing materials and equipment within a project area, notify the Chicago Department of Aviation to allow for the harvesting of used materials and equipment for potential reuse

**Recommended Practice**

None

**Best Available Practice**

None
4.0 MATERIALS & RESOURCES

4.4 Recycled Content

1 to 2 Points

INTENT

Increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

REQUIREMENTS

Use materials with recycled content such that the sum of post-consumer recycled content plus 1/2 of the pre-consumer content constitutes at least 10% or 20%, based on cost, of the total value of the materials in the project. The minimum percentage materials recycled for each point threshold is as follows:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Recycled Content</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4.1</td>
<td>10%</td>
<td>1</td>
</tr>
<tr>
<td>4.4.2</td>
<td>20%</td>
<td>2</td>
</tr>
</tbody>
</table>

The recycled content value of a material assembly is determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value. If specific material cost is not available, assume 45% of total cost (inclusive of materials, labor and equipment) is representative of the material cost.

Only include materials in CSI MasterFormat 1995 Divisions 2-10 in the calculations.

Mechanical, electrical and plumbing components and specialty items such as elevators cannot be included in this calculation. Include only materials permanently installed in the project. Furniture may be included if it is included consistently in SAM Credit 4.3 Materials Reuse through SAM Credit 4.8 Furniture and Equipment.

SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist.

The submittals include the following:

- A design estimate using the recycled content form in CDA Specification 01356 – Recycled Content, to be provided by the designer with the SAM Checklist
• A pre-construction estimate using the recycled content form in CDA Specification 01356 – Recycled Content, to be provided by the contractor
• A final construction estimate using the recycled content form in CDA Specification 01356 – Recycled Content, to be provided by the contractor with the final SAM Checklist

TECHNOLOGY/STRATEGY

Establish a project goal for recycled content materials, and identify material suppliers that can achieve this goal. During construction, ensure that the specified recycled content materials are installed. Consider a range of environmental, economic and performance attributes when selecting products and materials.

Standard Practice

It has become commonplace for manufacturers to provide recycled content of their building materials. If the information does not exist or cannot be obtained, CDA allows the use of the following recycled content percentages as a default for some of the common construction materials:

<table>
<thead>
<tr>
<th>Material</th>
<th>Post-consumer</th>
<th>Pre-consumer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>25%</td>
<td>-</td>
</tr>
<tr>
<td>Copper</td>
<td>65%</td>
<td>-</td>
</tr>
<tr>
<td>Aluminum</td>
<td>80%</td>
<td>-</td>
</tr>
<tr>
<td>Gypsum board (drywall)¹</td>
<td>2%</td>
<td>5%</td>
</tr>
<tr>
<td>Reinforced concrete pipe</td>
<td>2%</td>
<td>-</td>
</tr>
<tr>
<td>Asphaltic paving materials, conventional</td>
<td>45%</td>
<td>45%</td>
</tr>
<tr>
<td>Asphaltic paving materials, with roof shingles</td>
<td>67%</td>
<td>45%</td>
</tr>
</tbody>
</table>

Post-consumer Recycled Content is derived from materials that can no longer be used for their original purpose.
Pre-consumer Recycled Content consists of raw material diverted from the waste stream during the manufacturing process.

NOTE: The values in the table above are typically very conservative. For example, depending on the process used to make the steel, the recycled content can be anywhere from 25% to 35% for steel produced in a basic oxygen furnace to almost 100% in an electric arc furnace.⁴ For this reason, the

³ Default values for Post-/Pre-consumer % content based on the following manufacturers’ specs for standard gypsum drywall sourced in Midwestern states: CertainTeed (IA) – 2%/3%; American Gypsum (OK) – 5%/0%; USG (IA) – 6%/1%; USG (IN) – 5%/38%

⁴ Steel Recycling Institute
designers and contractors are encouraged to determine this information directly from the manufacturers and to not rely on these default values whenever possible.

**Recommended Practice**

- Establish a project goal for recycled content materials and identify material suppliers that can achieve this goal.
- Consider the following major building components for specifying maximum recycled content:
  - Wall and partition materials
  - Components of concrete and cement
  - Steel reinforcement
  - Structural steel
  - Miscellaneous steel
  - Steel fencing and furnishings
  - Unit masonry
  - Ductile iron pipe
  - Aluminum products
  - Site generated broken concrete for gabions
  - Railroad rails
  - Railroad ties
  - Railroad track base material
  - Steel doors and frames
  - Aluminum doors and windows
  - Plaster
  - Terrazzo
  - Acoustical ceilings
  - Drywall
  - Finish flooring including carpet, resilient flooring and terrazzo
  - Toilet and shower compartments
  - Special finishes
- During construction, ensure that the specified recycled content materials are installed and quantify the total percentage of recycled content materials installed.

Additionally, the following websites are provided for guidance only:
U.S. General Services Administration - Environmental Products Overview
http://www.gsa.gov/portal/content/104543

Architectural Record – Green Product Guide
www.archrecord.construction.com/products/green/
Best Available Practice

- Encourage aggressive use of permeable pavement with high recycled content, where applicable, such as recycled ground tire rubber (GTR) for permeable asphalt.
4.0 MATERIALS & RESOURCES

4.5. Local/Regional Materials

1 to 3 Points

INTENT

Increase demand for building and all other materials and products that are extracted, harvested or recovered, as well as manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.

REQUIREMENTS

Use building and all other materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% or 20% (based on cost) of the total materials value. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value. An additional point can be achieved if 50% of the materials are extracted/harvested/recovered, as well as manufactured, within 250 miles of the project site. The minimum percentage of local/regional materials for each point threshold is as follows:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Local/Regional Materials</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5.1</td>
<td>10%</td>
<td>1</td>
</tr>
<tr>
<td>4.5.2</td>
<td>20%</td>
<td>2</td>
</tr>
<tr>
<td>4.5.3</td>
<td>50% within 250 miles</td>
<td>3</td>
</tr>
</tbody>
</table>

If specific material cost is not available, assume 45% of total cost (inclusive of materials, labor and equipment) is representative of the material cost.

Only include materials in CSI MasterFormat 1995 Divisions 2-10 in the calculations.

Mechanical, electrical and plumbing components and specialty items such as elevators and FAA equipment shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included if it is included consistently in SAM Credit 4.3 Materials Reuse through SAM Credit 4.8 Furniture and Equipment.

NOTE: Materials reused and salvaged that satisfy the requirements of SAM Credit 4.3 may also contribute to this credit.
SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist.

The submittals include the following:

- A design estimate using the recycled content form in CDA Specification 01355 – Regional Materials, to be provided by the designer with the SAM Checklist
- A pre-construction estimate using the recycled content form in CDA Specification 01355 – Regional Materials, to be provided by the contractor
- A final construction estimate using the recycled content form in CDA Specification 01355 – Regional Materials, to be provided by the contractor with the final SAM Checklist

TECHNOLOGY/STRATEGY

Establish a project goal for locally sourced materials, and identify materials and material suppliers that can achieve this goal. During construction, ensure that the specified local materials are installed and quantify the total percentage of local materials installed. Consider a range of environmental, economic and performance attributes when selecting products and materials.

Standard Practice

- The central location of Chicago makes many materials readily available

Recommended Practice

- Identify and specify materials that are extracted, processed, or manufactured within 500 miles of Chicago. Materials that may contribute toward this goal include but are not limited to: concrete, aggregate, asphaltic products, structural steel, masonry, gypsum wallboard, utility structures, gas and water piping. Note that piping used indoors for building systems should not be included. Reused and salvaged materials also qualify.

Best Available Practice

None
4.0 MATERIALS & RESOURCES

4.6 Rapidly Renewable Materials

1 Point

INTENT

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

REQUIREMENTS

Use rapidly renewable building materials and products for 2.5% of the total value of all building materials and products used in the project, based on cost. Rapidly renewable building materials and products are made from plants that are typically harvested within a ten-year or shorter cycle.

Only include materials in CSI MasterFormat 1995 Divisions 2-10 in the calculations. Only permanently installed materials should be counted in this credit. Temporary construction materials are counted in SAM Credit 6.3 Sustainable Temporary Construction Materials.

SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist.

TECHNOLOGY/STRATEGY

- Establish a project goal for rapidly renewable materials and identify products and suppliers that can support achievement of this goal. Consider materials such as bamboo, cotton insulation, agrifiber, linoleum, wheatboard, strawboard and cork. Although not a plant material, also consider wool.

Standard Practice

None

Recommended Practice

- Identify materials and suppliers that can achieve this goal
- Consider materials such as:
  o Poplar OSB
  o Straw board or “agriboard”
  o Bamboo flooring
  o Cork
o Wool carpets and fabrics
o Cotton-batt insulation
o Linoleum flooring
o Sunflower seed board
o Wheat grass or Straw board cabinetry and others.
o Rice husks for concrete

Best Available Practice

None
4.0 MATERIALS & RESOURCES

4.7 Certified Wood

1 Point

INTENT

Encourage environmentally responsible forest management.

REQUIREMENTS

Use a minimum of 50% (based on cost) of wood-based materials and products, which are certified in accordance with the Forest Stewardship Council’s principles and criteria, for wood building components. These components include, but are not limited to, structural framing and general dimensional framing, flooring, sub-flooring, wood doors and finishes. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in activities concerning SAM Credit 4.8 Furniture and Equipment.

Only permanently installed materials should be counted in this credit. Sustainable temporary construction materials are counted in SAM Credit 6.3 Sustainable Temporary Construction Materials. Furniture may be included if it is included consistently in SAM Credit 4.3 Materials Reuse through SAM Credit 4.8 Furniture and Equipment.

SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist.

TECHNOLOGY/STRATEGY

Establish a project goal for FSC-certified wood products and identify suppliers that can achieve this goal. During construction, ensure that the FSC-certified wood products are installed and quantify the total percentage of FSC-certified wood products installed.

Standard Practice

None

Recommended Practice

- Identify suppliers that can achieve this goal during construction
- Ensure that the FSC-certified wood products are installed and quantify the total percentage of FSC-certified wood products installed
Best Available Practice

None
4.0 MATERIALS & RESOURCES

4.8 Furniture and Equipment

1 Point

INTENT

Reduce the environmental and indoor air quality impacts of the furniture and equipment acquired for use in terminal space.

REQUIREMENTS

- Electric-Powered Equipment: Examples include, but are not limited to, office equipment (computers, monitors, copiers, faxes, scanners, and printers), appliances (refrigerators, dishwashers, and water coolers), external power adapters, and televisions and other audiovisual equipment. To achieve a point, 40% of the total purchases of electric-powered equipment (by cost) meet one of the following criteria:
  - The equipment is ENERGY STAR labeled (for product categories with developed specifications)
  - The equipment (either battery or corded) replaces conventional gas-powered equipment. Examples include, but are not limited to, maintenance equipment and vehicles, landscaping equipment and cleaning equipment.

- Furniture: To achieve a point, 40% of the total purchases of furniture (by cost) meet one of the following criteria:
  - Purchased furniture contains at least 10% post-consumer or 20% pre-consumer material
  - Purchased furniture contains at least 70% material salvaged from off-site sources or outside the airport boundary
  - Purchased furniture contains at least 70% material salvaged from on-site sources, such as an equipment reuse program or internal reorganization
  - Purchased furniture contains at least 50% rapidly renewable material
  - Purchased furniture contains at least 50% FSC-certified wood
  - Purchased furniture contains at least 50% material harvested and processed or extracted and processed within 500 miles of the project
Each furniture purchase can receive credit for each sustainable criterion met (i.e., a $100 purchase that contains both 10% post-consumer recycled content and 50% content harvested within 500 miles of the project counts twice in the calculation, for a total of $200 in sustainable purchasing.

To avoid double counting, furniture materials and electric equipment loads should not be counted in previous SAM categories, such as SAM Credit 5.8 Local/Regional Materials or Credit 4.4 Optimize Energy.

SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist.

TECHNOLOGY/STRATEGY

Designers are encouraged to specify items that help achieve the requirements of this credit whenever possible. A continuously updated list of ENERGY STAR labeled equipment can be found on www.energystar.gov. Sustainable furniture can be found from various sources. GREENGUARD Environmental Institute certifies products, including furniture. See www.greenguard.org for a listing of GREENGUARD certified furniture.

Standard Practice

None

Recommended Practice

- Specify ENERGY STAR electric equipment and/or sustainable furniture systems, such as GREENGUARD certified furniture

Best Available Practice

None
4.0 MATERIALS & RESOURCES

4.9 Equipment Salvage and Reuse

1 Point

INTENT

Promote the reuse of equipment and products to reduce demand for virgin materials and reduce waste, thereby lessening impacts associated with the extraction and processing of virgin resources.

REQUIREMENTS

Use salvaged, refurbished or reused equipment and materials, in any appreciable amount on the project OR make available for reuse equipment and materials for other projects.

Mechanical, electrical, plumbing components, and specialty items such as pumps and equipment (CSI Divisions 11 through 16, note: CSI Divisions 2 through 10 are counted in SAM Credit 4.3 Material Reuse) can be included. Include only materials permanently installed in the project. Furniture may be included if it is included consistently in SAM Credit 4.3 Material Reuse through SAM Credit 4.7 Certified Wood.

SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist.

Indicate the name of the project that will utilize the material, if other than current project or temporary storage locations.

TECHNOLOGY/STRATEGY

The purpose of this credit is to recognize the reuse of items not covered by SAM Credit 4.3 Material Reuse.

Identify opportunities to incorporate salvaged materials into the design, and research potential material suppliers. Consider salvaged materials such as cabinetry and furniture, pumps, motors, electrical panels, fixtures and tanks.

Explore and encourage the development of a virtual warehouse for salvaged and reusable items.

Standard Practice

None
Recommended Practice

- In the process of demolition, reuse or make available mechanical, electrical, and plumbing components

Best Available Practice

None
5.0 INDOOR ENVIRONMENTAL QUALITY

5.1.1 Low-Emitting Materials: Adhesives and Sealants

1 Point

INTENT

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

REQUIREMENTS

All adhesives and sealants used within the terminal occupant space (i.e., inside of the weatherproofing system and applied on-site) must comply with the following requirements as applicable to the project scope:

- Adhesives, Sealants and Sealant Primers: South Coast Air Quality Management District (SCAQMD) Rule #1168. VOC limits are listed in the table below and correspond to an effective date of July 1, 2005 and rule amendment date of January 7, 2005.

<table>
<thead>
<tr>
<th>Architectural Applications</th>
<th>VOC Limit [g/L less water]</th>
<th>Specialty Applications</th>
<th>VOC Limit [g/L less water]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor Carpet Adhesives</td>
<td>50</td>
<td>PVC Welding</td>
<td>510</td>
</tr>
<tr>
<td>Carpet Pad Adhesives</td>
<td>50</td>
<td>CPVC Welding</td>
<td>490</td>
</tr>
<tr>
<td>Wood Flooring Adhesives</td>
<td>100</td>
<td>ABS Welding</td>
<td>325</td>
</tr>
<tr>
<td>Rubber Floor Adhesives</td>
<td>60</td>
<td>Plastic Cement Welding</td>
<td>250</td>
</tr>
<tr>
<td>Subfloor Adhesives</td>
<td>50</td>
<td>Adhesive Primer for Plastic</td>
<td>550</td>
</tr>
<tr>
<td>Ceramic Tile Adhesives</td>
<td>65</td>
<td>Contact Adhesives</td>
<td>80</td>
</tr>
<tr>
<td>VCT &amp; Asphalt Adhesives</td>
<td>50</td>
<td>Special Purpose Contact Adhesive</td>
<td>250</td>
</tr>
<tr>
<td>Drywall &amp; Panel Adhesives</td>
<td>50</td>
<td>Structural Wood Member Adhesive</td>
<td>140</td>
</tr>
<tr>
<td>Cove Base Adhesives</td>
<td>50</td>
<td>Sheet Applied Rubber Lining Operations</td>
<td>850</td>
</tr>
<tr>
<td>Multipurpose Construction Adhesives</td>
<td>70</td>
<td>Top &amp; Trim Adhesive</td>
<td>250</td>
</tr>
<tr>
<td>Structural Glazing Adhesives</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substrate Specific Applications</th>
<th>VOC Limit [g/L less water]</th>
<th>Sealants VOC Limit</th>
<th>VOC Limit [g/L less water]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal to Metal</td>
<td>30</td>
<td>Architectural</td>
<td>250</td>
</tr>
<tr>
<td>Plastic Foams</td>
<td>50</td>
<td>Nonmembrane Roof</td>
<td>300</td>
</tr>
<tr>
<td>Porous Material (except wood)</td>
<td>50</td>
<td>Roadway</td>
<td>250</td>
</tr>
<tr>
<td>Wood</td>
<td>30</td>
<td>Single-Ply Roof Membrane</td>
<td>450</td>
</tr>
<tr>
<td>Fiberglass</td>
<td>80</td>
<td>Other</td>
<td>420</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sealant Primers</th>
<th>VOC Limit [g/L less water]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural Non Porous</td>
<td>250</td>
</tr>
<tr>
<td>Architectural Porous</td>
<td>775</td>
</tr>
<tr>
<td>Other</td>
<td>750</td>
</tr>
</tbody>
</table>
### Aerosol Adhesives:

<table>
<thead>
<tr>
<th>Description</th>
<th>VOC weight [g/L minus water]</th>
</tr>
</thead>
<tbody>
<tr>
<td>General purpose mist spray</td>
<td>65% VOCs by weight</td>
</tr>
<tr>
<td>General purpose web spray</td>
<td>55% VOCs by weight</td>
</tr>
<tr>
<td>Special purpose aerosol adhesives (all types)</td>
<td>70% VOCs by weight</td>
</tr>
</tbody>
</table>

### TECHNOCOLGY/STRATEGY

Specify low-VOC materials in construction documents. Ensure that VOC limits are clearly stated in each section of the specifications where adhesives and sealants are addressed. Common products to evaluate include: general construction adhesives, flooring adhesives, fire-stopping sealants, caulking, duct sealants, plumbing adhesives, and cove base adhesives. Review product cut sheets, material safety data sheets (MSDS), signed attestations or other official literature from the manufacturer clearly identifying the VOC contents or compliance with referenced standards.

### Standard Practice

- Low-VOC materials are becoming more common in the market place

### Recommended Practice

- Specify Low-VOC adhesives and sealants
- Consider the use of air scrubbers during the installation and curing of adhesives and sealers when used inside the passenger terminal or other public spaces

### Best Available Practice

- Specify that all shop finished material meet the VOC emission requirements. Materials to consider are:
  - Primed steel
  - Finished metals including aluminum
  - Finished millwork
  - Finished steel and wood doors and windows
5.0 INDOOR ENVIRONMENTAL QUALITY

5.1.2 Low-Emitting Materials: Paints and Coatings

1 Point

INTENT

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

REQUIREMENTS

Paints and coatings used within the terminal occupant space (i.e., inside of the weatherproofing system and applied on-site) must comply with the following criteria as applicable to the project scope:

  - Flats: 50 g/L
  - Non-Flats: 150 g/L
- Clear wood finishes, floor coatings, stains, and shellacs applied to interior elements must not exceed the VOC content limits established in South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, rules in effect on January 1, 2004.
  - Clear wood finishes: varnish 350 g/L; lacquer 550 g/L
  - Floor coatings: 100 g/L
  - Sealers: waterproofing sealers 250 g/L; sanding sealers 275 g/L; all other sealers 200 g/L
  - Shellacs: Clear 730 g/L; pigmented 550 g/L
  - Stains: 250 g/L

SUBMITTALS

Include descriptive narrative in the SAM Checklist.
TECHNOLOGY/STRATEGY

Specify low-VOC paints and coatings in construction documents. Ensure that VOC limits are clearly stated in each section of the specifications where paints and coatings are addressed. Track the VOC content of all interior paints and coatings during construction.

Standard Practice

None

Recommended Practice

- Specify Low-VOC field applied paints and coating
- Consider the use of air scrubbers during the installation and curing of paints and coatings when used inside the terminal or other public spaces

Best Available Practice

- Specify that all shop finished material meet the VOC emission requirements. Materials to consider are:
  - Primed steel
  - Finished metals including aluminum
  - Finished millwork
  - Finished steel and wood doors and windows
5.0 INDOOR ENVIRONMENTAL QUALITY

5.1.3 Low-Emitting Materials: Flooring Systems

1 Point

INTENT

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

REQUIREMENTS

All flooring must comply with the following as applicable to the project scope:

- All carpet installed in the building interior shall meet the testing and product requirements of the Carpet and Rug Institute’s Green Label Plus program
- All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program
- All carpet adhesive shall meet the requirements of SAM Credit 6.6.1 Low-Emitting Materials: Adhesives and Sealants: VOC limit of 50 g/L
- All of the hard surface flooring must be certified as compliant with the FloorScore® standard (current as of the date of this Rating System, or more stringent version) by an independent third party. Flooring products covered by FloorScore® include vinyl, linoleum, laminate flooring, wood flooring, ceramic flooring, rubber flooring, wall base, and associated sundries.
- An alternative compliance path using FloorScore® is acceptable for credit achievement according to the following stipulations. 100% of the non-carpet finished flooring must be FloorScore® certified, and it must comprise, at minimum, at least 25% of the finished floor area. Potential examples of unfinished flooring include floors in mechanical rooms, electrical rooms, and elevator service rooms.
- Concrete, wood, bamboo, and cork floor finishes such as sealer, stain and finish must meet the requirements of South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, rules in effect on January 1, 2004. VOC limits are listed below:
  - Clear wood finishes: varnish 350 g/L; lacquer 550 g/L
  - Floor coatings: 100 g/L
  - Sealers: waterproofing sealers 250 g/L; sanding sealers 275 g/L; all other sealers 200 g/L
  - Shellacs: Clear 730 g/L; pigmented 550 g/L
Stains: 250 g/L

- Tile setting adhesives and grout must meet South Coast Air Quality Management District (SCAQMD) Rule #1168. VOC limits are listed below and correspond to an effective date of July 1, 2005 and rule amendment date of January 7, 2005.
  - Ceramic tile adhesive: 65 g/L
  - Grout and mortar: 250 g/L

- All flooring products will meet the testing and product requirements of the California Department of Health Services Standard Practice for The Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda.

**SUBMITTALS**

Include descriptive narrative in SAM Checklist.

**TECHNOLOGY/STRATEGY**

Clearly specify requirements for product testing and/or certification in the construction documents. Select products that are either certified under the Green Label Plus program or for which testing has been done by qualified independent laboratories in accordance with the appropriate requirements.

The Green Label Plus program for carpets and its associated VOC emission criteria in micrograms per square meter per hour, along with information on testing method and sample collection developed by the Carpet & Rug Institute (CRI) in coordination with California’s Sustainable Building Task Force and the California Department of Health Services (DHS), are described in Section 9, Acceptable Emissions Testing for Carpet, DHS Standard Practice CA/DHS/EHLB/R-174, dated 07/15/04. This document is published as Section 01350 Section 9 [dated 2004] by the Collaborative for High Performance Schools [http://www.chps.net/dev/Drupal/node].

FloorScore® is a voluntary, independent certification program that tests and certifies hard surface flooring and associated products for compliance with criteria adopted in California for indoor air emissions of Volatile Organic Compounds (VOCs) with potential health effects. The program uses a small-scale chamber test protocol and incorporates VOC emissions criteria developed by the California Department of Health Services, which are widely known as Section 1350.

**Standard Practice**

None
Recommended Practice

- Specify Low-VOC carpet systems. Ensure that VOC limits are clearly stated where carpet systems are addressed. Be attentive to carpet installation requirements.
- Consider the use of air scrubbers during the installation and curing of carpet or hard surface floor system adhesives and sealers when used inside the terminal or other public spaces.

Best Available Practice

- Consider the use of air scrubbers during the installation and curing of carpet or hard surface floor system adhesives and sealers when used inside the terminal.
- Specify that all shop finished material meet the VOC emission requirements. Materials to consider are:
  - Primed steel
  - Finished metals including aluminum
  - Finished millwork
5.0 INDOOR ENVIRONMENTAL QUALITY

5.1.4 Low-Emitting Materials: Composite Wood and Agrifiber Products

1 Point

INTENT

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

REQUIREMENTS

Composite wood and agrifiber products used on the interior of the building (defined as inside of the weatherproofing system) shall contain no added urea-formaldehyde resins. Laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies shall contain no added urea-formaldehyde resins.

Composite wood and agrifiber products are defined as: particleboard, medium density fiberboard (MDF), plywood, wheatboard, strawboard, panel substrates and door cores. Materials considered fit-out, furniture, and equipment (FF&E) are not considered base building elements and are not included.

SUBMITTALS

Include descriptive narrative in SAM Checklist.

TECHNOLOGY/STRATEGY

Specify wood and agrifiber products that contain no added urea-formaldehyde resins. Specify laminating adhesives for field and shop applied assemblies that contain no added urea/formaldehyde resins. Review product cut sheets, MSD sheets, signed attestations or other official literature from the manufacturer.

Standard Practice

None

Recommended Practice

- Specify wood and agrifiber products with no added urea-formaldehyde resins.
Best Available Practice

- Specify that all shop finished material meet the VOC emission requirements. Materials to consider are:
  - Primed steel
  - Finished metals including aluminum
  - Finished millwork
  - Finished steel and wood doors and windows
5.0 INDOOR ENVIRONMENTAL QUALITY

5.2 Controllability of Systems: Lighting

1 Point

INTENT

Provide a high level of lighting system control by individual occupants or by specific groups in multi-occupant spaces (e.g. classrooms and conference areas) to promote the productivity, comfort and well-being of occupants.

REQUIREMENTS

Provide individual lighting controls for 90% (minimum) of the terminal occupant space occupants to enable adjustments to suit individual task needs and preferences.

AND

Provide lighting system controls for all shared multi-occupant spaces to enable lighting adjustment that meets group needs and preferences.

SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist.

TECHNOLOGY/STRATEGY

Design the terminal occupant space with occupant controls for lighting. Strategies to consider include lighting controls and task lighting. Integrate lighting systems controllability into the overall lighting design, providing ambient and task lighting while managing the overall energy use of the space.

Standard Practice

None

Recommended Practice

- Use motion-activated lighting
- Design lighting control systems to take advantage of daylight harvesting to reduce artificial lighting when adequate daylight is available
- Design areas to provide a variety of levels of light and sound in different areas simultaneously
- Provide operable windows in areas that are not noise-sensitive, such as cargo buildings
- Provide task lighting or more light switching zones in office areas
Best Available Practice

None
5.0 INDOOR ENVIRONMENTAL QUALITY

5.3 Noise Transmission

1 Point

INTENT

Limit noise levels in noise-sensitive, occupied spaces such as terminals and offices to increase employee productivity and passenger comfort.

REQUIREMENTS

Maintain predicted noise levels in all passenger terminal areas to a Noise Criteria (NC) below 40 and offices and conference rooms below NC30.

OR

Specify exterior glazing with a Sound Transmission Class (STC) of 35 or better per ASTM E413 and ASTM E1332 for all regularly occupied spaces.

SUBMITTALS

Include descriptive narrative in the SAM Checklist and show calculations indicating that NC levels are met in all critical areas or submit product data sheets for exterior glazing meeting the STC requirements.

TECHNOLOGY/STRATEGY

There are a number of design techniques that can influence the acoustical quality of indoor spaces. Generally, these can include improved glazing and partitions or less costly design practices such as terminal occupant space and furniture orientation.

Standard Practice

- Design spaces in such a way as to orient noise sensitive areas away from major noise sources
- Use sound dampening glazing and wall partitions
- Locate copy machines and printers in separate rooms

Recommended Practice

- For office environments, specify acoustical ceiling with an appropriate noise reduction coefficient to meet the requirements of this credit
- Choose cubicle partitions that are at least 5 feet tall to provide a sound barrier to workstation occupants
- Insulate wall cavities for noise sensitive spaces and extension of partition walls to the structural deck

**Best Available Practice**

- Specify laminated glazing to reduce noise transmission for normally occupied spaces
6.0 CONSTRUCTION PRACTICES

6.1. Alternative Transportation During Construction: Low-Emitting & Fuel-Efficient Vehicles, 10%

1 Point

INTENT

Reduce emissions from on-road construction vehicles (e.g., foreman pickups, shuttle buses).

REQUIREMENTS

The contractor must use fuel efficient and low-emitting vehicles for at least 10% of all on-road, contractor-owned construction vehicles that access the project site more than five calendar days per month. To meet this requirement, the vehicles must be listed as SmartWay certified vehicles according to the EPA Green Vehicle Guide. The listing of SmartWay certified vehicles can be found at: https://www.epa.gov/greenvehicles/consider-smartway-vehicle.

SUBMITTALS

For the sustainable construction checklist, the contractor must submit a list of its on-road vehicles and identify those which meet the EPA’s SmartWay certification as described above.

TECHNOLOGY/STRATEGY

<table>
<thead>
<tr>
<th>Year/Vehicle Make/Model (Type)</th>
<th>Engine/Transmission/Fuel</th>
<th>Air Pollution Score</th>
<th>Greenhouse Gas Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008 GMC Canyon Crew Cab (Pick-Up)</td>
<td>5.3L/Auto 2WD/Gasoline</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>2007 Chevrolet Silverado K15 (Pick-Up)</td>
<td>5.3L/Auto 4WD/E85-Gasoline</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>2008 Chevrolet Colorado (Pick-Up)</td>
<td>2.9L/Auto 2WD/Gasoline</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>2010 Ford Ranger (Pick-Up)</td>
<td>2.3L/Auto 2WD/Gasoline</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>2014 Toyota Highlander Hybrid (SUV)</td>
<td>3.5L/Auto 4WD/Gasoline</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>2014 Chevrolet Equinox (SUV)</td>
<td>2.4L/Auto 2WD/E85-Gasoline</td>
<td>6 (E85)</td>
<td>7 (E85)</td>
</tr>
<tr>
<td>2014 GMC Terrain (SUV)</td>
<td>2.4L/Auto 2WD/Gasoline</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>2012 Azure Dynamics Transit Connect Electric (Van)</td>
<td>Electric/Auto/Electricity</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

Each model year, EPA rates every new car, truck, and SUV for greenhouse gas and smog-forming emissions on scales of 1-10. To earn the SmartWay designation, a vehicle must receive a combined score from both scales that is much better than the average vehicle. SmartWay Elite certification is given to only those vehicles that attain the highest scores on both scales. The thresholds for the combined scores needed to achieve a SmartWay certification vary by vehicle model year. The Air Pollution (or Smog) Score is based on the government emission standards for which the vehicle was...
certified to comply with and reflects vehicle tailpipe emissions that contribute to local and regional air pollution, creating problems such as haze, and health issues. The Greenhouse Gas score reflects fuel lifecycle emissions of carbon dioxide (CO2) and other greenhouse gases. A partial list of heavier duty vehicles (pick-ups and SUVs) that meet these requirements are shown below for reference:

**Standard Practice**

- Utilize hybrid and flex fuel vehicles

**Recommended Practice**

- Promote the use of vehicles that meet the requirements above for EPA SmartWay certified vehicles.

**Best Available Practice**

- Operate compressed natural gas (CNG), electric, fuel cell, biodiesel vehicles
6.0 CONSTRUCTION PRACTICES

6.1.2 Alternative Transportation During Construction: Low-Emitting & Fuel-Efficient Vehicles, 50%

1 Point

INTENT
Reduce emissions from on-road construction vehicles.

REQUIREMENTS

The contractor must use fuel efficient and low-emitting vehicles for at least 50% of all on-road, contractor-owned construction vehicles that access the project site more than five calendar days per month. To meet this requirement, the vehicles must be listed as SmartWay certified vehicles according to the EPA Green Vehicle Guide. The listing of SmartWay certified vehicles can be found at: https://www.epa.gov/greenvehicles/consider-smartway-vehicle.

SUBMITTALS

For the sustainable construction checklist, the contractor must submit a list of its on-road vehicles and identify those which meet the EPA’s SmartWay certification as described above.

TECHNOLOGY/STRATEGY

<table>
<thead>
<tr>
<th>Year/Vehicle Make/Model (Type)</th>
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<th>Air Pollution Score</th>
<th>Greenhouse Gas Score</th>
</tr>
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<tbody>
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Each model year, EPA rates every new car, truck, and SUV for greenhouse gas and smog-forming emissions on scales of 1-10. To earn the SmartWay designation, a vehicle must receive a combined score from both scales that is much better than the average vehicle. SmartWay Elite certification is given to only those vehicles that attain the highest scores on both scales. The thresholds for the combined scores needed to achieve a SmartWay certification vary by vehicle model year. The Air Pollution (or Smog) Score is based on the government emission standards for which the vehicle was certified to comply with and reflects vehicle tailpipe emissions that contribute to local and regional air pollution, creating problems such as haze, and health issues. The Greenhouse Gas score reflects fuel
lifecycle emissions of carbon dioxide (CO2) and other greenhouse gases. A partial list of heavier duty vehicles (pick-ups and SUVs) that meet these requirements are shown below for reference:

**Standard Practice**

- Utilize hybrid and flex fuel vehicles

**Recommended Practice**

- Promote the use of vehicles that meet the requirements above for EPA SmartWay certified vehicles.

**Best Available Practice**

- Operate compressed natural gas (CNG), electric, fuel cell, biodiesel vehicles
6.0 CONSTRUCTION PRACTICES

6.2 Construction Noise and Acoustical Quality

1 Point

**INTENT**

Improve the exterior noise quality during construction affecting residential areas or other noise sensitive areas.

**REQUIREMENTS**

Although the City of Chicago has an environmental noise ordinance (Article XXI – Environmental Noise and Vibration Control), it does not apply to construction or demolition work on public improvements authorized by a government body or agency (City Ordinance 11-4-2835).

The requirements of this credit will only apply to noise disturbances that are in the terminal area. Noise disturbances are defined as any sound which is audible at a distance of 600 feet from its source or any sound which generates a sound pressure level in the public way exceeding 70 dB(A) when measured 10 feet from the source (City Ordinance 11-4-2710).

To achieve a point under this credit, the following requirements must be met during construction for those sites that are near noise sensitive areas as defined by the Chicago City Ordinance:

Meet the noise restrictions listed in the Chicago City Ordinance (XXI, Part B) which include, but are not limited to, noise from mechanical stationary sources (11-4-2810), loading and unloading operations (11-4-2830), and construction equipment (11-4-2835) during nighttime hours.

**OR**

Implement a noise abatement or noise mitigation plan that identifies site specific, mechanical, structural or operational measures to reduce noise disturbances in noise sensitive areas adjacent to the project site.

**SUBMITTALS**

Although not required for the sustainable design checklist, indicate noise sensitive areas on plans to aid contractor in determining the best noise mitigation strategies.

For the sustainable construction checklist, the contractor must indicate that the requirements of the Chicago Environmental Noise Ordinance have been met or submit a noise mitigation plan identifying the measures taken to reduce noise disturbances in the affected areas.
TECHNOLOGY/STRATEGY

The primary paragraph related to construction activities is Chicago City Ordinance 11-4-2835 which states that no fuel or electric powered mechanical equipment may be used during the hours of 8:00pm and 8:00am and within 600 feet of a residential area or hospital. The ordinance further states that public improvements authorized by a government agency, like the OMP, are not subject to this ordinance, however, a point will be given under this credit for those projects that choose to comply with the above mentioned ordinance.

There are numerous noise mitigation methods that can be employed some of which are site or equipment specific. The easiest method of noise mitigation is to locate the noise source in an area that is not noise sensitive and to conduct that work during daytime hours, 8:00am to 8:00pm. Where this is not possible, temporary barriers can be erected to mitigate the noise emanating from a source.

For reference, see Commonwealth of Massachusetts, Section 721.560 – Construction Noise Control.

Standard Practice

None

Recommended Practice

None

Best Available Practice

None
6.0 CONSTRUCTION PRACTICES

6.3 Sustainable Temporary Construction Materials

1 Point

INTENT

Reduce the use and depletion of finite raw materials and long-cycle renewable materials by replacing them with high recycled content, rapidly renewable materials and FSC certified wood products for temporary uses during construction.

REQUIREMENTS

Temporary construction materials include, but are not limited to, any materials that are used for construction that are not incorporated into the final development such as formwork, temporary carpentry, and signage. For the purposes of this calculation, only the material cost, excluding labor and equipment, shall be used. In order to meet the requirements of this credit, one of the following requirements must be met:

Using a recycled content calculation similar to SAM Credit 4.4 Recycled Content, determine the percentage of recycled content in the temporary construction materials based on overall temporary construction material cost. To achieve a point in this credit, the overall recycled content of the temporary construction materials must be 30% or greater by cost.

OR

Using a rapidly renewable content calculation similar to SAM Credit 4.6 Rapidly Renewable Materials determine the percentage of the rapidly renewable materials based on overall temporary construction material cost. To achieve a point in this credit, the overall recycled content of the temporary construction materials must be 10% or greater by cost.

OR

Using a certified wood calculation similar to SAM Credit 4.7 Certified Wood, determine the percentage of certified wood materials based on the total wood-based material cost. To achieve a point in this credit, the overall recycled content of the temporary construction materials must be 60% or greater by cost.

Do not count temporary construction materials under any of the credits in Section 4.0 – Materials & Resources.
SUBMITTALS

For the TO Design & Construction Checklist, the contractor must provide a calculation of the actual materials used indicating that at least one of the above requirements was met.

Use calculation templates similar to the SAM Credits in Section 4.0 – Materials & Resources as appropriate.

TECHNOLOGY/STRATEGY

Many temporary construction materials can help achieve the requirements of this credit. Although not tracked by LEED, CDA has added this credit in order to promote the use of such materials during construction, as well as for final development stages of a project.

Standard Practice

- Although many temporary construction materials meet the requirements of this credit, their use is typically not tracked or promoted. The designer is encouraged to specify sustainable materials in construction wherever possible. The contractor is further encouraged to use these types of materials in the cases where they may not be explicitly specified.

Recommended Practice

Materials that may have high recycled content include, but are not limited to:

- Temporary steel structures or materials
- Metal barricades
- Temporary piping (HDPE, ductile iron)
- Steel formwork

Materials that have rapidly renewable materials include, but are not limited to:

- Poplar oriented strand board (OSB) for formwork or temporary carpentry
- Plant-based cladding and insulation materials

FSC certified wood products for temporary construction materials may include:

- Wood formwork
- Temporary wood structures or scaffolding

Best Available Practice

None
7.0 INNOVATION FOR TERMINAL OCCUPANTS – DESIGN & CONSTRUCTION

7.1 – 7.3 Innovation for Design & Construction

1 to 3 Points

INTENT

Provide design teams and projects the opportunity to achieve exceptional performance above the requirements set by the Sustainable Airport Manual Green Airplane Rating System and/or innovative performance not specifically addressed by the Sustainable Airport Manual.

REQUIREMENTS

In writing, identify the intent of the proposed innovation credit, the proposed requirement for compliance, the proposed submittals to demonstrate compliance, and the approach (strategies) that go above and beyond existing credit requirements or that meet the intent of this credit.

Up to three points are available for this credit:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1</td>
<td>1</td>
</tr>
<tr>
<td>7.2</td>
<td>1</td>
</tr>
<tr>
<td>7.3</td>
<td>1</td>
</tr>
</tbody>
</table>

SUBMITTALS

Include descriptive narrative in the SAM Checklist following the criteria in the Requirements section above.

TECHNOLOGY/STRATEGY

Substantially exceed a SAM performance credit such as energy performance or water efficiency and/or apply strategies or measures that demonstrate a comprehensive approach and quantifiable environment and/or health benefits.

Refer to LEED Credit Interpretation Results (CIRs) or the Innovation in the LEED Design Credit Catalog⁵ for potential strategies that may be considered for innovation. Most will pertain to building

⁵ Available at www.usgbc.org.
related innovations; however the SRP will review proposed innovations by the designer or contractor on a case by case basis.
7.0 INNOVATION FOR TERMINAL OCCUPANTS – DESIGN/CONSTRUCTION

7.4 Menu Items (Green Walls, Recycled Content Finishes, Rapidly Renewable Finishes, Instantaneous Hot Water Heating)

1 to 3 Points

INTENT

Promote specific technologies and additional strategies considered to be important to the sustainability of the airport environment.

REQUIREMENTS

A point will be awarded for each of the technologies or strategies listed below that are used on a project up to a maximum of 3 points:

- Green Walls – Use green, vegetated wall systems
- Recycled Content Finishes – Use recycled content materials such as recycled glass for floors, countertops, tabletops, walls, shelves, cabinets, tiles or any areas within the terminal occupant space
- Rapidly Renewable Finishes – Use rapidly renewable materials such as bamboo, strawboard, wheatboard, cork, etc. within the terminal occupant space
- Instantaneous Hot Water Heating – Use demand, tankless, instantaneous water heating technology

SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist. Indicate in the narrative which of the above technologies and strategies are being included in the project and, where applicable, indicate where these items are shown in the drawings or specifications.

TECHNOLOGY/STRATEGY

Choose any of the following:

- Green Walls – Vegetated green wall systems can result in significant air conditioning savings. Green walls fall in to two categories:
  - Green facades: Made up of climbing plants growing directly on a wall
- Living walls: Modular panels often made of steel containers, geotextiles, irrigation systems, growing medium and vegetation

- Recycled Content Finishes – Recycled content finishes use readily recycled materials like glass, marble, stone, etc. that can be obtained locally and don’t require excessive processing like virgin materials

- Rapidly Renewable Finishes – Rapidly renewable finishes are natural, non-petroleum-based building materials (petroleum based materials are non-renewable) that have harvest cycles under 10 years. Such materials include bamboo, straw, cork, natural linoleum products (such as Marmoleum), wool, wheatboard, strawboard, etc.

- Instantaneous Hot Water Heating – Instantaneous hot water heating technology uses include demand, instantaneous, or tankless water heaters. Demand water heaters heat water directly without the use of a storage tank thus avoiding the standby heat losses associated with conventional storage tank water heaters. When a hot water tap is turned on, cold water travels through a pipe into the unit. Either a gas burner or an electric element heats the water as it passes through coiled piping within the unit. As a result, demand water heaters deliver a constant supply of hot water not limited by the volume of a storage tank.
7.0 INNOVATION FOR TERMINAL OCCUPANTS – DESIGN/CONSTRUCTION

7.5 LEED Accredited Professional

1 Point

INTENT

Support and encourage the design integration required by LEED to streamline the application and certification process.

AND

To facilitate the incorporation of sustainable design and construction elements.

REQUIREMENTS

At least one principal participant of the project team shall be LEED accredited (i.e., LEED Green Associate; LEED Accredited Professional).

SUBMITTALS

Identify the LEED accredited individual(s) in the SAM Checklist and submit proof of their LEED certification.

TECHNOLOGY/STRATEGY

Educate the project team members about green building design and construction, the LEED requirements and application process early in the life of the project. Consider assigning integrated design and construction process facilitation to the LEED accredited individual.

Standard Practice

None

Recommended Practice

- The CDA requires that each design consultant and/or design management team include a LEED accredited individual on its staff to oversee the design and assist with construction administration
Best Available Practice

None
7.0 INNOVATION FOR TERMINAL OCCUPANTS – DESIGN/CONSTRUCTION

7.6 LEED Certified Project

1 to 4 Points

INTENT

Promote the incorporation of environmentally sustainable design in building and infrastructure improvements by registering and certifying a project through the LEED certification process and rating system.

REQUIREMENTS

Achieve certification via the LEED Retail Commercial Interior (or other applicable LEED category) process – Certified, Silver, Gold, or Platinum. Up to four points are available for this credit:

<table>
<thead>
<tr>
<th>LEED Certification Level</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified</td>
<td>1</td>
</tr>
<tr>
<td>Silver</td>
<td>2</td>
</tr>
<tr>
<td>Gold</td>
<td>3</td>
</tr>
<tr>
<td>Platinum</td>
<td>4</td>
</tr>
</tbody>
</table>

SUBMITTALS

Include descriptive narrative in the SAM Checklist demonstrating that the project has been registered under LEED during the design process. Provide the LEED submittal documentation and final determination. Indicate what level of LEED certification has been achieved after construction.

TECHNOLOGY/STRATEGY

Educate the project team members about green building design & construction and application of the LEED Rating System early in the life of the project. Consider pursuing LEED for any occupied building project.

Standard Practice

- Projects are encouraged to seek LEED certification, where applicable
Recommended Practice

- Encourage LEED Silver or better rating for Retail Commercial Interior buildings

Best Available Practice

- Encourage LEED Platinum rating for Retail Commercial Interior buildings
NOTE:

Please refer to page TO-5 for introduction and applicability of this section.
8.0 ADMINISTRATIVE POLICY & PROCUREMENT

8.1 Prerequisite 1 – Green Meetings

Required

INTENT

Green meeting practices are intended to guide meeting hosts, planners, and attendees toward more eco-friendly meetings. A few extra efforts to incorporate environmental considerations into planning and conducting meetings will help to minimize the negative impact on the environment and educate all participants regarding sustainable meetings.

Green meeting practices are intended to:

- Conserve resources
- Reduce environmental impacts
- Save money
- Support Chicago’s commitment to environmental stewardship

REQUIREMENTS

Whenever applicable, follow the green meeting practices outlined below, or your existing corporate sustainability policy, whichever is more stringent.

SUBMITTALS

Include descriptive narrative on the SAM Checklist and if following your own corporate sustainability policy, please include with submittal for this section.

TECHNOLOGY/STRATEGY

Meeting Planning

Meeting hosts should consider the following when planning for a meeting:

Reduce the number of copies produced by:

- Sharing meeting materials
- Digitizing materials and distributing presentations via email prior to meetings
- Placing materials on the wall (one large print or presented with projector equipment)
If handouts are needed at the meeting, produce handouts:

- Locally
- Double-sided
- Using high post-consumer recycled content paper

Exhibits and presentation materials:

- Same suggestions as handouts above
- Reuse display boards, utilize both front and back sides
- Use low-emitting materials for exhibit displays
- Recycle cardboard and other packaging materials

For participants not in the building: can they participate by internet/phone?

- Contact the expected meeting participants ahead of time and present them with the option of a video/phone conference via the internet/phone, if appropriate. Costs associated with technical support may still be less than travel/fuel costs in some cases.

What if travel cannot be avoided?

- Can attendees carpool/carshare?
- Provide attendees with mass transit options, such as CTA or Pace Bus, including directions.
- Encourage walking and biking by selecting accessible venues, including directions.
- If overnight stays are involved, suggest hotels nearest the meeting venue that are the most environmentally friendly (www.greenhotels.com). Consider moving the meeting to the hotel if majority of participants are staying at the same hotel, reducing the need for transportation to and from the hotel.

If the meeting is all day or multiple days in a row, how can it be catered in an environmentally friendly way?

- Serve drinks from pitchers, reusable utensils and dishes, and request local produce to cut down on waste when catering for large groups.
- Utilize condiments in bulk dispensers to reduce waste.
- Plan for the pick-up and compost or donation of leftover food to reduce waste.

What if the meeting is held annually?

- Plan for annual meetings at times of the year when temperatures are less extreme to reduce energy consumption due to the use of air conditioning/heat.
Meeting Room

- Use the recycle bins for recyclable items at the end of the meeting.
- Collect reusable business card holders/name tags in a bin after last meeting.
- Collect presentation materials that are not needed by the attendees that can be donated to local schools, reused or recycled.
- Have attendees fill out an online survey allowing for feedback about the meeting and vendors for future reference and improvement.
- Follow up after the meeting with participants to share green success stories and lessons-learned including statistics from the meeting, such as quantities of recycled materials. Also include a summary document that provides details of the green meeting.
- Help to ensure the lights are turned off as attendees leave the meeting room.

Additional details if conducting off-site meetings, such as a conference or workshop...

- Ensure that off-site meeting locations accommodate opportunities for recycling.
- Recycle newspapers, cans, and glass, including those from your guest room, in marked containers in the conference area.
- Participate in the hotel's water, energy, and detergent conservation efforts by following the instructions posted in your room.
- Note the conference's efforts to reduce the use of paper by limiting conference handouts at registration, using folders or handouts printed on high post-consumer recycled content paper, using vegetable-based ink, and encouraging presenters to limit handouts.
- Thank the hotel or off-site location host for providing recycling opportunities, reusable utensils and dishes for breaks, etc.

IMPLEMENTATION

- Make certain that all appropriate recycling bins are located in public meeting areas and conference rooms.
- Develop message boards for conference rooms, meeting areas, and copy/production areas. (see following pages)
- Provide routine reminders of green meeting practices and during annual team meetings.
8.0 ADMINISTRATIVE POLICY & PROCUREMENT

8.2 Prerequisite 2 – Environmental Liaison

Required

INTENT

Facilitate the dissemination of environmental information within the workplace and create a link with CDA staff for environmental issues.

REQUIREMENTS

Designate an employee to serve as the terminal occupant’s environmental liaison. Liaison will be expected to attend any CDA Green Meetings and serve as the primary point of contact during the conduct of SAM reviews.

SUBMITTALS

Include the name and contact information of the terminal occupant liaison in the SAM Checklist as well as a descriptive narrative of any environmental/sustainability training the liaison has received.

TECHNOLOGY/STRATEGY

Standard Practice

- Designate one person in the organization to serve as the environmental liaison. Said liaison will be tasked with reviewing the Sustainable Airport Manual and identifying any credits applicable to the terminal occupant.

Recommended Practice

- The environmental liaison will educate co-workers about the environmental policies of the terminal occupant and integrate them into the terminal occupant’s Environmental Employee Training Program (See SAM Credit 8.6 Establish and Implement Environmental Employee Sustainability Training Program).

Best Available Practice

- Promote and maintain relationships with external organizations, collaborate with other terminal occupants to preserve and enhance the environmental quality of the Airport
8.0 ADMINISTRATIVE POLICY & PROCUREMENT

8.3 Corporate Sustainability Policy

1 Point

INTENT

In keeping with the spirit and intent of this Manual, it is strongly encouraged that companies working in support of CDA on any project establish and adopt their own corporate policy on sustainable practices.

REQUIREMENTS

Establish and adopt a Corporate Sustainability Policy.

SUBMITTALS

Provide an electronic copy or website link to the company’s Corporate Sustainability Policy.

NOTE: If available, please provide an electronic copy of your annual sustainability report documenting any new measures and results.

CASE STUDY

Starbucks Global Social Impact

Starbucks

The corporation has undertaken actions to reduce their environmental impact and share in their customer’s commitment to the environment. An annual environmental stewardship report is produced to highlight the company’s efforts and successes. At the store level, energy and water conservation and other green building strategies are key priorities. Starbucks strives to elevate their partners, customers, suppliers and neighbors to create positive change. This is being accomplished by offering high-quality, ethically purchased and responsibly produced products; investing in paths to opportunity through education, training and employment; minimizing their environmental footprint and inspiring others to do the same; while offering Starbucks as a place for public conversation and elevating civic engagement through service and promoting voter registration.

https://www.starbucks.com/responsibility
8.0 ADMINISTRATIVE POLICY & PROCUREMENT

8.4 Green Procurement Policy

1 to 4 points

INTENT

Reduce the environmental impact of products and services by developing a Green Purchasing Program.

REQUIREMENTS

Refer to the U.S. EPA Greener Products and Services listing at www.epa.gov/greenerproducts/identify-greener-products-and-services for products and their minimum required content levels. Points for this credit will be awarded based on the number of green products, procured for general day-to-day office use. The party completing the checklist should only count green products procured for the local office, as opposed to a global level policy.

Points are awarded as follows*:

<table>
<thead>
<tr>
<th>Number of Green Products Procured</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>1</td>
</tr>
<tr>
<td>3-5</td>
<td>2</td>
</tr>
<tr>
<td>6-11</td>
<td>3</td>
</tr>
<tr>
<td>12+</td>
<td>4</td>
</tr>
</tbody>
</table>

* Green products not listed in above must be approved by the SRP in order to receive points.

Example: An A/E firm responsible for the design of a terminal tenant space office uses, in their own office, bathroom tissue with a recycled content of 30%, paper towels with a recycled content of 10%, disposable cutlery with a biobased content of 100%, and glass cleaners with a biobased content of 35%. Although there are four items that would earn 2 points according to the table above, two of the items do not meet the minimum requirements of the U.S. EPA Greener Products and Services standards. In this case, the correct number of points to be claimed for the two qualified items is 1 point.

SUBMITTALS

Include descriptive narrative in the SAM Checklist of items purchased and used.

NOTE: If available, please provide an electronic copy of your green procurement policy.
TECHNOLOGY/STRATEGY

Introduce environmentally conscious purchasing into company practices. The policy needs to clearly define an objective and establish a sustainability claims verification procedure that can be replicated as necessary. Verification procedures may rely on product certifications such as Green Seal and ENERGY STAR. Evaluate the items that are purchased, identify more environmentally friendly alternatives, and establish a policy to purchase these alternatives when economically feasible. Work with suppliers to identify sustainable products that meet the company’s needs.

Standard Practice

None

Recommended Practice

- Purchase items with the minimum content levels specified in the U.S. EPA Greener Products and Services listing at [www.epa.gov/greenerproducts/identify-greener-products-and-services](http://www.epa.gov/greenerproducts/identify-greener-products-and-services)
- Purchase items in bulk to reduce packaging, transportation impacts and costs
- When using a company-developed policy, the following resources can be used to create a Procurement Policy. Resources include but are not limited to:
  - U.S. Environmental Protection Agency’s Comprehensive Procurement Guidelines (CPG) – The CPG includes an index of products and their recommended recycled content. More information can be found on the associated website: [www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program](http://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program)
  - U.S. Environmental Protection Agency’s Water Sense – The partnership program by promoting water efficiency and enhancing the market for water-efficient products, programs and practices. More information can be found on the associated website: [www.epa.gov/WaterSense/](http://www.epa.gov/WaterSense/)
  - DOE’s Alternative Fuels and Advanced Vehicles Data Center – The data center provides a wide range of information and resources to enable the use of alternative fuels, in addition to other petroleum reduction options such as advanced vehicles, fuel blends, idle reduction and fuel economy. More information can be found on the website: [www.afdc.energy.gov/afdc/](http://www.afdc.energy.gov/afdc/)
  - Fair Trade Products – Purchase fair trade products instead of regular products in order to build equitable and sustainable trading partnerships. Examples of some fair trade products include; coffee, bags, boxes, artwork, chocolate, sugar, etc. More information can be found on the Fair Trade Federation’s website: [www.fairtradefederation.org](http://www.fairtradefederation.org)
  - USDA’s BioPreferred Designated Products – The program aims to increase the purchase and use of renewable, environmentally friendly biobased products while providing “green” jobs and new markets for farmers, manufacturers and vendors. More information can be found on the associated website: [www.biopreferred.gov/BioPreferred/](http://www.biopreferred.gov/BioPreferred/)
Best Available Practice

None

CASE STUDY

Sustainable Purchasing Policy
Vancouver International Airport – Vancouver, British Columbia, Canada

Sustainability is a corporate priority for the Vancouver Airport Authority. One of their goals is to embed sustainability into our purchasing decisions and ensure meaningful consideration of social and environmental criteria when selecting suppliers, products, and services. Their purchasing decisions will drive innovation, improve workplace and environmental outcomes, and support their commitment to be accountable to the communities that they serve. In evaluating suppliers and their subcontractors, the Airport Authority will include sustainability as a weighted component of the evaluation criteria, to address sustainability risks and capitalize on opportunities. In the procurement of goods and services, for both operating and capital spending, their consideration of sustainability gives priority focus to issues pertaining to their four pillars of sustainability; environment, social, economic, and governance.

8.0 ADMINISTRATIVE POLICY & PROCUREMENT

8.5 Recycled Content Paper

1 to 3 points

INTENT

Reduce the need for virgin materials, energy, and waste associated with the production of paper by promoting the use of recycled content paper.

REQUIREMENTS

For all office paper purchased for routine daily business administration and operations, point values will be assigned based on the recycled content of the paper. Up to 3 points are available by using paper with the following attributes:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Post-consumer recycled content</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.5.1</td>
<td>30%</td>
<td>1</td>
</tr>
<tr>
<td>8.5.2</td>
<td>50%</td>
<td>2</td>
</tr>
<tr>
<td>8.5.3</td>
<td>100%</td>
<td>3</td>
</tr>
</tbody>
</table>

Calculate post-consumer recycled content of office paper using a weighted average based on estimated usage. If the paper is chlorine-bleached, for the purposes of the calculation, it shall be assumed that the post-consumer recycled content is 0% regardless of what it actually is.

Example: Annually, an office uses 50 boxes of chlorine-free paper with a post-consumer recycled content of 30%, 50 boxes of chlorine-free paper with a post-consumer recycled content of 90%, and 20 boxes of chlorine-bleached paper with a post-consumer recycled content of 100%. The weighted average of all the paper used is 50% and therefore 2 points would be awarded for this credit. Note that the 20 boxes of chlorine-bleached paper are assumed to have 0% recycled content for the purposes of the calculation.

\[
(50/120)(30%) + (50/120)(90%) + (20/120)(0%) = 50\% \text{ recycled content}
\]

SUBMITTALS

Include descriptive narrative on the SAM Checklist.
TECHNOLOGY/STRATEGY

The purchase and use of recycled paper assist in closing the recycling loop by utilizing paper that is made from recovered waste paper.

This credit is intended to:

- Conserve natural resources
- Save energy
- Reduce environmental impacts
- Reduce pollution
- Reduce paper waste

Standard Practice

None

Recommended Practice

- Whenever applicable, purchase and utilize recycled office paper in daily business administration and operations.

Best Available Practice

None
8.0  ADMINISTRATIVE POLICY & PROCUREMENT

8.6  Establish and Implement Employee Sustainability Training Program

2 Points

INTENT

In keeping with the spirit and intent of this Manual, it is strongly encouraged that companies working in support of CDA on any project establish and adopt their own employee training program.

REQUIREMENTS

Establish and implement an Employee Sustainability Training Program.

SUBMITTALS

Provide an electronic copy of the company’s Employee Sustainability Training Program and provide descriptive narrative on SAM Checklist documenting training sessions and their respective attendance numbers.

TECHNOLOGY/STRATEGY

As part of the Employee Sustainability Training Program a variety of topics should be covered to provide the employees with an overall understanding of the environmental, social and fiscal responsibility that the company has committed to and how they can contribute to the organization meeting their sustainability goals. Through the development of a training program it will allow the company to provide consistent training to all employees and address facility specific issues.

Standard Practice

None

Recommended Practice

- Individual programs can be tailored to meet each company’s specific sustainability goals and can include topics such as:
  - Corporate Sustainability Policy
  - Water Management Plan
  - Waste Reduction
  - Storage and Collection of Recyclables
  - Composting or Re-use Options
  - Managing and Disposing of Waste
  - CDA’s Green Commitment
Best Available Practice

None
8.0 ADMINISTRATIVE POLICY & PROCUREMENT

8.7.1 Alternative Transportation: Public Transportation Access

1 to 3 Points

INTENT

Reduce pollution and land development impacts from automobile use.

REQUIREMENTS

Demonstrate that a percentage of total employees are using public transportation. Points will be awarded as follows:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Percentage of Employees</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.7.1.2</td>
<td>50%</td>
<td>1</td>
</tr>
<tr>
<td>8.7.1.3</td>
<td>75%</td>
<td>2</td>
</tr>
<tr>
<td>8.7.1.4</td>
<td>100%</td>
<td>3</td>
</tr>
</tbody>
</table>

SUBMITTALS

Include descriptive narrative in the SAM Checklist.

TECHNOLOGY/STRATEGY

Perform a transportation survey of employees to identify current usage and encourage knowledge and utilization of mass transit. There are numerous public transportation options in the vicinity of the airport system:

- Chicago Transit Authority (CTA) Blue Line, Orange Line
- Chicago Transit Authority (CTA) Local Bus Routes
- Metra
- Pace Bus Service
- CDA Employee Shuttle bus or ATS in conjunction with any of the above

Standard Practice

None
Recommended Practice

- Supply public transit route information and schedules to employees
- Provide Pre-Tax Deductions from paychecks to cover public transportation needs

Best Available Practice

- Offer incentives to employees to use public transportation, examples may include:
  - Transit pass subsidies
  - Emergency Ride Home Program so that employees are not penalized for not having a vehicle if they or a member of their family needs to leave for an emergency
  - Gift cards or monetary incentives (non-transit related)
8.0 ADMINISTRATIVE POLICY & PROCUREMENT

8.7.2 Alternative Transportation: Low-Emitting and Fuel-Efficient Vehicles

1 to 3 Points

INTENT

Reduce pollution and land development impacts from employees’ personal vehicle use.

REQUIREMENTS

Demonstrate that a percentage of total employees are utilizing low-emitting* and fuel-efficient** vehicles for commuting to work. Points will be awarded as follows:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>% of Employees</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.7.2.1</td>
<td>5%</td>
<td>1</td>
</tr>
<tr>
<td>8.7.2.2</td>
<td>25%</td>
<td>2</td>
</tr>
<tr>
<td>8.7.2.3</td>
<td>50%</td>
<td>3</td>
</tr>
</tbody>
</table>

*Low-emitting vehicles must have an Air Pollution Score or a Greenhouse Gas Score of 6 or greater according to the EPA Green Vehicle Guide.
**Fuel-efficient vehicles are defined as vehicles that have achieved a minimum green score of 40 on the American Council for an Energy Efficient Economy (ACEEE) annual vehicle rating guide.

SUBMITTALS

Include descriptive narrative in the SAM Checklist.

TECHNOLOGY/STRATEGY

Perform a transportation survey of employees to identify current usage.

Each model year, EPA rates every new car, truck, and SUV for greenhouse gas and smog-forming emissions on scales of 1-10. To earn the SmartWay designation, a vehicle must receive a combined score from both scales that is much better than the average vehicle. SmartWay Elite certification is given to only those vehicles that attain the highest scores on both scales. The thresholds for the combined scores needed to achieve a SmartWay certification vary by vehicle model year. The Air Pollution (or Smog) Score is based on the government emission standards for which the vehicle was certified to comply with and reflects vehicle tailpipe emissions that contribute to local and regional air pollution, creating problems such as haze, and health issues. The Greenhouse Gas score reflects fuel
lifecycle emissions of carbon dioxide (CO2) and other greenhouse gases. The listing of SmartWay certified vehicles can be found at: https://www.epa.gov/greenvehicles/consider-smartway-vehicle.

**Standard Practice**

None

**Recommended Practice**

- Provide preferred parking for alternative fuel vehicles

**Best Available Practice**

- Offer incentives to employees to use low-emitting and fuel-efficient vehicles, examples may include:
  - Fuel gift cards
  - Other monetary incentives
- Install electrical receptacles for charging of electric vehicles
8.0 ADMINISTRATIVE POLICY & PROCUREMENT

8.7.3 Alternative Transportation: Carpooling

1 to 3 Points

INTENT

Reduce pollution and land development impacts from single occupancy vehicle use for employees.

REQUIREMENTS

Demonstrate that a percentage of total employees are carpooling. Points will be awarded as follows:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>% of Employees</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.7.3.1</td>
<td>5%</td>
<td>1</td>
</tr>
<tr>
<td>8.7.3.2</td>
<td>25%</td>
<td>2</td>
</tr>
<tr>
<td>8.7.3.3</td>
<td>50%</td>
<td>3</td>
</tr>
</tbody>
</table>

SUBMITTALS

Include descriptive narrative in the SAM Checklist.

TECHNOLOGY/STRATEGY

Minimize employee parking lot/garage size. Consider sharing parking facilities with adjacent buildings. Consider alternatives that will limit the use of single occupancy vehicles.

Standard Practice

- Provide preferred parking for carpools or vanpools, marked as such

Recommended Practice

- Offer incentives to employees who participate in carpools or vanpools:
  - Employee preference on work shift scheduling with their carpoolers/vanpoolers
  - Emergency Ride Home Program so that employees are not penalized for not having a vehicle if they, a member of their family, or a member of their carpool/vanpool needs to leave for an emergency
  - Fuel gift cards
  - Other monetary incentives
Best Available Practice

None
8.0 ADMINISTRATIVE POLICY & PROCUREMENT

8.8 Community Education

1 Point

INTENT

Promote awareness of terminal occupant environmental and sustainability initiatives.

REQUIREMENTS

Educate consumers/clients/public about the environmental stewardship to which the terminal occupant has committed, and the results of these efforts.

SUBMITTALS

Include descriptive narrative in the SAM Checklist of methods of community education.

TECHNOLOGY/STRATEGY

Provide and promote education through the following means that include, but are not limited to:

- Flyers
- Pamphlets
- Press Releases
- Signage
- Kiosks
- Workshops
- Conferences
- Website
- Public exhibits

Standard Practice

None
Recommended Practice

- Post environmental education information around terminal occupant space detailing the efforts of the concessionaire or terminal occupant
- Promote customer participation to initiatives that contribute to the terminal occupant’s environmental goals
- Solicit suggestions from customers on how to improve company’s environmental and social programs

Best Available Practice

- Offer incentives to consumers/clients/public if they contribute to the terminal occupant’s environmental goals
9.0 RESPONSIBLE PROCUREMENT

9.1 Prerequisite 1 – Eliminate Use of Polystyrene Foam

Required

INTENT

Reduce the environmental impact of polystyrene production and disposal.

REQUIREMENTS

Eliminate polystyrene foam in terminal occupant operations.

SUBMITTALS

Include descriptive narrative in the SAM Checklist.

TECHNOLOGY/STRATEGY

Eliminating use of polystyrene foam accomplishes multiple goals because it is a petroleum based product that uses HCFCs during production, and it does not readily degrade after disposal.

Standard Practice

None

Recommended Practice

- To the greatest extent possible, eliminate the use of polystyrene foam products as part of a responsible procurement practice

Best Available Practice

None
9.0 RESPONSIBLE PROCUREMENT

9.2 Prerequisite 2 – Sustainable Food and Consumer Product Procurement

Required

INTENT

Reduce the environmental impacts associated with food production and distribution.

REQUIREMENTS

Terminal occupants agree to source organic products and sustainably harvested food for both direct sale and in food preparation for at least 10% of the terminal occupant’s total food, health, and cosmetic purchases that meet, in any combination, the definition of sustainable foods and products using the table below. Sustainable foods and products are defined as meeting any one or more of the following criteria:

- Non-genetically modified organisms (non-GMO)
- Antibiotic free or no added hormones animal products
- Free-range, cage-free, or grass fed animal products
- USDA National Organic Program Certified
- Food Alliance Certified
- Rainforest Alliance Certified
- Protected Harvest Certified
- Fair Trade
- Marine Stewardship Council’s Blue Eco-Label
- Blue Ocean Institute Seafood Guide, no “Red” listed species
- Monterey Bay Aquarium, “Green” or “Yellow” listed species
- Others as approved by CDA, where applicable
See also SAM Credit 9.6 – Sustainable Food and Consumer Products.

Example: Annually, a concessionaire purchases for sale $50,000 of food products including $10,000 of fair trade coffee, $10,000 of Rainforest Alliance Certified bananas, $10,000 of organic apples, and $20,000 of conventional strawberries. With the exception of the strawberries, the other food products meet the criteria above, therefore:

\[
\frac{10,000 + 10,000 + 10,000}{50,000} = 60\% \text{ of foods meet the requirements}
\]

Therefore, this prerequisite is met.

SUBMITTALS

Include descriptive narrative on SAM Checklist detailing the percentage of organic consumer products and organic and sustainably harvested food sources utilized.

TECHNOLOGY/STRATEGY

Standard Practice

None

Recommended Practice

- Offer certified organic or sustainably harvested products
- Meat served should come from facilities or farms raised without antibiotics. Use of antibiotics on the farm, if practiced, must be minimal. Use of drugs with analogues in human medicine must be non-routine and rare.

Best Available Practice

None
9.0 RESPONSIBLE PROCUREMENT

9.3.1 Consumer Disposable Products: Bio-Based Content

1 to 3 points

INTENT

Reduce the need for virgin materials and reduce the volume of solid waste generated by terminal occupant activities.

REQUIREMENTS

Whenever applicable, purchase and utilize bio-based organic/plant based products and containers for customers and in employee break rooms and kitchens to facilitate composting.

Point values will be assigned based on the percentage of total disposable products purchased by overall cost. Up to 3 points are available by calculating items with the following attributes:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Percentage</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.3.1.1</td>
<td>10%</td>
<td>1</td>
</tr>
<tr>
<td>9.3.1.2</td>
<td>25%</td>
<td>2</td>
</tr>
<tr>
<td>9.3.1.3</td>
<td>50%</td>
<td>3</td>
</tr>
</tbody>
</table>

Example: A concessionaire calculates that of their $100,000 total consumer disposable product purchases, $27,500 are bio-based.

\[
\frac{27,500}{100,000} = 27.5\% \text{ bio-based content}
\]

Therefore, 2 points are earned for this credit.

SUBMITTALS

Include descriptive narrative on SAM Checklist detailing the types of products used and calculations.

TECHNOLOGY/STRATEGY

Establish a buying procedure that eliminates the need for virgin paper products and plastic containers. During everyday operations, ensure that the specified organic items are being offered to the public and employees.

Potential items to include in the calculation, but not limited to, are:
• Take-out containers
• Take-out bags
• Cold cups
• Hot cups
• Plates
• Bowls
• Soup/chili cups
• Cutlery and straws
• Plastic bags
• Cup sleeves
• Cup carriers
• Bottles and jars
• Coasters
• Toothpicks

**Standard Practice**
None

**Recommended Practice**
None

**Best Available Practice**
When possible the terminal occupant should use items made from plant based products. A variety of vendors now offer products that are not made of plastic or paper but rather:

• Sugarcane
• Corn
• Wheat
• Plant based fiber
• Potatoes
9.0 RESPONSIBLE PROCUREMENT

9.3.2 Consumer Disposable Products: Post-Consumer Recycled Paper

1 to 3 points –

INTENT

Reduce the need for virgin materials and reduce the volume of solid waste generated by terminal occupant activities.

REQUIREMENTS

Whenever applicable, purchase and utilize recycled products and containers for customers and in employee break rooms and kitchens.

Point values will be assigned based on the percentage of total disposable paper products purchased by overall cost. Up to 3 points are available by calculating items with the following attributes:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Percentage</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.3.2.1</td>
<td>30%</td>
<td>1</td>
</tr>
<tr>
<td>9.3.2.2</td>
<td>60%</td>
<td>2</td>
</tr>
<tr>
<td>9.3.2.3</td>
<td>100%</td>
<td>3</td>
</tr>
</tbody>
</table>

Example: A concessionaire uses $30,000 worth of hot cups, $10,000 worth of cold cups, $10,000 worth of paper bags, $15,000 worth of cup sleeves, $10,000 worth of cup carriers, $15,000 worth of paper napkins, $5,000 worth of paper towels, $4,000 worth of receipt tape, and $1,000 worth of office paper, representing all paper items which total $100,000. Of these items, all contain post-consumer recycled paper with the exception of the receipt tape.

\[
\frac{96,000}{100,000} = 96\% \quad \text{of paper products contain Recycled Paper Content}
\]

Therefore, 2 points are earned for this credit.

SUBMITTALS

Include descriptive narrative on SAM Checklist detailing the types of products used and calculations.

TECHNOLOGY/STRATEGY
Establish a buying procedure that eliminates the need for virgin paper products and containers. During everyday operations, ensure that the specified recycled are being offered to the public and employees.

Terminal occupants should use recycled items with high post-consumer content. Post-consumer means that the item’s recycled content comes from products that have been previously used and sent for recycling.

Potential items to include in the calculation, but not limited to, are:

- Take-out containers
- Food wrapper
- Cold cups
- Hot cups
- Plates
- Bowls
- Paper bags
- Cup sleeves
- Cup carriers
- Paper napkins
- Paper towels
- Bath tissue
- Facial tissue
- Seat covers
- Placemats
- Office paper
- Receipt tape
- Customer checks

**Standard Practice**

None

**Recommended Practice**

- Use post-consumer recycled paper products wherever possible

**Best Available Practice**

None
9.0 RESPONSIBLE PROCUREMENT

9.4 Local/Regional Food Sources

1 to 3 Points

INTENT

Reduce the environmental and transportation impacts associated with food production and distribution.

REQUIREMENTS

Terminal occupants agree to source local/regional products for both direct sale and in food preparation. Note that only those foods that are obtainable locally are to be counted in the calculation, e.g. in Chicago, it is not possible to get locally-grown bananas, therefore the cost of the bananas should not be included.

Example: Annually, a Chicago concessionaire purchases for sale $50,000 of food products including $10,000 of South American coffee, $10,000 of Central American bananas, $10,000 of Michigan apples, and $20,000 of California strawberries. Of these four items, only the apples and strawberries are obtainable locally (since coffee and bananas are tropical fruits), although the concessionaire chose to purchase non-local strawberries (> 250 miles away). In this case, the total locally-obtainable food purchases are $30,000 ($10,000 apples + $20,000 strawberries).

Points are awarded based on the percentage of the terminal occupant’s total locally-obtainable food purchases by cost that are obtained within 250 miles using the following table:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Percentage Within 250 miles</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.4.1</td>
<td>10%</td>
<td>1</td>
</tr>
<tr>
<td>9.4.2</td>
<td>20%</td>
<td>2</td>
</tr>
<tr>
<td>9.4.3</td>
<td>30%</td>
<td>3</td>
</tr>
</tbody>
</table>

SUBMITTALS

Include descriptive narrative on SAM Checklist detailing the percentage of local/regional food sources utilized.
TECHNOLOGY/STRATEGY

Food grown in local and surrounding areas tends to offer a selection of items that are fresher than produce flown or trucked in from other states and countries. Fresh products retain their nutrients better than frozen or canned options and support local businesses in the process.

Concessionaires can establish a relationship with area farms that sell direct to consumers and incorporate local and seasonal goods into their menu and operations. Produce can be used in the general food offerings and specialty dishes relative to seasonal items can be sold.

Standard Practice
None

Recommended Practice

- Purchases are produced or harvested within a 250 mile radius of the site
- Purchase products from local farm cooperatives or community supported agriculture (CSA) organizations.

Best Available Practice

- Purchases are produced or harvested within a 100 mile radius of the site
9.0 RESPONSIBLE PROCUREMENT

9.5 Sustainable Foods and Consumer Products

1 to 2 Points

INTENT

Reduce the environmental impacts associated with food production and distribution.

REQUIREMENTS

Beyond the requirements of SAM Credit 9.2, terminal occupants agree to source organic products and sustainable harvested food for both direct sale and in food preparation. This credit pertains only to health and beauty products (i.e. cosmetics and soaps) and whole, non-processed foods (i.e. produce, meats, and cheeses). Sustainable foods and products are defined as meeting any one or more of the following criteria:

- Antibiotic free, no added hormones, or non-genetically modified organisms (GMO) animals and animal products
- Free-range, cage-free, or grass fed animals or animal products
- USDA National Organic Program Certified
- Food Alliance Certified
- Rainforest Alliance Certified
- Protected Harvest Certified
- Fair Trade
- Marine Stewardship Council’s Blue Eco-Label
- Blue Ocean Institute Seafood Guide, no “Red” listed species
- Monterey Bay Aquarium “Green” or “Yellow” listed species

Points are awarded based on the percentage of the terminal occupant’s total food, health, and cosmetic purchases by cost that meet, in any combination, the definition of sustainable foods and products above using the table below:
Example: Annually, a concessionaire purchases for sale $50,000 of food products including $10,000 of fair trade coffee, $10,000 of Rainforest Alliance Certified bananas, $10,000 of organic apples, and $20,000 of conventional strawberries. With the exception of the strawberries, the other food products meet the criteria above, therefore:

\[
\frac{10,000 + 10,000 + 10,000}{50,000} = 60\% \text{ of foods meet the requirements}
\]

Therefore, 4 points are earned for this credit.

**SUBMITTALS**

Include descriptive narrative on SAM Checklist detailing the percentage of organic consumer products and organic and sustainably harvested food sources utilized.

**TECHNOLOGY/STRATEGY**

**Standard Practice**

None

**Recommended Practice**

- Offer certified organic or sustainably harvested products
- Meat served should come from facilities or farms raised without antibiotics. Use of antibiotics on the farm, if practiced, must be minimal. Use of drugs with analogues in human medicine must be non-routine and rare.

**Best Available Practice**

None
10.0 GREEN INTERIORS

10.1 Prerequisite 1 – Green Cleaning

Required

INTENT

Reduce the exposure of occupants and maintenance personnel to potentially hazardous chemical, biological, and particulate contaminants, which adversely affect air quality, human health, and the environment.

REQUIREMENTS

Terminal occupants agree to source green cleaning and hygiene products that are certified by a third-party certifier, such as, but not limited to:

- GREenguARD Environmental Institute (UL Environment)
- Ecologo (UL Environment)
- Green Seal
- Recognized by the U.S. Environmental Protection Agency (EPA) Design for the Environment Formulator Program
- Others as approved by the CDA where applicable

SUBMITTALS

Include descriptive narrative on SAM Checklist listing the products meeting the criteria above.

TECHNOLOGY/STRATEGY

Standard Practice

None

Recommended Practice

- Use only environmentally-friendly cleaning and hygiene products.

Best Available Practice

None
10.0 GREEN INTERIORS

10.2.1 Green Cleaning: High Performance Cleaning

2 points

INTENT

Reduce the exposure of occupants and maintenance personnel to potentially hazardous chemical, biological, and particulate contaminants, which adversely affect air quality, human health, and the environment.

REQUIREMENTS

In addition to SAM Credit 10.1 – Green Cleaning, have in place during the performance period a high performance cleaning program that addresses the following:

- Establishment of standard operating procedures (SOPs) addressing how an effective cleaning and hard floor and carpet maintenance system will be consistently utilized, managed, and audited
- Development of strategies for promoting and improving hand hygiene, including both hand washing and the use of alcohol-based waterless hand sanitizers
- Development of guidelines addressing the safe handling and storage of cleaning chemicals used within the terminal occupant's space, including a plan for managing hazardous spills or mishandling incidents
- Development of requirements for staffing and training of maintenance personnel appropriate to the needs of the terminal occupant. Specifically address the training of maintenance personnel in the hazards of use, disposal, and recycling of cleaning chemicals, dispensing equipment, and packaging.
- Provision for collecting occupant feedback and continuous improvement to evaluate new technologies, procedures, and processes

At a minimum, the policy must cover the green cleaning materials that are within the terminal occupant’s control.

SUBMITTALS

Include descriptive narrative in the SAM Checklist outlining details of a written high performance cleaning program.
TECHNOLOGY/STRATEGY

Over the performance period, have in place a high performance cleaning program addressing SOPs, sustainable products and equipment, chemical handling and storage, and staff training. Some additional items to consider include:

- Employ cleaning techniques that promote the most efficient use of products such as training on the proper amount of product to use and proper wiping motion for certain tasks.

- Utilize cleaning techniques that promote the most efficient use of electricity such as working through areas and then turning off the lights in those areas and moving to another section instead of having all the lights on throughout the space for the entire shift.

- Provide proper training on supply usage such as when to replace paper products and liners as not to throw away usable product. For example, office trash liners that may need emptying but not replacing when possible.

Standard Practice

None

Recommended Practice

- Utilize a High Performance Green Cleaning Program

Best Available Practice

None
10.0 GREEN INTERIORS

10.2.2 Green Cleaning: Integrated Pest Management

1 point

INTENT

Preserve environmental integrity while discouraging the presence of pests/wildlife, in an effort to include methods that maintain and encourage high-performance pest management control.

REQUIREMENTS

Use Integrated Pest Management (IPM) Techniques, such as:

- Control dirt, moisture, clutter, foodstuffs, harborage, and building penetrations
- Use baits and traps rather than pesticide sprays where possible
- Avoid pesticide applications for prevention of pests
- Use pesticides only where pests are located
- Use pesticide specifically formulated for targeted pest

AND/OR

Use wildlife deterrent methods in accordance with United States Department of Agriculture - Wildlife Services.

SUBMITTALS

Include descriptive narrative in the SAM Checklist.

TECHNOLOGY/STRATEGY

Over the performance period, have in place a wildlife and pest management plan that addresses overall site management, chemicals, and waste. Include such green landscape management practices such as: applying integrated pest management and deterring wildlife habitat.

Integrated pest management (IPM), defined as managing pests (plants, fungi, insects, and/or animals) in a way that protects human health and the surrounding environment that improves economic returns through the most effective, least-risk option.
The IPM plan includes preferred use of nonchemical methods, definition of emergency conditions, and universal notification providing advance notice of not less than 72 hours under normal conditions, and, 24 hours in emergencies before a pesticide, (other than a least-toxic pesticide) is applied in a building or on surrounding grounds that the building management maintains.

**Standard Practice**

None

**Recommended Practice**

- Apply pesticides only during unoccupied hours
- Ventilate area with significant quantities of outside air during and after applications
- Completely flush space prior to occupancy
- Use more than normal outside air ventilation for some period after occupancy
- Notify occupants prior to occupation
- If applying outside keep away from air intake

**Best Available Practice**

None
10.0 GREEN INTERIORS

10.3 LEED Certified Design & Construction

1 to 4 Points

INTENT

Promote the incorporation of environmentally sustainable design in building and infrastructure improvements by registering and certifying a project through the LEED certification process and rating system.

REQUIREMENTS

Achieved or located within a space that has achieved certification via any LEED process – Certified, Silver, Gold, or Platinum. Up to 4 points are available for this credit:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Certification Level</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.3.1</td>
<td>Certified</td>
<td>1</td>
</tr>
<tr>
<td>10.3.2</td>
<td>Silver</td>
<td>2</td>
</tr>
<tr>
<td>10.3.3</td>
<td>Gold</td>
<td>3</td>
</tr>
<tr>
<td>10.3.4</td>
<td>Platinum</td>
<td>4</td>
</tr>
</tbody>
</table>

SUBMITTALS

Include descriptive narrative in the SAM Checklist demonstrating that the project has been registered under LEED during the design process. Provide the LEED submittal documentation and final determination. Indicate what level of LEED certification has been achieved after construction.

TECHNOLOGY/STRATEGY

Terminal occupants should retain the LEED documentation from previous certifications. Many of the credit requirements offer operational and sustainability benefits that can be integrated into everyday terminal occupant operations.

Standard Practice

None

Recommended Practice

- Encourage practices that maintain the standards set during the LEED certification process
Best Available Practice

None
10.0 GREEN INTERIORS

10.4 Occupant Controls: Lighting

1 Point

INTENT

Provide a high level of lighting system control by individual occupants or by specific groups in multi-occupant spaces (e.g., classrooms and conference areas) to promote the productivity, comfort and well-being of occupants.

REQUIREMENTS

Provide individual lighting controls for 90% (minimum) of the terminal occupant space occupants to enable adjustments to suit individual task needs and preferences.

AND

Provide lighting system controls for all shared multi-occupant spaces to enable lighting adjustment that meets group needs and preferences.

SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist.

TECHNOLOGY/STRATEGY

Ensure the terminal occupant space includes occupant controls for lighting. Strategies to consider include lighting controls and task lighting. Integrate lighting systems controllability into the overall lighting design, providing ambient and task lighting while managing the overall energy use of the space.

Standard Practice

None

Recommended Practice

- Use motion-activated lighting
- Design lighting control systems to take advantage of daylight harvesting to reduce artificial lighting when adequate daylight is available
- Design areas to provide a variety of levels of light and sound in different areas simultaneously
- Provide task lighting or more light switching zones in office areas
Best Available Practice

None
11.0 WATER MANAGEMENT

11.1 Utility Meter Data

4 points

INTENT

Increase water efficiency within terminal occupant spaces to reduce the burden on municipal water supply and wastewater systems.

REQUIREMENTS

Provide water meter data (if available). Use water meter data to compile water use and report data on a periodic basis, e.g. annually at a minimum.

SUBMITTALS

Provide numerical data, e.g. annual consumption, for the narrative in the SAM Checklist.

TECHNOLOGY/STRATEGY

Where possible install water meters to measure a terminal occupant space’s domestic water use.

Meter data will be used to determine water use reduction in SAM Credit 11.3, Option 1. Gather meter data for one full year. This first year reported will act as the baseline for subsequent years.

Standard Practice

- Comply with CDA Specification 15410 – Plumbing Fixtures

Recommended Practice

- Track water consumption using metering
- Install water meters to track terminal occupant space water use (submetering)
Best Available Practice

- Track water consumption using submetering for one or more of the following:
  - Irrigation
  - Indoor plumbing fixtures
  - Cooling towers
  - Domestic hot water
  - Process water
11.0 WATER MANAGEMENT

11.2 Water Management Plan

2 points

INTENT

To reduce the use of water while promoting continuity of information to ensure that water-efficient operating strategies are maintained and provide a foundation for training employees and continuous improvement.

REQUIREMENTS

At a minimum, use the following form to document the following:

- Develop a systems narrative that briefly describes current practices, the plumbing systems and equipment in the terminal occupant space. The systems narrative must include all the systems using water, including at a minimum; restroom and kitchen plumbing fixtures, food service equipment (e.g. ice makers), other process related water use systems.

- Describe what conservation initiatives have been implemented to reduce the consumption of water.

SUBMITTALS

Include descriptive narrative in the SAM Checklist as well as a copy of the Water Management Plan.

TECHNOLOGY/STRATEGY

For a terminal occupant space to operate successfully, the terminal occupant’s staff must understand the space’s current performance, critical metrics must be established, and steps to improve performance must be developed.

Inspect all existing fittings or fixtures to ensure they are operating properly. Make any repairs needed to bring all fixtures into good working order or permanently turn off water supply to nonfunctional units.

Implement a fixture and fitting replacement and retrofit policy specifying that all newly installed toilets, urinals, private lavatory faucets, and showerheads that are eligible for labeling be WaterSense labeled. For a listing of WaterSense labeled products visit http://www.epa.gov/watersense/product_search.html.

For building water use, confirm that calculations are up to date. Demonstrate that all applicable purchases meet the requirements of the fixture and fitting replacement and retrofit policy.
**Standard Practice**

None

**Recommended Practice**

- Develop a Water Management Plan for the terminal occupant space

**Best Available Practice**

- Continuously improve upon and require that all employees are trained on the merits and policies contained within the Water Management Plan.
Terminal Occupant Information

Date

Terminal occupant

Owner

Address/Location

Contact Person

Phone

Email

Water Management Survey

All questions apply to systems under the terminal occupant’s control and/or within the space being evaluated.

1. Does terminal occupant have separately metered water utility?  
   Yes  No

2. If yes, what is annual water usage?  
   Gal/yr
   From __________/__________ to __________/__________
   Month/Year                                      Month/Year

3. Fixture Inventory (input quantity of each unit):  
   Number    Flow rate    Sensor/Time
   r/Aerator
   a. Toilets/Water Closet
   b. Urinals
   c. Lavatories
   d. Faucets
   e. Water Fountains

3. Fixture Inventory (input quantity of each unit) (cont’d):  
   Number    Flow rate    Sensor/Time
   r/Aerator
   f. Pre-Rinse Spray Valves
   g. Other (List)
   h. Other (List)
   i. Other (List)
4. Water Using Appliances and Equipment (List) | Number | ENERGY STAR (Y/N)
--- | --- | ---
| a. e.g. Dishwasher, Model ### | | |
| b. e.g. Ice Maker, Model ### | | |
| c. | | |
| d. | | |

5. Conservation Techniques – e.g. rainwater harvesting, gray water reuse

6. Education and Training – If yes, please describe | Yes | No
--- | --- | ---
| a. Water Conservation Signage | | |
| b. Employee Training - Water Conservation | | |
| c. Customer Education - Water Conservation | | |

7. Please share any additional information you think is pertinent.

(Please use additional pages as necessary to complete)
11.0 WATER MANAGEMENT

11.3 Water Use Reduction

1 to 10 points

INTENT

Further increase water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.

REQUIREMENTS

OPTION 1

Employ strategies described in CDA Specification 15410.

AND

Using one year’s worth of meter data, calculate reduction compared to baseline data (data from first review).

Additional water reductions beyond the baseline set by the 1st year data water usage will be awarded credits based on the following table:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Building and Process Water Reduction</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.3.1</td>
<td>5%</td>
<td>1</td>
</tr>
<tr>
<td>11.3.2</td>
<td>10%</td>
<td>2</td>
</tr>
<tr>
<td>11.3.3</td>
<td>15%</td>
<td>3</td>
</tr>
<tr>
<td>11.3.4</td>
<td>20%</td>
<td>4</td>
</tr>
<tr>
<td>11.3.5</td>
<td>25%</td>
<td>5</td>
</tr>
<tr>
<td>11.3.6</td>
<td>30%</td>
<td>6</td>
</tr>
<tr>
<td>11.3.7</td>
<td>35%</td>
<td>7</td>
</tr>
<tr>
<td>11.3.8</td>
<td>40%</td>
<td>8</td>
</tr>
<tr>
<td>11.3.9</td>
<td>45%</td>
<td>9</td>
</tr>
<tr>
<td>11.3.10</td>
<td>50%</td>
<td>10</td>
</tr>
</tbody>
</table>

Example: A terminal occupant collected and recorded water meter data from two years ago and designated this period as the baseline water usage. The annual water use for
the baseline year was 100,000 gallons. In the subsequent year, due to water efficiency upgrades and improvements, the terminal occupant was able to lower water usage for this period to 80,000 gallons. This calculates to a 20% improvement over the baseline and therefore 4 points are awarded.

OR

OPTION 2

Create an inventory of all the water use improvements and upgrades that terminal occupant has undertaken to improve their water efficiency prior and during the performance review.

A point will be awarded for each of the improvements. Up to 6 points may be awarded by achieving any of the following measures:

<table>
<thead>
<tr>
<th>Technology/Strategy</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-flow toilets (&lt;1.6 gal/flush)</td>
<td>1</td>
</tr>
<tr>
<td>Low-flow urinals (&lt;1.0 gal/flush)</td>
<td>1</td>
</tr>
<tr>
<td>Waterless toilets and urinals</td>
<td>1</td>
</tr>
<tr>
<td>Low-flow kitchen and lavatory faucets (&lt;0.5 gal/min)</td>
<td>1</td>
</tr>
<tr>
<td>Low-flow pre-rinse spray valves (&lt;1.6 gal/min)</td>
<td>1</td>
</tr>
<tr>
<td>Automatic sensors for faucets and flushing</td>
<td>1</td>
</tr>
<tr>
<td>Water meters for submetering</td>
<td>1</td>
</tr>
<tr>
<td>Replace potable water for non-potable water applications with collected process water or rainwater (e.g. cisterns, rain barrels)</td>
<td>1</td>
</tr>
<tr>
<td>ENERGY STAR dishwasher</td>
<td>1</td>
</tr>
<tr>
<td>ENERGY STAR washing machine</td>
<td>1</td>
</tr>
</tbody>
</table>

SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist.

TECHNOLOGY/STRATEGY
WaterSense™-certified fixtures and fixture fittings should be used where available. Use high-efficiency fixtures (water dispensers, water closets and urinals) and dry fixtures such as composting toilet systems to reduce the potable water demand. Consider the use of alternate on-site sources of water, such as rainwater, stormwater, or air conditioner condensate, and graywater for non-potable applications such as toilet and urinal flushing, as approved by the manufacturer, and custodial uses.

**Standard Practice**

None

**Recommended Practice**

- Use high-efficiency fixtures and valves, such as automatic sensors, aerators on lavatories and dual-flush toilets

**Best Available Practice**

- Dry fixtures such as composting toilets and waterless urinals to reduce wastewater volumes
12.0 ENERGY MANAGEMENT

12.1 Utility Meter Data

4 points

INTENT

Monitor, track and report utility data to reduce environmental and economic impacts associated with excessive energy use.

REQUIREMENTS

Provide energy meter data (if available). Use energy meter data to compile energy use and report data on a periodic basis, e.g. annually at a minimum.

SUBMITTALS

Provide numerical data, e.g. annual consumption, for the narrative in the SAM Checklist.

TECHNOLOGY/STRATEGY

Where possible install electric and/or gas meters to measure a terminal occupant space’s energy consumption.

Meter data will be used to determine energy use reduction in SAM Credit 12.4. Gather meter data for one full year. This first year reported will act as the baseline for subsequent years.

Standard Practice

None

Recommended Practice

• Install utility meters where applicable
• Track and record energy usage

Best Available Practice

• Install submeters wherever possible
12.0 ENERGY MANAGEMENT

12.2 Energy Management Plan

2 points

INTENT

To reduce energy use while promoting continuity of information to ensure that energy-efficient operating strategies are maintained and provide a foundation for training employees and continuous improvement.

REQUIREMENTS

The Energy Management Plan should highlight the terminal occupant’s plan for each of the following:

1. Measure - collecting data and analyzing total consumption for establishing an energy usage baseline.

2. Fix the basics - Fixing the basics typically consists of efforts, such as installing low-energy-consumption devices.

3. Automate - Ongoing energy-efficiency improvements can be achieved by automating and regulating building systems. Measures such as schedule-based lighting control and occupancy sensors automatically turn lights on only when they are needed in commercial buildings, while HVAC control regulates heating and cooling at optimal levels, which can change from day to day. More importantly, however, these measures facilitate an active approach to energy management, because they can be adjusted based on new energy-efficiency opportunities that arise in the future.
   a. Timers
   b. Sensors
   c. Occupancy Controls
   d. HVAC
   e. Building Information Systems

4. Monitor and control - A strategic energy management plan also helps ensure that initial energy and cost savings don't erode over time. Power meter installations, monitoring services, energy-efficiency analysis, energy bill verification, and implementation of an enterprise energy management (EEM) system can all help achieve this end.

SUBMITTALS
Include descriptive narrative in the SAM Checklist as well as a copy of the Energy Management Plan.

TECHNOLOGY/STRATEGY

For a terminal occupant space to operate successfully, the terminal occupant’s staff must understand the space’s current performance, critical metrics must be established, and steps to improve performance must be developed.

Inspect all existing devices or fixtures to ensure they are operating properly. Make any repairs needed to bring all fixtures into good working order or permanently turn off electrical supply to nonfunctional units.

Implement a fixture and fitting replacement and retrofit policy specifying that all newly installed devices, equipment and light bulbs are Energy Star or more energy efficient than those they are replacing.

Demonstrate that all applicable purchases meet the requirements of the fixture and fitting replacement and retrofit policy.

Standard Practice

None

Recommended Practice

- Develop an Energy Management Plan for the terminal occupant space

Best Available Practice

- Continuously improve upon and require that all employees are trained on the merits and policies contained within the Energy Management Plan.
**ENERGY MANAGEMENT PLAN TEMPLATE**

**SAM Credit 12.2**

<table>
<thead>
<tr>
<th>Terminal occupant Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
</tr>
<tr>
<td>Terminal occupant</td>
</tr>
<tr>
<td>Owner</td>
</tr>
<tr>
<td>Address/Location</td>
</tr>
<tr>
<td>Contact Person</td>
</tr>
<tr>
<td>Phone</td>
</tr>
<tr>
<td>Email</td>
</tr>
</tbody>
</table>

**Energy Management Survey**

All questions apply to systems under the terminal occupant’s control and/or within the space being evaluated.

1. Does terminal occupant have separately metered energy utility?  
   - Yes  
   - No

2. If yes, what is annual energy usage?
   a. Electricity  
      - kWh/yr  
      - From __________/__________ to __________/__________  
      - Month/Year Month/Year
   b. Gas  
      - Btu/yr  
      - From __________/__________ to __________/__________  
      - Month/Year Month/Year
### Lighting Fixture Inventory

<table>
<thead>
<tr>
<th>Number</th>
<th>Wattage</th>
<th>Sensor/Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>e.g. T8 fluorescent lamps</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>e.g. CFL recessed lights</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>Other (List)</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>Other (List)</td>
<td></td>
</tr>
</tbody>
</table>

### Electrical Appliances (List)

<table>
<thead>
<tr>
<th>Number</th>
<th>Energy STAR (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>e.g. Dishwasher, Model ###</td>
</tr>
<tr>
<td>b.</td>
<td>e.g. Ice Maker, Model ###</td>
</tr>
<tr>
<td>c.</td>
<td>Other (List)</td>
</tr>
<tr>
<td>d.</td>
<td>Other (List)</td>
</tr>
</tbody>
</table>

### Office Equipment (List)

<table>
<thead>
<tr>
<th>Number</th>
<th>Energy STAR (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>e.g. Printer/Copier, Model ###</td>
</tr>
<tr>
<td>b.</td>
<td>e.g. Computer, Model ###</td>
</tr>
<tr>
<td>c.</td>
<td>Other (List)</td>
</tr>
<tr>
<td>d.</td>
<td>Other (List)</td>
</tr>
</tbody>
</table>

### Gas Appliances and Equipment (List)

<table>
<thead>
<tr>
<th>Number</th>
<th>Energy STAR (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>e.g. Oven/Range, Model ###</td>
</tr>
<tr>
<td>b.</td>
<td>e.g. Water Heater, Model ###</td>
</tr>
<tr>
<td>c.</td>
<td>Other (List)</td>
</tr>
<tr>
<td>d.</td>
<td>Other (List)</td>
</tr>
</tbody>
</table>

### Mobile Equipment/Vehicle Fuel Usage

<table>
<thead>
<tr>
<th>Number</th>
<th>Fuel Type</th>
<th>Fuel Usage/Mileage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>e.g. Lawn Mowers, Model ###</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>e.g. Forklifts, Model ###</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>Other (List)</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>Other (List)</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>Other (List)</td>
<td></td>
</tr>
</tbody>
</table>
8. Renewable Energy Sources – e.g. solar hot water heating, photovoltaics

9. Largest Energy User (list system, equipment, etc. with the largest consumption of energy – electric and/or gas)

10. Conservation Techniques – e.g. anti-idling, occupancy sensors, etc.

11. Education and Training – If yes, please describe
   
   a. Energy Conservation Signage
      Yes
      No

   b. Employee Training - Energy Conservation
      Yes
      No

   c. Customer Education - Energy Conservation
      Yes
      No

12. Please share any additional information you think is pertinent.

(Please use additional pages as necessary to complete)
12.0 ENERGY MANAGEMENT

12.3 Energy Use Reduction

1 to 10 points

INTENT

Further increase energy efficiency within buildings to reduce the burden on local utilities.

REQUIREMENTS

OPTION 1

Using one year’s worth of meter data, calculate reduction compared to baseline data (data from first review).

Energy reduction beyond the baseline set by 1st year data energy usage will be awarded credits based on the following table:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Energy Reduction</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.3.1</td>
<td>5%</td>
<td>1</td>
</tr>
<tr>
<td>12.3.2</td>
<td>10%</td>
<td>2</td>
</tr>
<tr>
<td>12.3.3</td>
<td>15%</td>
<td>3</td>
</tr>
<tr>
<td>12.3.4</td>
<td>20%</td>
<td>4</td>
</tr>
<tr>
<td>12.3.5</td>
<td>25%</td>
<td>5</td>
</tr>
<tr>
<td>12.3.6</td>
<td>30%</td>
<td>6</td>
</tr>
<tr>
<td>12.3.7</td>
<td>35%</td>
<td>7</td>
</tr>
<tr>
<td>12.3.8</td>
<td>40%</td>
<td>8</td>
</tr>
<tr>
<td>12.3.9</td>
<td>45%</td>
<td>9</td>
</tr>
<tr>
<td>12.3.10</td>
<td>50%</td>
<td>10</td>
</tr>
</tbody>
</table>

Example: A terminal occupant collected and recorded electric meter data from two years ago and designated this period as the baseline electric usage. The annual electric use for the baseline year was 100,000 kWh. In the subsequent year, due to energy efficiency upgrades and improvements, the terminal occupant was able to lower energy usage for this period to 80,000 kWh. This calculates to a 20% improvement over the baseline and therefore 4 points are awarded.
OR

OPTION 2

Create an inventory of all the energy improvements and upgrades that terminal occupant has undertaken to improve their energy efficiency prior to and during the performance review.

A point will be awarded for each of the improvements. Up to 6 points may be awarded by achieving any of the following measures:

<table>
<thead>
<tr>
<th>Measure</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED lighting</td>
<td>1</td>
</tr>
<tr>
<td>CFL lighting</td>
<td>1</td>
</tr>
<tr>
<td>Halogen or induction lamps</td>
<td>1</td>
</tr>
<tr>
<td>High efficiency T8 and T5 lamps</td>
<td>1</td>
</tr>
<tr>
<td>Lighting sensors or timers</td>
<td>1</td>
</tr>
<tr>
<td>Organize circuiting of lighting and systems so that individual areas are separately controlled relative to daylight and heating/cooling zones</td>
<td>1</td>
</tr>
<tr>
<td>Motion sensors/occupancy sensors in stairs, restrooms, storage rooms, equipment rooms and office space</td>
<td>1</td>
</tr>
<tr>
<td>High-efficiency motors and variable-speed pumping systems ENERGY STAR furnaces, exhaust fans, ceiling fans, and air conditioners</td>
<td>1</td>
</tr>
</tbody>
</table>

**SUBMITTALS**

Include descriptive narrative and calculations in the SAM Checklist.

**TECHNOLOGY/STRATEGY**

Select ENERGY STAR rated equipment, optimize HVAC systems and lighting, and implement an energy management plan that reduces energy consumption. Any strategies that reduce energy consumption should be considered that will impact the results of this credit. Additional points can be obtained using strategies as outlined in the other credits of this section.
Standard Practice
None

Recommended Practice

- Use high-efficiency equipment, fixtures, appliances, and lighting
- Maintain an energy management plan that addresses off-hour usage, timers, and/or sensors

Best Available Practice
None
12.0 ENERGY MANAGEMENT

12.4. Optimize Energy Performance: Equipment & Appliances

1 to 3 Points

INTENT

Achieve increasing levels of energy conservation beyond the referenced standard to reduce environmental and economic impacts associated with excessive energy use.

REQUIREMENTS

For all ENERGY STAR qualified equipment and appliances installed in the terminal occupant space, points will be awarded based on the following percentages by pieces of equipment:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>ENERGY STAR Qualified Equipment*</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.4.1</td>
<td>50%</td>
<td>1</td>
</tr>
<tr>
<td>12.4.2</td>
<td>75%</td>
<td>2</td>
</tr>
<tr>
<td>12.4.3</td>
<td>100%</td>
<td>3</td>
</tr>
</tbody>
</table>

*As a percentage of ENERGY STAR eligible equipment
Excluded are HVAC, lighting and building envelope products.

This requirement applies to appliance, office equipment, electronics and commercial food service equipment. Excluded are HVAC, lighting and building envelope products.

SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist.

TECHNOLOGY/STRATEGY

Select energy-efficient equipment and appliances, as qualified by the EPA’s ENERGY STAR Program (https://www.energystar.gov).

Standard Practice

None
Recommended Practice

Consider the following for terminal occupant spaces:

- Provide high-efficiency motors and variable-speed pumping systems
- Provide ENERGY STAR compliant equipment and appliances such as:
  - Dishwashers
  - Water Heaters
  - Washing machines
  - Dryers
  - Refrigerators
  - Walk-in refrigerators
  - Freezers
  - Ranges
  - Computers
  - Printers
  - Copiers
  - Phones
  - Televisions
  - Steamers
  - Fryers
  - Hot food holding cabinets
  - Ice machines
  - Convection ovens
  - Combination ovens
  - Griddles
  - Broilers
- Provide other high efficiency equipment and appliances such as:
  - Hand Dryers
  - Food warmers
  - Charbroilers
  - Grills
  - Registers
  - Power strips

Best Available Practice

None
13.0 WASTE STREAM MANAGEMENT

13.1 Prerequisite 1 – Waste Source Separation

Required

INTENT

Determine the overall generation of various wastes produced and reduce ongoing waste and toxins generated by the terminal occupant.

REQUIREMENTS

Separate all solid waste refuse into, at a minimum, the following three waste types and have a solid waste service provider that properly handles and disposes the separated waste streams:

- Recyclables: Cardboard, clean paper, glass, metals, plastic
- Compostables: Organic food waste, food waste contaminated paper and plastic that is certified by the Biodegradable Products Institute (BPI) or meets ASTM D6400 and/or ASTM D6868
- Non-Recyclables/Non-Compostables (Landfill Waste): Any residual waste not meeting the above two waste types

SUBMITTALS

Include descriptive narrative in the SAM Checklist outlining the types of waste, collection locations, and anticipated weights and/or volumes, if known (see SAM Credit 13.4).

TECHNOLOGY/STRATEGY

Work with your waste hauler or service provider to collect and analyze information on the amounts and types of waste generated by the facility.

Standard Practice

None

Recommended Practice

- Use source-separation to conduct a waste audit (see SAM Credit 13.4) as a baseline for evaluating future recycling efforts. Analyze the results of the audit and identify targets for expanding the terminal occupant’s recycling program. Evaluate the capturing and recycling of specific wastes.
Best Available Practice

- Create a Five Year Action Plan outlining waste reduction methods that will be undertaken in the coming years.
13.0 WASTE STREAM MANAGEMENT

13.2 Prerequisite 2 – Surplus Food Sent to Local Organizations

Required

INTENT

Increase terminal occupant’s social responsibility by donating surplus food to local hunger relief organizations.

REQUIREMENTS

Unused (wrapped and packaged) food that would otherwise be discarded should be donated to local food banks. Terminal occupants should follow the organization’s guidelines as to the storage, preparation and donation of food.

SUBMITTALS

Include descriptive narrative on SAM Checklist detailing the amount of unused food that was donated and to which organizations.

TECHNOLOGY/STRATEGY

Efforts need to be undertaken to ensure that waste generated at airports does not all ultimately end up in area landfills. Food scraps and unused food account for a large portion of an airport’s waste stream. Creative waste solutions to minimize contributions to airports are needed, especially for perishable foods.

Terminal occupants should donate unused food products to a local food bank, shelter, etc. The Good Samaritan Food Donation Act offers protection to citizens, businesses and nonprofit organization that proceed in good faith to donate, recover and distribute excess food. It promotes food recovery by limiting liability to acts of gross negligence or intentional misconduct (such as donating food from which others have already become ill) and absent these, donors and others shall not be subject to civil or criminal liability arising from the nature, age, packaging or condition of apparently wholesome food or apparently fit grocery products received as donations.

Standard Practice

None
Recommended Practice

- Donate surplus food to a local organization. Below is a sample list of representative organizations but not limited to:
  - Feeding America (http://feedingamerica.org/)
  - Food Donation Connection (www.foodtodonate.com)
  - Greater Chicago Food Depository (www.chicagosfoodbank.org)
13.0 WASTE STREAM MANAGEMENT

13.3 Prerequisite 3 – Elimination of Petroleum Based Plastic Bags

Required

INTENT

Reduce the amount of plastic that is distributed and ultimately disposed within the terminals.

REQUIREMENTS

Vendor will do away with the use of petroleum based plastic bags in favor of bags that are more environmentally friendly.

SUBMITTALS

Include descriptive narrative on SAM Checklist detailing the alternate option given to customers in place of petroleum based plastic bags.

TECHNOLOGY/STRATEGY

Due to the negative environmental effects there have been international movements to discourage the use of petroleum based plastic bags. Plastic bags use up natural resources, consume energy to manufacture, create litter, choke marine life and add to landfill waste.

Standard Practice

- Ask the customer if they require a bag instead of giving bags to every customer

Recommended Practice

- Implement the use of post-consumer recycled paper bags or reusable bags

Best Available Practice

- Offer the use of biodegradable plastic bags
13.0 WASTE STREAM MANAGEMENT

13.4 Prerequisite 4 – Reduction of Plastic Waste: Biodegradable Trash Bags

Required

INTENT

Reduce the amount of plastic that are sold and ultimately disposed within the terminals.

REQUIREMENTS

Terminal occupants should use only biodegradable trash bags that once at a landfill break down at a faster rate than traditional trash bags.

SUBMITTALS

Include descriptive narrative on SAM Checklist detailing type of biodegradable trash bag used.

TECHNOLOGY/STRATEGY

Even given other initiatives to reduce the amount of waste, there inevitably will be waste generated that ends up in the area landfills. The combination of reducing the amount of waste sent to landfills and using trash bags that break down in the landfills will help decrease the massive amounts of garbage that are created.

The process behind the biodegradation occurs in two parts. First the plastic is oxidized, then microorganisms consume the plastic leaving behind "refuse" which is a reusable biomass which is both environmentally friendly and does not contain harmful toxins. All products then biodegrade and find their way into the waterways and the soil.

Biodegradable bags can be purchased at prices similar to the traditional trash bags used by many. However not all biodegradable bags break down in landfill conditions; some bags require oxygen to decompose.

Plastics are certified as biodegradable if they comply with ASTM D6954.

Standard Practice

None
Recommended Practice

- Eliminate the use of traditional plastic bags. Biodegradable bags will break down into CO2 and water when it is exposed to UV light, moisture, heat and microorganisms

Best Available Practice

None
13.0 WASTE STREAM MANAGEMENT

13.5 Waste Stream Audit

4 points

INTENT

Determine the overall generation of various wastes produced and reduce ongoing waste and toxins generated by the terminal occupant.

REQUIREMENTS

Conduct a waste stream audit of the terminal occupant’s entire ongoing consumables waste stream for the performance period. Use the initial audit to establish a baseline that identifies the types of waste making up the waste stream and the amounts of each type by weight and volume.

As part of the waste stream audit, terminal occupant will analyze their waste stream to determine weights and volumes of the following categories:

- Items for offsite disposal or incineration
- Items for composting
- Items for recycling

SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist outlining the types of waste and the weight and/or volumes. Refer to the EPA’s website for waste audit worksheets.


TECHNOLOGY/STRATEGY

Understanding waste production patterns is an important first step to waste reduction. Work with your waste hauler or service provider to collect and analyze information on the amounts and types of waste generated by the facility.

Standard Practice

None
Recommended Practice

- Use the results of the waste audit as a baseline for evaluating future recycling efforts. Analyze the results of the audit and identify targets for expanding the terminal occupant's recycling program. Evaluate the capturing and recycling of specific wastes.

Best Available Practice

- Create a Five Year Action Plan outlining waste reduction methods that will be undertaken in the coming years.
13.0 WASTE STREAM MANAGEMENT

13.6 Waste Management Plan

2 points

INTENT

To reduce the waste generated by the terminal occupant and hauled to and disposed of in landfills and incinerators.

REQUIREMENTS

Maintain a waste reduction and recycling program that reuses, recycles, or composts waste.

SUBMITTALS

Include descriptive narrative in the SAM Checklist as well as a copy of the Waste Management Plan.

TECHNOLOGY/STRATEGY

For a terminal occupant space to operate successfully, the terminal occupant’s staff must understand the space’s current performance, critical metrics must be established, and steps to improve performance must be developed.

Standard Practice

None

Recommended Practice

- Develop an Waste Management Plan for the terminal occupant space

Best Available Practice

- Continuously improve upon and require that all employees are trained on the merits and policies contained within the Waste Management Plan.
### Terminal Occupant Information

<table>
<thead>
<tr>
<th>Date</th>
<th>Terminal occupant</th>
<th>Owner</th>
<th>Address/Location</th>
<th>Contact Person</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### Waste Management Survey

All questions apply to systems and waste under the terminal occupant’s control and/or within the space being evaluated.

#### SOLID WASTE

1. **Solid Waste Management Company**
   (list all that apply)

2. **Do you receive waste generation reports from waste hauler?**
   Yes | No

3. **If yes, what is annual solid waste generation?**
   From: month/year  To: month/year  lb/yr

4. **If yes, what is annual solid waste recycled?**
   From: month/year  To: month/year  lb/yr

5. **If yes, what is annual solid waste composted?**
   From: month/year  To: month/year  lb/yr

6. **Indicate with an X in the appropriate column the types of recyclable/compostable solid wastes generated:**
   - Source Separated
   - Single-Stream

   a. **Cardboard/cardstock**
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Aluminum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Steel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Glass</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Paper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Plastics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Compostable waste (incl. food waste)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Coffee Grounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Other (list)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Does terminal occupant have a designated recycling/composting area? Describe location:

**LIQUID WASTE**

1. Liquid Waste Management Company (list all that apply) 

2. Do you receive waste generation reports from waste hauler? Yes No

3. If yes, what is annual liquid waste generation? gal/yr or lb/yr

   From: To: month/year month/year

4. List liquid waste types that are recycled – e.g. grease, motor oil

5. Does terminal occupant have a designated recycling area? Describe location:
# SPECIAL WASTE

1. Does terminal occupant have universal waste management plan for safe disposal of batteries, paints, solvents, electronics, mercury-containing lamps, printer cartridges, etc.  
   | Yes | No |

2. List all types of universal wastes above and include quantities disposed/recycled, if known:

3. Does terminal occupant have a designated universal waste recycling area? Describe location:

## Other Waste Management Questions

1. What is terminal occupant’s largest waste sources/products:

2. Waste Reduction Techniques – e.g. bulk purchasing, manufacturer take-back programs, donation programs, etc.

3. Education and Training – If yes, please describe
   - Waste Minimization/Recycling Signage  
     | Yes | No |
   - Employee Training – Waste Management  
     | Yes | No |
   - Customer Education – Waste Management  
<pre><code> | Yes | No |
</code></pre>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Has terminal occupant performed a third-party waste audit? If yes, describe results:</td>
<td></td>
</tr>
<tr>
<td>5. Does terminal occupant track waste generation, recycling, and disposal quantities? If yes, indicate if and where results are reported – e.g. website, documents.</td>
<td></td>
</tr>
<tr>
<td>6. Describe goals for waste reduction over time – e.g. waste reduction initiatives.</td>
<td></td>
</tr>
</tbody>
</table>

(Please use additional pages as necessary to complete)
13.0 WASTE STREAM MANAGEMENT

13.7 Waste Reduction

1 to 10 points

INTENT

Further increase solid waste reduction within buildings to reduce the burden on landfills and minimize emissions due to transport.

REQUIREMENTS

OPTION 1

Using one year’s worth of data based on the waste stream audit, calculate reduction compared to baseline data (data from first review, waste audit) of waste sent to landfill.

Waste reduction beyond the baseline set by 1st year data will be awarded credits based on the following table:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Reduction of waste sent to landfill (by percent)</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.7.1</td>
<td>5%</td>
<td>1</td>
</tr>
<tr>
<td>13.7.2</td>
<td>10%</td>
<td>2</td>
</tr>
<tr>
<td>13.7.3</td>
<td>15%</td>
<td>3</td>
</tr>
<tr>
<td>13.7.4</td>
<td>20%</td>
<td>4</td>
</tr>
<tr>
<td>13.7.5</td>
<td>25%</td>
<td>5</td>
</tr>
<tr>
<td>13.7.6</td>
<td>30%</td>
<td>6</td>
</tr>
<tr>
<td>13.7.7</td>
<td>35%</td>
<td>7</td>
</tr>
<tr>
<td>13.7.8</td>
<td>40%</td>
<td>8</td>
</tr>
<tr>
<td>13.7.9</td>
<td>45%</td>
<td>9</td>
</tr>
<tr>
<td>13.7.10</td>
<td>50%</td>
<td>10</td>
</tr>
</tbody>
</table>

Example: A terminal occupant collected and recorded waste disposal data from two years ago and designated this period as the baseline waste disposal. The annual amount of waste that was disposed in landfills for the baseline year was 100 tons. In the subsequent year, due to waste reduction initiatives, the terminal occupant was able to lower waste...
disposal for this period to 80 tons. This calculates to a 20% improvement over the baseline and therefore 4 points are awarded.

OR

OPTION 2

Create an inventory of all the waste reduction initiatives that terminal occupant has undertaken to reduce solid waste prior to and during the performance review.

A point will be awarded for each of the initiatives. Up to 6 points may be awarded by achieving any of the following measures:

<table>
<thead>
<tr>
<th>Technology/Strategy</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilize trash compactors or bailers</td>
<td>1</td>
</tr>
<tr>
<td>Repurpose or reuse products or materials program</td>
<td>1</td>
</tr>
<tr>
<td>Bulk purchasing, reduced packaging</td>
<td>1</td>
</tr>
<tr>
<td>Oil and grease recycling</td>
<td>1</td>
</tr>
<tr>
<td>Coffee grounds composting or recycling program</td>
<td>1</td>
</tr>
<tr>
<td>Electronic waste recycling program</td>
<td>1</td>
</tr>
</tbody>
</table>

SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist.

TECHNOLOGY/STRATEGY

Maintain an effective recycling program that at a minimum addresses the traditional recyclables (paper, metal, glass, and plastic) Determine effective strategies for addressing other waste products which might include composting, for organic wastes, or reuse or repurposing for wood or other building materials. Waste reduction strategies including purchasing in bulk to reduce packaging waste or elimination of disposable products should also be considered.

Standard Practice

- Employ traditional recycling (paper, metal, glass, and plastic)
Recommended Practice

- Compost organic wastes such as food scraps and landscaping waste
- Reuse or repurpose building materials
- Donate unused inventory to charities
- Make waste materials available to other entities through a warehouse or sharing program
- Employ purchasing strategies that reduce waste volume, e.g. bulk purchases

Best Practice

None
13.0 WASTE STREAM MANAGEMENT

13.8 Storage and Collection of Recyclables

1 point

INTENT

Facilitate the reduction of waste generated by terminal occupant space occupants that is hauled to and disposed of in landfills.

REQUIREMENTS

Provide an easily accessible dedicated area or areas that serve the terminal occupant space for the collection and storage of materials for recycling, including paper, corrugated cardboard, glass, plastics and metals. An area should also be dedicated to collection and storage of compostable food waste, if applicable.

SUBMITTALS

Include descriptive narrative in the SAM Checklist.

TECHNOLOGY/STRATEGY

Ensure that within the terminal occupant space there is an area for recyclable collection and storage that is appropriately sized and located in a convenient area. These areas would likely be designed and sized differently depending on the ultimate use and waste stream of the facility (e.g., office, airlines, concessionaires, etc.) Identify local waste handlers and buyers for glass, plastic, office paper, e-waste, newspaper, cardboard, metals, fluids, fixtures, and organic wastes. Instruct employees, occupants, and contractors on the recycling procedures. Consider employing cardboard balers, aluminum can crushers, recycling chutes and other waste strategies to further enhance the recycling program.

Standard Practice

- Designate an area for recyclable collection and storage that is appropriately sized and located in a convenient area
- Instruct employees, users and occupants on recycling procedures

Recommended Practice

- Investigate and incorporate collection rooms for recycling streams that make sense for each terminal occupant space
- Coordinate recyclable waste collection with hauler capability
Recycle the following waste, whenever feasible:

- Aluminum
- Glass
- Paper, newspapers, magazines, and cardboard
- Carpet
- Wood (pallets/crates, etc.)
- Food waste/grease and compostables
- Organic waste and compostables
- Gas & oil filters
- Motor oil and Anti-freeze
- Scrap metal
- Batteries
- Light bulbs
- Toner cartridges
- Tires
- Electrical wiring
- Electronics including monitors

**Best Available Practice**

- Employ cardboard balers, aluminum can crushers, recycling chutes and other technologies to enhance the recycling program
13.0 WASTE STREAM MANAGEMENT

13.9 Track and Report Recycling Activity

2 points

INTENT

Determine the types and amounts of recyclable waste and determine strategies for reducing and diverting additional waste from landfills.

REQUIREMENTS

Retain periodic recycling reports to be summarized for the performance review period. Note that this is a waste audit for the recyclables stream. Types of waste to be tracked include:

- Glass – bottles and other containers
- Metal – aluminum and steel containers, foil
- Plastic – bottles, containers, packaging, bags
- Paper – office paper, bags, cup sleeves, cup carriers, non-thermal receipt tape, customer checks, newspaper, magazines
- Cardboard – cardstock, display boards, corrugated fiberboard, paperboard
- Rubber – tires
- Fats, Oils, and Grease
- Other (specify what items are recycled)

SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist outlining the types of waste and volumes recycled.

TECHNOLOGY/STRATEGY

Standard Practice

- Track recycling activity over time. Use the report to identify seasonal swings in recycling rates and program costs and benefits.
Recommended Practice

None

Best Available Practice

- Provide the results of the recycling reports to the community and other interested stakeholders
13.0 WASTE STREAM MANAGEMENT

13.10.1 Organic Byproduct Recycling: Coffee Grounds

4 Points

INTENT

Facilitate the reduction of waste generated by terminal occupant space occupants that is hauled to and disposed of in landfills.

REQUIREMENTS

Implement a coffee grounds collection program that provides a means of separating grounds from the rest of the waste stream and finding other uses for the waste.

SUBMITTALS

Include descriptive narrative on SAM Checklist detailing the collection and disposal of coffee grounds from the terminal occupant space.

TECHNOLOGY/STRATEGY

With the implementation of increased security at airports, passengers are spending an increased amount of time at the airport and in turn creating more waste. In conjunction with the Airport, terminal occupants should commit to reducing the amount of waste that eventually arrives at the landfills.

The weight of used coffee grounds can significantly impact the cost of waste removal. Though the use of creative solutions, the coffee grounds can instead be used for composting/fertilizer needs or insect control.

Standard Practice

None

Recommended Practice

- Collect the used coffee grounds and sell to a third part as a commodity. Permits and EPA approval may be required depending on the terminal occupant’s location.

Best Available Practice

- Re-use coffee grounds onsite as soil additives. Permits and EPA approval may be required depending on the terminal occupant’s location.
13.0 WASTE STREAM MANAGEMENT

13.10.2 Organic Byproduct Recycling: Fats, Oils and Grease

2 Points

INTENT

Facilitate the reduction of waste generated by terminal occupant space occupants that is hauled to and disposed of in landfills.

REQUIREMENTS

Terminal occupant would install and maintain used cooking oil/liquid grease collection equipment and participate in a grease recycling program. Terminal occupants are solely responsible for all costs associated with the interception, collection and appropriate disposal of fats, oils and grease generated by their operations on the premise.

SUBMITTALS

Include descriptive narrative on SAM Checklist detailing the type, amount and process/company used to convert the fats, oils and grease.

TECHNOLOGY/STRATEGY

With the implementation of increased security at airports, passengers are spending an increased amount of time at the airport and in turn creating more waste. In conjunction with the Airport, terminal occupants should commit to reducing the amount of waste that eventually arrives at the landfills.

New technological advances are now allowing items that previously used to be discarded to now be re-purposed. A prime example is grease from concessionaires and flight kitchens that can be converted into biofuels than can be used by the company or sold to other parties.

Standard Practice

None

Recommended

- Collect the used fats, oils and grease and sell to a third part as a commodity

Best Available

None
13.0 WASTE STREAM MANAGEMENT

13.11 Repurposing of Goods

2 Points

INTENT

Promote the reuse of materials, equipment and products to reduce demand for virgin materials and reduce waste, thereby lessening impacts associated with the extraction and processing of virgin resources.

REQUIREMENTS

Whenever possible, identify items that can be donated, salvaged, refurbished or reused by a third party. This credit can also be achieved by utilizing donated, salvaged, refurbished or used items from an outside party.

SUBMITTALS

Include descriptive narrative on SAM Checklist detailing the types of products that were donated and to whom.

TECHNOLOGY/STRATEGY

Salvage and donation are important waste prevention strategies, since they reduce the need for the purchase and manufacture of new products and help keep materials out of landfills. Identify opportunities to incorporate salvaged materials into daily operations. Consider salvaged materials such as cabinetry and furniture, pumps, motors, electrical panels, fixtures and tanks.

The terminal occupant may also identify items that can be sold or donated to other users. Consider items such as appliances, carpet, shelving, displays, and non-perishable inventory.

Standard Practice

None

Recommended Practice

Terminal occupant s should identify items for reuse and donate the goods:

- Egg cartons, strawberry baskets, poster board, and other materials can be sent to schools or daycare centers for use in arts and crafts activities
- Collect magazines, newspapers, and books from international passengers and donate them to local educational facilities that teach foreign languages, senior centers, and/or united service organizations
- Guest hangers no longer suitable for use can be repurposed to local dry cleaners
- Linens, towels, blankets, soap, shampoo, uniforms, and used furniture can be donated to a local shelter
- Flowers that were used for banquets and celebrations can be sent to a local hospice or hospital

**Best Available Practice**

None
14.0 INNOVATION FOR TERMINAL OCCUPANTS –

Operations & Maintenance

14.1 – 14.3 Innovation for Terminal Occupants

1 to 3 Points

INTENT

Provide terminal occupants the opportunity to achieve exceptional performance above the requirements set by the Sustainable Airport Manual Green Airplane Rating System and/or innovative performance not specifically addressed by the Sustainable Airport Manual.

REQUIREMENTS

In writing, identify the intent of the proposed innovation credit, the proposed requirement for compliance, and the proposed submittals to demonstrate compliance, and the approach (strategies) that might be used to meet the requirements.

Up to three points are available for this credit:

<table>
<thead>
<tr>
<th>SAM Credit</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1</td>
<td>1</td>
</tr>
<tr>
<td>14.2</td>
<td>1</td>
</tr>
<tr>
<td>14.3</td>
<td>1</td>
</tr>
</tbody>
</table>

SUBMITTALS

Include descriptive narrative in the SAM Checklist following the criteria in the Requirements section above.

TECHNOLOGY/STRATEGY

Substantially exceed a SAM performance credit such as energy performance or water efficiency and/or apply strategies or measures that demonstrate a comprehensive approach and quantifiable environment and/or health benefits.
Refer to LEED Credit Interpretation Results (CIRs) or the Innovation in the LEED Design Credit Catalog\(^6\) for potential strategies that may be considered for innovation. The SRP will review proposed innovations by the concessionaire or terminal occupant on a case by case basis.

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\(^6\) Available at [www.usgbc.org](http://www.usgbc.org).
14.0 INNOVATION FOR TERMINAL OCCUPANTS

14.4 Community/Cultural Responsibility

1 to 3 Points

INTENT

Promote specific social and cultural initiatives considered to be important to the sustainability of the airport environment and surrounding community.

REQUIREMENTS

A point will be awarded for each of the initiatives listed below that are promoted and organized by the terminal occupant up to a maximum of 3 points:

- Industry Award – Terminal occupant has received an industry award for their sustainability initiatives.

- Green Certification – Terminal occupant has achieved a green certification from an industry organization, e.g. Good Food Purchasing Program, Green Restaurant Association, Green Seal, SAM Design & Construction Green Airplane Rating, LEED certified project, ISO 14001, etc.

- Employee Wellness Program – Have in place a program that encourages good health. Programs that maintain good health include but are not limited to health club memberships, incentivized programs for weight loss or to quit smoking, access to yoga, meditation, tai chi, zen gardens, bicycles for employees at work, etc.

- Carpooling Incentives – Provide incentives to employees for carpooling.

- Community Outreach and Volunteerism Programs

- Cultural Programs – Promote and organize programs that display or present local art, performers, and culture and make accessible to the travelling public and/or airport community regarding culture, art, community connectivity, etc.

- Other Community/Cultural Programs

SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist. Indicate in the narrative which of the above technologies and strategies are being included in the project and, where applicable, indicate where these items are shown in the drawings or specifications.
TECHNOLOGY/STRATEGY

Organize and implement initiatives or programs not listed above that have a social or cultural impact on the travelling public, employees, and/or surrounding communities.
14.0 INNOVATION FOR TERMINAL OCCUPANTS

14.5 Menu Items (Green Walls, Alternative Water Heating, Biological Systems, or Exemplary Performance)

1 to 3 Points

INTENT

Promote specific technologies and strategies considered to be important to the sustainability of the airport environment.

REQUIREMENTS

A point will be awarded for each of the strategies or technologies listed below that are utilized by the terminal occupant up to a maximum of 3 points:

- Green Walls – Use green, vegetated wall systems, interior or exterior, if applicable. Green walls used for interior spaces must be designed for the improvement of indoor air quality as well as aesthetics.
- Alternative Water Heating – Use demand, tankless, instantaneous or solar water heating technology
- Biological systems, such as the use of vermiculture (worms), raising bees for honey, algae for fuel, etc.
- Exemplary Performance – Significantly exceed the requirements of any credit.
- Other

SUBMITTALS

Include descriptive narrative and calculations in the SAM Checklist. Indicate in the narrative which of the above technologies and strategies are being included in the project and, where applicable, indicate where these items are shown in the drawings or specifications.

TECHNOLOGY/STRATEGY

Organize and implement initiatives or programs not listed above that have a social or cultural impact on the travelling public, employees, and/or surrounding communities.

- Green Walls – Vegetated green wall systems can result in significant air conditioning savings. Vegetated green wall systems on exterior of building envelope can reduce wall surface temperatures by as much as 18°F (depending on which direction it is facing), which also results
in significant air conditioning savings, while reducing the heat island effect. In interior applications, green or living walls can help regulate indoor temperatures, humidity, and air quality. Green walls fall into two categories:

- Green facades (outside): Made up of climbing plants growing directly on a wall
- Living walls (inside): Modular panels often made of steel containers, geotextiles, irrigation systems, growing medium and vegetation

- **Alternative Water Heating** – Alternative water heating for the purposes of this credit includes two types of technologies – instantaneous and solar thermal:
  
  - Instantaneous hot water heating technology uses include demand, instantaneous, or tankless water heaters. Demand water heaters heat water directly without the use of a storage tank thus avoiding the standby heat losses associated with conventional storage tank water heaters. When a hot water tap is turned on, cold water is heated directly by a gas burner or an electric element as it passes through the unit. As a result, demand water heaters deliver a constant supply of hot water not limited by the volume of a storage tank.
  
  - Water heating – Solar thermal hot water heating technology uses a solar collector which is simply a heat exchanger designed to convert the sun’s radiant light energy into thermal energy to be stored for later use. This collector uses optics and parabolic concentration technology to heat the fluid media passing through the selectively coated tubing manifold. The fluid media is circulated, via a pump, through the collector and into a storage tank located within the home/building.

- **Advanced Wastewater Treatment** – Onsite wastewater treatment is the collection, treatment and disposal or reuse of wastewater at or near the location in which the waste is generated. Onsite wastewater treatment systems provide preliminary, primary, secondary and tertiary treatment. The methods of treatment can vary but generally accomplish the same task. Systems are designed to be reliable and self-sufficient, however, the labor required to operate the system may be the largest expense. This, of course, is often integrated into standard facilities operation and management. Health, safety, and liability issues must be addressed early in the design process. Costs associated with the installation of these systems are generally offset by decrease in water demand, utility fees, or governmental grants.

- **Kinetic Energy/Power Regeneration Systems** – This class of systems converts kinetic energy or mechanical energy into electricity. There are a number of systems that accomplish this, the most common application being regenerative braking common in many hybrid vehicles. In this case, braking energy that would normally be lost as heat friction is instead converted to electricity and stored in a battery. Other systems include piezoelectric systems that convert pressure or vibration from, for example, footsteps or vehicle traffic to electricity.

- **Waste-to-Energy (WTE) Systems** – These systems create energy in the form of electricity or heat from the incineration of a waste product. Most WTE systems produce electricity directly through combustion of a waste product, or produce a combustible fuel through the
decomposition of a waste product. In the latter case, the typical systems are anaerobic decomposition of organic wastes, such as in landfills or sewage treatment digesters. Other direct combustion waste products may be derived from a nearby manufacturing industry, such as a saw mill (wood waste) or other flammable solid. In either case, the pollutants emitted must be addressed for this system to be effective.

- **Net Zero Programs** – These may include water, energy, or waste. In essence, the loop is closed – there are no inputs or outputs of a given operation for a given stream, be it water, waste, or energy.
  
  - Water reuse is achievable depending on demand and regulatory environment and may employ such technologies as graywater reuse, rainwater harvesting.
  - Net zero energy has been proven for buildings where energy demand is produced onsite typically through photovoltaics of wind turbines and through energy conservation techniques.
  - Net zero waste systems are more typical of a manufacturing process but there may be potential applications in construction materials for example.

- **Biological Systems** – This category is a catch-all for systems that use living organisms to produce a beneficial commodity. The commodity is considered beneficial if it provides a use that has environmental, financial, or social benefits. This can include apiaries for the production of honey or vermiculture for the disposal of organic wastes.

- **Exemplary Performance** – When achieving a high level of compliance with any of the previous credits, the SRP will evaluate any claims that go significantly above and beyond the requirements of any SAM credit. For example, for SAM Credit 9.5 – Sustainable Food and Consumer Products, the highest threshold achievable is 40%, however if the sustainable food and consumer products of a given terminal occupant exceed 80%, an exemplary performance point may be claimed.

- Other innovative technologies can be presented and will be evaluated by the SRP for final approval.
For comments, case studies, lessons-learned, new technologies or for any and all project submittal forms, please email:

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