



**BUSINESS AND INSTITUTIONAL FURNITURE
SUSTAINABILITY ASSESSMENT STANDARD**

GUIDANCE DOCUMENT

BIFMA International

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Acknowledgments

The Business and Institutional Furniture Manufacturers Association (BIFMA) International thanks the extraordinary group of stakeholders that came together to assist in the development of this standard:

(List of participants will be listed here.)

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Table of Contents

GOALS 3

DEFINITIONS 4

ELEMENTS 9

MATERIALS 11

ENERGY 38

HUMAN AND ECOSYSTEM HEALTH 81

SOCIAL RESPONSIBILITY 109

RESOURCES AND GUIDANCE 121

Goals

Established in 1973, the Business and Institutional Furniture Manufacturers Association (BIFMA) International is a not-for-profit trade association of furniture manufacturers and suppliers addressing issues of common concern. The association serves as the industry voice for workplace solutions by providing standards development, statistical data generation, government relations, industry promotion, and education.

BIFMA is committed to promoting sustainable work environments and business practices based on sound economics, environmental protection, and social responsibility. We will accomplish these goals by fostering partnerships between manufacturers, suppliers, end users, and the science community; providing association members with education in the concepts of sustainable design; and developing meaningful tools for quantifying and communicating industry progress to interested parties.

In developing a business and institutional furniture sustainability standard, BIFMA established the following goals:

1. The standard must be meaningful to the marketplace
2. It should help differentiate Environmentally Preferable Business and Institutional Furniture
3. It should help harmonize sustainability standards for the office furniture industry
4. The standard should allow for multiple levels of achievement
5. It should provide an open alternative to proprietary certification programs
6. The standard should provide incentives for smaller companies to participate

Definitions

- 3.1 air pollutant:** Any substance in air that could, in high enough concentration, harm humans, animals, vegetation, or material.
- 3.2 air pollution:** The presence of contaminants or pollutant substances in the air that interfere with human health or welfare, or produce other harmful environmental effects.
- 3.3 biodegradable:** Capable of decomposing under natural conditions.
- 3.4 biodiversity:** The number, variety, and variability of living organisms.
- 3.5 byproduct:** Material, other than the principal product, generated as a consequence of an industrial process or as a breakdown product in a living system.
- 3.6 carcinogen:** Any substance that can cause or aggravate cancer.
- 3.7 chemicals of concern:** is a chemical that makes a significant contribution to one or more of the following life cycle impact categories:
- persistent, bioaccumulative, and toxic (PBT); and
 - very persistent, very bioaccumulative (vPvB); and
 - carcinogen, mutagen, reproductive toxicant (CMR); and
 - endocrine disruptor (ED).
- 3.8 child labor:** Utilizing workers under the minimum legal age for employment in the country where the facility operates.
- 3.9 compost:** The relatively stable humus material that is produced from a composting process in which bacteria in soil mixed with garbage and degradable trash break down the mixture into organic matter.
- 3.10 cradle-to-gate:** a term used to describe the LCA boundary encompassing the life cycle stages of raw material extraction and conversion.
- 3.11 criteria (air) pollutants:** The 1970 amendments to the Clean Air Act required EPA to set National Ambient Air Quality Standards for certain pollutants known to be hazardous to human health. EPA has identified and set standards to protect human health and welfare for six pollutants: ozone, carbon monoxide, total suspended particulates, sulfur dioxide, lead, and nitrogen oxide. The term, "criteria pollutants" derives from the requirement that EPA must describe the characteristics and potential health and welfare effects of these pollutants. It is on the basis of these criteria that standards are set or revised.

3.12 design for the environment (DFE): The systematic integration of environmental attributes into the design of products and processes. There are three unique characteristics of DFE:

- The entire life-cycle is considered
- Point of application is clearly in the product realization
- Decisions are made using a set of values consistent with industrial ecology, integrative systems thinking or another framework.

3.13 ecosystem: The interacting system of a biological community and its non-living environmental surroundings.

3.14 environment: The sum of all external conditions affecting the life, development, and survival of an organism.

3.15 environmental aspect: An element of an organization's activities, products or services that can interact with the environment.

3.16 environmental policy: A statement by the organization of its intentions and principles in relation to its overall environmental performance, which provides a framework for action and for the setting of its environmental objectives and targets.

3.17 environmental management system: The part of a company's overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, reviewing, and maintaining the environmental policy.

3.18 forced labor: Compulsory prison or debt bondage labor. Lodging of deposits or identify papers by employers or outside recruiters for the purpose of restricting or preventing the individual from leaving employment.

3.19 fossil fuel: Fuel derived from ancient organic remains. Some examples are peat, coal, crude oil, and natural gas.

3.20 gate-to-gate: a term used to describe the LCA boundary encompassing the life cycle stage of manufacturing.

3.21 greenhouse gas (GHG): Gases related to human activities that accelerate the greenhouse effect.

3.22 hazardous substances (materials): 1. Any substance that poses a threat to human health and/or the environment. Typical hazardous substances are toxic, corrosive, ignitable, explosive, or chemically reactive. 2. Any substance designated by EPA to be reported if a designated quantity of the substance is

spilled in the waters of the United States or is otherwise released into the environment.

3.23 incidental presence: The presence of a regulated metal (i.e., cadmium, lead, mercury, hexavalent chromium) as an unintended or undesired ingredient of a package or packaging component.

3.24 legacy products: Business and institutional furniture products manufactured for sale prior to the publication date of the BIFMA SAS.

3.25 life cycle: The total impact of a system, function, product, or service from the extraction of raw materials through its end-of-life management.

3.26 life cycle assessment (LCA): A tool for the systematic evaluation of the environmental aspects of a product or service system through all stages of its life cycle consistent with ISO 14040. An analytical tool to implement life cycle thinking, inclusive of both product and process. An LCA is generally quantitative and requires that the results be normalized to a functional unit.

3.27 life cycle thinking: A conceptual approach that addresses environmental problems from a whole-systems or holistic perspective. The essential difference from an LCA is that the results are not normalized to a functional unit, and the results may be expressed qualitatively or quantitatively.

3.28 manufacturing facility: The applicant specified boundary of the location(s) where product(s) seeking conformance are being manufactured.

3.29 package: A container providing a means of marketing, protection, or handling of a product and shall include a unit package, an intermediate package, and a shipping/transport container as defined in American Society for Testing and Materials (ASTM) D 996. "Package" shall also mean and include such unsealed receptacles as carrying cases, crates, cups, pails, rigid foil, and other trays, wrappers and wrapping films, bags, and tubs.

3.30 packaging component: Any individual assembled part of a package such as, but not limited to, any interior or exterior blocking, bracing, cushioning, weatherproofing, exterior strapping, coatings, closures, inks, and labels.

3.31 post-consumer: Generated by households, or by commercial, industrial, and institutional facilities in their role as end-users of the product which can no longer be used for its intended purpose. This includes return of materials from the distribution chain.

3.32 post-industrial: Diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind, or scrap

generated in a process and capable of being reclaimed within the same process that generated it.

3.33 pollution: Generally, the presence of a substance in the environment that because of its chemical composition or quantity prevents the functioning of natural processes and produces undesirable environmental and health effects.

3.34 recovered material: Waste materials and byproducts that have been recovered or diverted from solid waste, but does not include materials and byproducts generated from, and commonly reused within, an original manufacturing process.

3.35 recyclable: capable of minimizing waste generation by recovering and reprocessing usable products that might otherwise become waste.

3.36 recycle/reuse: To minimize waste generation by recovering and reprocessing usable products that might otherwise become waste (e. g., aluminum cans, paper and bottles, etc.).

3.37 recycled-content materials: Materials that have been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (post-industrial) or after consumer use (post-consumer).

3.38 renewable energy: Energy from a source that is replenishable and replenished on some reasonable time scale. Potential renewable energy sources include, but are not limited to wind, solar, heat from the earth's interior, oceans, rivers, and biomass.

3.39 renewable material: A material that is replenishable and replenished on some reasonable time scale. Renewable material sources include, but are not limited to wood, grass fibers, plant-based plastics, fuels and 100 percent recycled content metals, papers, plastics and glass.

3.40 reuse: The operation by which packaging, which has been conceived and designed to accomplish within its lifecycle a minimum number of trips or rotations, is refilled or used for the same purpose for which it was conceived, with or without the support of auxiliary products present on the market enabling the packaging to be refilled: such reused packaging will become packaging waste when no longer subject to reuse.

3.41 reusable packaging: Packaging or packaging component which has been conceived and designed to accomplish within its lifecycle a minimum number of trips or rotations in a system for reuse.

3.42 significant environmental aspect: An environmental characteristic that has or can have significant environmental impact.

3.43 social responsibility (or equity): The identification of issues, the development of standards, and the implementation of programs that address corporate responsibility for the ethical treatment of employees, communities, and other stakeholders.

3.44 solid waste: Non-liquid, non-soluble materials ranging from municipal garbage to industrial wastes that contain complex and sometimes hazardous substances. Solid wastes also include sewage sludge, agricultural refuse, demolitions wastes and mining residues. Technically, solid waste also refers to liquids and gases in containers.

3.45 source reduction: A pollution prevention technique that eliminates the potential for pollution at the source, or where the polluting material enters the product or service cycle.

3.46 stakeholders: People who are (or might be) affected by any action taken by an organization. Examples are: Customers, owners, employees, associates, partners, contractors, suppliers, related people or located nearby.

3.47 sustainable development: Development that meets the needs of the present without compromising the ability of future generations to meet their needs.

3.48 toxic: Presenting an unreasonable risk of injury to human health or the environment.

3.49 triple bottom line: Sustainable development involves the simultaneous pursuit of economic vitality; ecological integrity; and social equity. Companies aiming for sustainability need to perform not against a single, financial bottom line, but against the triple bottom line.

3.50 waste: Unwanted materials left over from a manufacturing process, or refuse from places of human or animal habitation.

4 Assessing Conformance, Evaluation, and Assessment Criteria

Organizations that choose to assess their business and institutional furniture and/or products to this Standard can achieve first-party, second-party, or third-party conformance. Organizations can show continuous improvement by moving products to higher levels of achievement rather than by incorporating requirements in the Standard that change over time, e.g., year-over-year improvements in energy efficiency. The manufacturer of the applicant product can determine the scope of the conformance to the extent that the scope can be clearly communicated to potential purchasers of the product.

The scope of conformance can be defined based on geographic location. A product that is manufactured in one location can be included, while the same product manufactured in another location can be excluded. In this case, the credits that are based on “facility” or “corporate” characteristics (such as energy use, water use, and health and safety management) shall be evaluated based on the activities only at the location included in the scope of conformance. The scope of conformance can also be limited or defined based on product options or characteristics. For example, wood/veneer options could be included while laminate/non-wood options are excluded, or vice versa. Certain color options or fabric options could be included in the scope of the conformance while others are excluded.

4.1 Elements

This Standard is divided into four elements, each composed of various prerequisites and credits that are potentially available to organizations seeking product conformance to the standard. The four elements are:

- materials;
- energy and atmosphere;
- human and ecosystem health; and
- social responsibility.

4.2 Prerequisites

Each element has one or more prerequisites that are required as the minimum performance against the standard and applicants/products shall meet all prerequisites in each element in order to proceed. Once the prerequisite(s) are met; products may achieve additional credits toward multiple levels of achievement in each element by meeting the specified performance requirements.

4.3 Credits

Beyond the prerequisites, there is no minimum number of credits from any of the four major elements required to demonstrate conformance to this Standard. The

required credits can come from any of the four elements. However, a minimum of ten (10) product related points are required for any level of conformance.

4.3.1 Levels of Achievement

There are three levels of achievement or conformance available within this Standard. Below are the three levels, with the associated number of points needed to achieve each level:

Silver	31 to 43 total points
Gold	44 to 61 total points
Platinum	62 to 89 total points

4.3.2 Summarized Score Sheets

Prerequisites and potential credits for each element are summarized in tabulated scorecards.

5.0 MATERIALS

5.1 Prerequisite: Design for Environment Program

The organization shall implement a design for environment (DFE) program. The DFE program shall, at a minimum, consist of the following elements: renewable materials; recycled materials; recyclable and biodegradable materials; end of life management; water management and energy efficiency.

Intent

Require implementation of a Design for Environment (DfE) program. DfE is the systematic integration of environmental considerations into product and process design. Because it offers new perspectives with a product and business focus, DfE can be a powerful tool to uncover possibilities for greater competitiveness and innovation as well as greater environmental responsibility.

Requirements

Put in place a multi-disciplinary DfE program which may include design, engineering, production, quality assurance and marketing staff.

Possible Points: Prerequisite

Scope: Corporate, Facility, Product

Boundaries: Organization and product to be assessed to the SAS.

Documentation

Integration of DfE into an Environmental Management System; or objective evidence (e.g. procedures documented and implemented) to verify the use of Life Cycle Thinking, including such elements as:

- Life Cycle Assessment (O)
- Materials Use Efficiency (O)
- Renewable Materials (R)
- Recycled Materials (R)
- Recyclable and Biodegradable Materials (R)
- End-of-Life Management (R)
- Water Management (R)
- Energy Efficiency (R)
- Human & Ecosystem Health Considerations (O)

(R): required element of DFE program

(O): optional element of DFE program

Methodology: Documented procedures in place.

Related Credits:

5.1 - DfE program

5.2 - Climate Neutral Materials

5.5.2 - Assessment of bio-based alternatives

5.10.1 – Design for durability

5.10.2 – Design for repair / remanufacturing

5.10.3 – Design for recyclability

6.5.1 – Lighting products sold by company meet California Title 24

5.3 - Life Cycle

5.3.1 - Life Cycle Thinking

5.3.2 - Life Cycle Assessment

5.3.3 - 3rd Party review of LCA

5.1.2 - Assessment of bio-based alternatives

5.7.1 – Recycled content (PC + (0.5*PI)) = 30% by wt

5.7.2 – Recycled content (PC + (0.5*PI)) = 50% by wt

5.8 – Identify recyclable/biodegradable content

5.9 – Packaging Reduction Program

5.10.1 – Design for Durability

5.10.2 – Design for repair / remanufacturing

5.10.3 – Design for recyclability

5.10.4 – Recovery Options for materials

7.4 – Effects of Process and Production Chemicals

7.4.3 – Chemical Reduction Strategy

7.5.1 – Reduction/Elimination of Chemicals of Concern

Resources:

- DfE Guide prepared by National Research Council of Canada
http://dfe-sce.nrc-cnrc.gc.ca/overview/overview_e.html.
- Minnesota Office of Environmental Assistance, Better by Design (2006),
<http://www.moea.state.mn.us/berc/DFEtoolkit.cfm>.

5.2 Climate Neutral Materials

The organization shall increase the use of climate neutral materials. The organization shall receive one point if it: Demonstrates that at least 30% of the final product weight is comprised of climate neutral materials. Materials are climate neutral when there is zero net greenhouse gases (GHG) such as CO₂e, from the entire life cycle of the material. GHG impact is calculated utilizing life cycle analysis then is neutralized utilizing carbon emission reduction credits (ERCs) such as through green power off-set purchases or carbon sequestration projects. The offsets must equal or exceed the GHG produced during extraction, processing, manufacture transport and use of product.

Intent: Neutralize greenhouse gas emissions associated with product production and employ strategies that result in zero net greenhouse gases (GHG) from the entire life cycle of the material.

Requirements:

Document which material components of the product to be assessed are climate neutral.

Demonstrate that these materials comprise more than 30% by weight of the product.

Calculate the total GHG impact of the carbon neutral materials using LCA. Obtain carbon emission reduction credits such as offset purchases or carbon sequestration projects. The offsets must equal or exceed the GHG produced during extraction, processing, manufacture, and transport of the material.

Possible Points: 1

Scope: Product

Boundaries: Extraction, processing, manufacture, and transport of material.

Documentation: Document carbon neutrality through Life Cycle Assessment. In order to achieve carbon neutrality, purchase of green power off-sets or carbon sequestration projects are potential strategies.

Methodology: Life Cycle Assessment

Related Credits:

- 5.2 - Climate Neutral Materials
- 6.2.1 & 6.2.2 – Building Energy Baseline
- 6.4.1 - Cradle-to-Gate Analysis
- 6.4.2 - Gate-to-Gate Analysis
- 6.6.2 - Carrier and Shipper Emission Reduction Strategies

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- 6.7.1 – 1% onsite renewable OR 5% offsite renewable energy
- 6.7.2 – 2% onsite renewable OR 10% offsite renewable energy production
- 6.7.3 – 3% onsite renewable OR 15% offsite renewable energy production
- 6.7.4 – 4% onsite renewable OR 20% offsite renewable energy production
- 6.8.1 – Greenhouse Gas Baseline
- 6.8.2 – Participate in a voluntary greenhouse gas reporting program
- 6.8.3 – 2% reduction in greenhouse gas at the manufacturing/assembly facility
- 6.8.4 – 4% reduction in greenhouse gas at the manufacturing/assembly facility
- 6.8.5 – 2% reduction in greenhouse gas at the manufacturing/assembly facility

Resources:

World Resources Institute GHG Protocol
(<http://www.ghgprotocol.org/templates/GHG5/layout.asp?MenuID=849>)

A Consumer's Guide to Retail Carbon Offset Providers (Report commissioned by Clean Air-Cool Planet a nonprofit organization dedicated to finding and promoting solutions to global warming.

(<http://www.cleanair-coolplanet.org/ConsumersGuidetoCarbonOffsets.pdf>)

EPA Climate Leaders Voluntary Program (<http://www.epa.gov/stateply>)

5.3 Use of Life Cycle Assessment

The organization shall encourage use of Life Cycle Assessments (LCA) to inform product design and development, and to optimize materials choices. The organization may complete an LCA for the furniture product being assessed. By fulfilling one of the three criteria below, an organization can earn a maximum of three points in this element, as detailed below.

5.3.1 The organization shall receive one point if it provides evidence that the company has incorporated life cycle thinking into product design by applying the first two of the four LCA components in ISO 14040 and ISO 14044 (Goal & Scope Definition and Life Cycle Inventory).

5.3.2 The organization shall receive two points if it provides evidence that the company has completed an LCA utilizing all four components in ISO 14040 and ISO 14044.

5.3.3 The organization shall receive three points if it demonstrates compliance to 5.3.2 and provides evidence that the company has completed an independent third-party review of its LCA.

Intent:

Encourage use of Life Cycle Assessment (LCA) to inform product design and development and to optimize materials choices.

Requirements:

Utilize life cycle thinking and LCA for the furniture product to be assessed to the SAS.

Possible Points: 3

Scope: Product

Boundaries: Extraction, processing, manufacture transport and use of product.

Documentation (3 levels of achievement)

- Evidence that a company has incorporated life cycle thinking into the creation of a product by applying at least two of the four components of ISO 14040*.
- Evidence that a company has completed an LCA utilizing all four components outlined in ISO 14040.
- Evidence that a company has completed an independent third party review of its LCA .

Methodology: Life Cycle Assessment

Related Credits:

- 5.1 - DfE program
 - 5.2 - Climate Neutral Materials
 - 5.5.2 - Assessment of bio-based alternatives
 - 5.10.1 – Design for durability
 - 5.10.2 – Design for repair / remanufacturing
 - 5.10.3 – Design for recyclability
 - 6.5.1 – Lighting products sold by company meet California Title 24
- 5.3 - Life Cycle
 - 5.3.1 - Life Cycle Thinking
 - 5.3.2 - Life Cycle Assessment
 - 5.3.3 - 3rd Party review of LCA
- 5.1.2 - Assessment of bio-based alternatives
- 5.7.1 – Recycled content (PC + (0.5*PI)) = 30% by wt
- 5.7.2 – Recycled content (PC + (0.5*PI)) = 50% by wt
- 5.8 – Identify recyclable/biodegradable content

Resources:

- SimaPro <http://www.pre.nl/simapro/>
- International Standards Organization
<http://www.iso.org/iso/en/ISOOnline.frontpage>
- The International Journal of Life Cycle Assessment
- United Nations Environment Programme Life Cycle Initiative
<http://lcinitiative.unep.fr/>
- BEES (NIST) <http://www.bfrl.nist.gov/oa/software/bees.html>
- US Life Cycle Inventory Database <http://www.nrel.gov/lci/>
- GABI http://www.gabi-software.com/index.html?&no_cache=1

5.4 Increase Materials Use Efficiency

The organization shall reduce the quantity (mass) of raw materials used in the manufacture and delivery of products and services. Material efficiency is calculated for the materials comprising 80 percent of the weight of the products to be assessed. This credit is focused on the substantial conversion of raw material (e.g. sawing, routing, machining, forming, stamping, molding, cutting, sewing) and does not cover the extraction and initial processing of raw materials.

By fulfilling one of the two criteria below, an organization can earn a maximum of two points in this element, as detailed below.

5.4.1 The organization shall receive one point if it demonstrates a Material Efficiency of 70%.

5.4.2 The organization shall receive two points if it demonstrates a Material Efficiency of 80%.

Material Efficiency = [(Input Mass – Waste Mass) / (Input Mass)] X 100%
Process aids and incidental consumables (e.g. gloves, sand paper) are not included in the calculation. Waste Mass includes materials sent to recycling unless full economic value recovery is demonstrated.

Intent

Reduce the quantity of raw materials used in the manufacture and delivery of products and services in order to minimize the ecological and economic footprint.

Requirements

Measure material efficiency for **80% of the material weight** of the product to be assessed to the SAS.

Material Efficiency = (Input Mass – Waste Mass) / Input Mass.

Possible Points: 2

Scope: Product

Boundaries: The substantial conversion of raw material (e.g. sawing, routing, machining, forming, stamping, molding, cutting, sewing) Does not include the extraction and initial processing of raw materials or process aids and incidental consumables (e.g. gloves, sand paper).

Documentation

Document input mass and waste mass for 80% of the material weight of the product.

Methodology: Calculation

1. Identify materials comprising 80% of total weight of product, (Input Mass)
2. Quantify waste generated during conversion of materials to furniture components. (Waste Mass)
3. Material Efficiency = $[(\text{Input Mass} - \text{Waste Mass}) / (\text{Input Mass})] \times 100\%$

Related Credits: 5.11 Solid Waste Management

5.5 Biobased Renewable Materials Excluding Wood

The organization shall increase the use of renewable materials that are obtained from bio-based sources and decrease dependency on petroleum-based materials. By fulfilling one or both of the two criteria below, an organization can earn a maximum of two points in this element, as detailed below:

5.5.1 The organization shall receive one point if it selects renewable materials for use as an integral component of new or existing product. An integral component is a primary aesthetic and/or functional element that is essential and necessary for product completeness.

5.5.2 The organization shall receive two points if it demonstrates compliance to 5.5.1 and ensures that renewable material production waste is composted or recycled. The organization shall utilize its DfE process to compare and select renewable materials.

Intent:

Increase the use of renewable materials that are obtained from biobased sources and decrease dependency on petroleum-based materials.

Requirements:

Select renewable materials for use as an integral component of new or existing product to be assessed to the SAS.

Ensure that renewable material production waste is composted or recycled.

Possible Points: 2

Scope: Product

Boundaries: Materials Used in Product

Documentation

Use DfE process to compare and select renewable materials. Identify non-renewable materials replaced that meet performance requirements.

Provide documentation that renewable material production waste is composted or recycled.

Methodology: Life Cycle Assessment leading to materials substitution. Ensure that selected materials have been harvested, and the stocks managed in an environmentally preferable manner.

Related Credits:

5.1 - DfE program

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- 5.2 - Climate Neutral Materials
 - 5.5.2 - Assessment of bio-based alternatives
 - 5.10.1 – Design for durability
 - 5.10.2 – Design for repair / remanufacturing
 - 5.10.3 – Design for recyclability
 - 6.5.1 – Lighting products sold by company meet California Title 24
- 5.3 - Life Cycle
 - 5.3.1 - Life Cycle Thinking
 - 5.3.2 - Life Cycle Assessment
 - 5.3.3 - 3rd Party review of LCA
- 5.1.2 - Assessment of bio-based alternatives
- 5.7.1 – Recycled content (PC + (0.5*PI)) = 30% by wt
- 5.7.2 – Recycled content (PC + (0.5*PI)) = 50% by wt
- 5.8 – Identify recyclable/biodegradable content
- 5.9 – Packaging Reduction Program
- 5.10.1 – Design for Durability
- 5.10.2 – Design for repair / remanufacturing
- 5.10.3 – Design for recyclability
- 5.10.4 – Recovery Options for materials
- 7.4 – Effects of Process and Production Chemicals
 - 7.4.3 – Chemical Reduction Strategy
- 7.5.1 – Reduction/Elimination of Chemicals of Concern

5.6 BioBased Renewable Materials – Sustainable Wood

The organization shall encourage environmentally responsible forest management. The use of endangered wood is prohibited. In order to qualify for these points the product to be assessed must contain at least 5 percent wood by weight. By fulfilling one of the two criteria below, an organization can earn a maximum of two points in this element, as detailed in 5.6.1 and 5.6.2. The objective evidence is the documentation provided by the supplier.

5.6.1 Base Level

An organization shall receive one point if either:

- A minimum of 50 percent of the total wood weight of the product conforms to SFI's, CSA's, or another qualified organization's sustainable forest practices; or
- A minimum of 20 percent of the total wood weight of the product conforms to FSC sustainable forest practices.

5.6.2 Advanced Level

An organization shall receive two points if either:

- A minimum of 75 percent of the total wood weight of the product conforms to SFI's, CSA's, or another qualified organization's sustainable forest practices; or
- A minimum of 30 percent of the total wood weight of the product is compliant to FSC sustainable forest practices.

Intent

Encourage environmentally responsible forest management and use of non-endangered species of wood.

Requirements:

Demonstrate use of sustainable wood.

Use of endangered wood is prohibited.

Either a minimum of 50% of the total wood weight of the product is compliant to SFI, CSA or other qualified organizations sustainable forest practices OR a minimum of 20% of the total wood weight of the product is compliant to FSC sustainable forest practices.

OR

Either a minimum of 75% of the total wood weight of the product is compliant to SFI, CSA or other qualified organizations sustainable forest practices OR a

minimum of **30%** of the total wood weight of the product is compliant to FSC sustainable forest practices.

Possible Points: 2

Scope: Product

Boundaries: Wood material

Documentation:

Using the CITES list verify and document that the species of wood used in the product are not endangered.

Proof of compliance to a sustainable forest management system from supplier.

Document of weight of wood products used in furniture item and weight of certified wood.

Methodology: Calculation

1. Verify endangered wood is not used.
2. Determine percentage of total product weight comprised of wood
3. Determine certified percentage of total percentage wood weight

Related Credits: None

Resources:

- Cites Convention on International Trade in Endangered Species of Wild Fauna and Flora
- American Tree Farm Systems
- Canadian Standards Association
- Forest Stewardship Council
- Sustainable Forestry Initiative
- *Sustainable Procurement of Wood and Paper-based Products: An introduction* World Business Council for Sustainable Development (WBCSD)
Website: <http://www.wbcso.org>

5.7 Recycled Content

The organization shall increase the amount of recycled content material incorporated into products and packaging. By fulfilling the criteria below, an organization can earn a maximum of three points in this element, as detailed below.

5.7.1 Base level

An organization shall receive one point if either:

- It incorporates recycled content materials into the product so that the sum of postconsumer recycled content plus one-half of the post-industrial content constitutes at least 30 percent of the total weight of the materials in the product; or
- It incorporates recovered materials into the product at or above the levels specified in the recommended recovered materials content ranges as listed below in Table One.

Note: this second option shall not be available for products made entirely of steel.

TABLE ONE- Recommended Recovered Materials Content Ranges

Product	Material	Post-consumer Content (%)	Total Recycled Content
Furniture structure	Steel	16	25
Furniture structure	Aluminum	--	75
Cellulose Loose-Fill and Spray-On	Post-consumer Paper	75	75
Particleboard/ Fiberboard component¹	Wood or wood composite	--	80
	Agricultural fiber	--	90
Fabric	PET	See note 2 below	100
Plastic furniture component	Various (non-fabric)		20
Remanufactured or Refurbished	Various	25	25

Furniture			
Acoustical Material	Various		20
<p>¹ Particleboard and fiberboard used in the wood components of office furniture may also contain other recovered cellulosic materials, including, but not limited to, paper, wheat straw, and bagasse. The percentages of these materials contained in the product would also count toward the recovered materials content level of the item.</p> <p>² The 100% post-consumer content requirement of the CPG for PET fabric is not replicated here.</p> <p>NOTE: Post consumer and total recycled percentages are expressed as weight percent of total material specified.</p>			

5.7.2 Advanced Level

An organization shall receive two points if it demonstrates compliance to either requirement in 5.7.1 and either:

- It incorporates recycled content materials into the product so that the sum of post-consumer recycled content plus one-half of the post-industrial content constitutes at least 50 percent of the total weight of the materials in the product; or
- It demonstrates that the recovered content of its product exceeds the levels specified in the recommended recovered materials content ranges listed in Table One by at least 20 percent in each element, relevant to the product being assessed, if 100 percent recovered content has not already been achieved.

Note: this second option shall not be available for products made entirely of steel.

Intent

Increase amount of recycled content material incorporated into products.

Requirements:

Calculate the amount of the recycled content currently used in the product as a percent of the total materials contained in the product.

Incorporate recycled content into the product seeking certification such that total recycled content in that product meets the levels established in EITHER OPTION 1 OR OPTION 2.

Possible Points: 2

Scope: Product (note limitation on steel products)

Boundaries: Materials Used in Product

Documentation:

Utilize BIFMA SAS template to identify amount of recycled materials in product.

Methodology:

Option #1 Calculation

1. Identify materials comprising product
2. Determine percentage of total product weight represented by each material.
3. Quantify percentages of post industrial and post consumer recycled content of each material
4. Sum ½ post industrial percentage and post consumer percentage of individual materials and multiple times relative percentage of total product weight.
5. Sum individual recycled content weights and divide by total product weight

Option #2.

Compare actual recycled content of individual materials to the values in table #1.

Related Credits:

5.1 - DfE program

5.2 - Climate Neutral Materials

5.5.2 - Assessment of bio-based alternatives

5.10.1 – Design for durability

5.10.2 – Design for repair / remanufacturing

5.10.3 – Design for recyclability

6.5.1 – Lighting products sold by company meet California Title 24

5.3 - Life Cycle

5.3.1 - Life Cycle Thinking

5.3.2 - Life Cycle Assessment

5.3.3 - 3rd Party review of LCA

5.1.2 - Assessment of bio-based alternatives

5.7.1 – Recycled content (PC + (0.5*PI)) = 30% by wt

5.7.2 – Recycled content (PC + (0.5*PI)) = 50% by wt

5.8 – Identify recyclable/biodegradable content

5.9 – Packaging Reduction Program

5.10.1 – Design for Durability

5.10.2 – Design for repair / remanufacturing

5.10.3 – Design for recyclability

5.10.4 – Recovery Options for materials

7.4 – Effects of Process and Production Chemicals

7.4.3 – Chemical Reduction Strategy

7.5.1 – Reduction/Elimination of Chemicals of Concern

5.7.3 Packaging

The organization shall receive one point if it incorporates recovered materials into packaging at or above the levels specified in the recommended recovered materials content ranges as listed in Table Two:

TABLE TWO- Recommended Recovered Materials Content Ranges

Product	Material	Post-consumer Content (%)	Total Recycled Content (%)
Packaging	LDPE, LLDPE	30	40
	HDPE	75	95
	PET	75	95
	Corrugated Cardboard	85	95

Intent: Increase amount of recycled content material incorporated into packaging.

Requirements: Document the recycled contents of table #2 materials.

Possible Points: 1

Scope: Product

Boundaries: Packaging Content

Documentation: Submit BIFMA SAS letter template from packaging supplier.

Methodology:

Compare actual recycled content of individual materials to the values in table #2.

Related Credits:

5.9 – Packaging Reduction Program

Resources:

Recycled content materials shall be defined in accordance with the Federal Trade Commission document, *Guides for the Use of Environmental Marketing Claims*, 16 CFR260.7(e), available at www.ftc.gov/bcp/grnrule/guides980427.htm

5.8 Recyclable and Biodegradable Materials

The organization shall increase the use of recyclable and biodegradable materials in the product.

The organization shall receive one point if it:

- Identifies and quantifies the amount by weight of recyclable and biodegradable materials in the product. All qualifying recyclable and biodegradable materials shall be clearly labeled or otherwise identified in a manner that facilitates easy identification of materials during disassembly; and
- Verifies availability of recycling/biodegradation facilities (excluding waste to energy) for recyclable and biodegradable materials in product in at least six of the ten U. S. EPA regions (see appendix for map of regions).

Note: labeling/marketing of plastic components, to support identification and recycling, shall be completed in accordance with ISO 11469.

Intent:

Increase the use of recyclable and biodegradable materials.

Requirements:

Document the amount of recyclable and biodegradable material in the product. Verify viability of recycling and biodegradation options.

Possible Points: 1

Scope: Product

Boundaries: Materials Used in Product

Documentation

Measurement & Viability

1. Utilize BIFMA SAS template to identify amount of recyclable and biodegradable materials in product.
2. Use template to identify recycling/biodegradation facilities in six of ten geographic zones (see appendix for zone map).

Methodology: Identify recyclable and biodegradable material.

5.9 Finished Product Packaging

The organization shall receive one point if it can demonstrate evidence that procedures are in place and used that promote any of the following activities:

Minimizes materials

Reduces toxicity

Promotes reuse

~~Lists recyclable content~~ Commenters have suggested that this be removed from SAS.

~~Provides consumer recycling instructions~~ Commenters have suggested that this be removed from SAS.

Intent: Promote the use of increasingly sustainable packaging options.

Requirements: Document the existence of an increasingly sustainable packaging procedure. Demonstrate that the procedure has been applied.

Possible Points: 1

Scope: Corporate

Boundaries: Packaging

Documentation: Increasingly sustainable packaging procedure.

Methodology:

1. Demonstrate programs are in place.
2. Label packaging with recycling instructions

Related Credits:

5.7.3 – Recycled content of packaging

6.6.2 – Applicant has programs to reduce transportation impacts

5.10 Extended Product Responsibility

5.10.1 Design for Durability/Upgradeability

An organization shall earn one point if it maximizes the useful life of the product to make it easy to refurbish and upgrade for multiple uses by the original or subsequent users. In order to accomplish this, the organization shall adopt and publicize a policy stating that it will design and manufacture products that have a long useful life; can withstand repeated service, repair, and handling; and has standardized product parts and components available to facilitate maintenance, servicing, and reassembly. The organization's policy may allow for the replacement of design components and reuse of functional components.

Intent:

Maximize the useful life of office furniture products.

Requirements:

Adopt and publicize a policy to maximize the life of office furniture.

Possible Points: 1

Scope: Corporation

Boundaries: Products to be assessed to standard.

Documentation:

Requirements listed above will be documented in a formal corporate policy statement, the corporate DFE program, as well as sales, marketing, use and warranty materials associated with the product or product line in question.

Methodology:

Publicize Policy

1. Design and manufacture products that have a long useful life;
2. Can withstand repeated service, repair, and handling
3. Standardized product parts and components available to facilitate maintenance, servicing, and reassembly

Related Credits:

5.1 - Design for the Environment Program

5.10.2 Design for Remanufacturing

An organization shall earn one point if it designs products to ensure that they can be remanufactured. The products shall be designed in a modular fashion to facilitate the replacement of components that are subject to wear or breakage, likely to go out of style, or likely to be upgraded. In order to earn a point in this element, the organization shall conform to all three of the requirements below in its design for remanufacturing:

- Product disassembly instructions are publicly available;
- Disassembly is possible with standard tools and does not require special training; and
- Disassembly can occur in a reasonable amount of time.

Intent

To maximize the degree to which office furniture products can be readily and economically remanufactured, by designing them with remanufacturing in mind. Remanufacturing office furniture products conserves resources and energy and reduces pollution and greenhouse gas emissions.

Requirements

Product is designed in a modular fashion to facilitate the replacement of components that are subject to wear or breakage, likely to go out of style, or likely to be upgraded.

Possible Points: 1

Scope: Product

Boundaries: Products to be assessed to SAS.

Documentation

Product specifications and disassembly instructions should be available for end users.

Methodology:

Components for upgrade and refurbishment should be available for a reasonable length of time at reasonable cost.

Related Credits:

5.1 - Design for the Environment Program

5.10.3 Design for Recycling

The organization shall maximize the degree to which materials from the product that cannot be reused or remanufactured can be recycled into value-added products. In order to earn a point in this element, the organization shall conform to all four of the requirements below in its design for recycling:

- Product disassembly instructions are publicly available;
- Disassembly is possible with standard tools and does not require special training;
- Disassembly of the product can occur in a reasonable amount of time; and
- Product parts are labeled, or otherwise identified, to facilitate separation by material content, and identification and separation of toxic components.

Intent

Maximize the degree to which materials from office furniture, that cannot be reused or remanufactured, will be recycled into value added product.

Requirements:

Product is designed for ease of disassembly and efficient recycling of materials.

Possible Points: 1

Scope: Product

Boundaries: Product Materials.

Documentation:

Product material content and weight documentation.

Product recycling guide with a clear process for disassembly and separation.

Methodology:

Utilize DFE principles to facilitate end of life recycling.

Related Credits:

5.1 - Design for the Environment Program

5.3.1 - Life Cycle Assessment

5.7 – Recycled content

5.8 – Identify recyclable/biodegradable content and recovery options

5.10.4.1 – Publicize recovery options for product materials

5.10.4 Other Facilitation Efforts

By fulfilling one or both of the two criteria below, an organization can earn a maximum of three points in this element, as detailed below:

5.10.4.1 Research on Recovery Options

The organization shall receive one point if it researches and publishes information on the highest value recovery opportunities for its legacy product lines and the materials that comprise them.

5.10.4.2 Buy-back/Take-back/Leasing

The organization shall receive two points if it makes a buy-back or take-back program part of its strategic sales strategy for products it is selling or leasing. The organization shall ensure that the program is managed consistently with its own environmental programs.

Intent:

To facilitate end of life management of furniture products.

Requirements:

Demonstrate that buy-back/take-back/leasing are part of the strategic sales strategy. Publicly provide information regarding high value recovery options.

Possible Points: 3

Scope: Corporate

Boundaries: Products

Documentation:

Provide documentation that buy-back/take-back/leasing are part of the sales proposals and provide information regarding high value recovery options.

Methodology:

1. Publish information on the highest value recovery opportunities for its legacy product lines and the materials that comprise them
2. Make a buy-back or take-back program part of strategic sales strategy for products
3. Product examples:
 - a. Work surfaces: Identify methods and recyclers who can separate the laminate or particle board from steel work surfaces and recover value from these parts. If there are no viable markets for all resulting materials, identify best disposal options.

- b. Office panels: Identify methods and recyclers who can separate the materials (fabric, acoustical, frame) in these panels and find viable markets for these materials. If there are no viable markets for the resulting materials, identify best disposal options.

Related Credits:

5.1 - Design for the Environment Program

5.3.1 - Life Cycle Assessment

5.7 – Recycled content

5.8 – Identify recyclable/biodegradable content and recovery options

5.11 Solid Waste Management

The organization shall receive a maximum of two points based on its published and implemented solid waste diversion program for all forms of disposal. The organization shall receive:

One point for a 50 percent diversion goal; or
Two points for a 100 percent diversion goal

Intent: To divert waste from landfill disposal.

Requirements: Waste diversion goals publicly available.

Possible Points: 2

Scope: Corporate

Boundaries: All forms of solid waste.

Documentation: Waste diversion program.

Methodology: Publication

1. Establish a waste diversion goal.
2. Implement Plan

Related Credits:

5.1 - Design for the Environment Program
7.2 – ISO 14001 or equivalent EMS

5.12 Water Management

The intent of this section is to focus on process water only. Process water includes water used for pre-treatment (e.g. phosphating wash line), water-based adhesive processes, cooling water, water-jet cutting operations, and spraybooth over-spray capture systems. In order to qualify for Section 5.12 water credits, the organization must prove that process water was used in the manufacturing of the product to be assessed, at any point in time during the past six years.

5.12.1 Water Inventory of Factory

The organization shall receive one point if it establishes a baseline process water inventory to document water sources/withdrawals, uses, and discharges for the manufacturing facility where the finished product is assembled or manufactured

Intent

Understand the types and rates of water used for the manufacture of office furniture.

Requirements

Document a facility water inventory by assessing the current sources of water, usage rates, and discharge rates.

Possible Points: 1

Scope: Facility

Boundaries: Process water.

Documentation

Record monthly or annual water volumes, including the following:

- Sources/Withdrawals (municipal supply, surface water, groundwater, collected rainwater)
- Uses (process/equipment)
- Discharges (on-site wastewater treatment, POTW, surface water, groundwater, evaporative loss)

Methodology

Establish a baseline process water inventory to document water sources/withdrawals, uses, and discharges.

Related Credits

7.2 – ISO 14001 or equivalent EMS

Resources:

- Publicly-Owned Treat Works (POTW) surveys and baseline monitoring reports.
- <http://www.globalreporting.org/Home> (Global Reporting Initiative)

5.12.2 Water Efficiency

The organization shall receive one point if it implements program(s) to maximize process water efficiency to reduce the burden on the water supply and local wastewater treatment systems for the manufacturing facility where the finished product is assembled or manufactured. The organization shall provide objective evidence that water efficiency improvement goals have been established for the manufacturing facility within the past 6 years. Performance against the goals must be tracked. Absolute reductions in total water usage must be documented.

Intent

Maximize water efficiency to reduce the burden on the water supply and local wastewater treatment systems.

Requirements

Employ strategies to reduce (monthly or annual) water usage or discharge rates, relative to the established baseline values.

Possible Points: 1

Scope: Facility

Boundaries: Process water.

Documentation: Document baseline and reduced water usage and discharge rates.

Methodology: Implement programs to maximize process water efficiency

Related Credits

7.2 – ISO 14001 or equivalent EMS

5.12.3 Wastewater Discharge

The organization shall receive two points if it achieves zero net process water usage or wastewater discharge rates for the manufacturing facility where the finished product is assembled or manufactured.

Intent

Achieve zero net water usage or wastewater discharge rates.

Requirements

Employ closed-loop processes and innovative water sourcing and wastewater treatment technologies to achieve zero net usage and zero net wastewater status.

Possible Points: 2

Scope: Facility

Boundaries: Process water

Documentation:

Document a water balance for the facility, showing zero net usage and zero net wastewater discharge rates.

Methodology

Implement process changes, water-saving systems (retrofitting and replacement), reuse/recycle systems, alternate water sources, and tertiary treatment processes.

Related Credits:

7.2 – ISO 14001 or equivalent EMS

Resources:

- EPA Capsule Report (November, 2000) *Approaching Zero Discharge in Surface Finishing* Web-link: http://www.pfonline.com/mag_images/625R99008AZD.pdf
- Canon Zero Wastewater: <http://www.canon.com/about/environment/focus.html>
- Interface Zero Wastewater: <http://www.interfacesustainability.com/>

6.0 ENERGY

Overview

Organizations can lower adverse environmental impacts and operational costs by increasing awareness and attention on improving energy performance. It requires strategically managing the energy used for operating buildings, production processes and finished goods consumption enterprise wide. This section provides guidance and tools to help reduce the amount of energy used and it encourages the use of energy with reduced overall impacts.

Approach

The Energy section focuses on energy conservation from building operations, product design, manufacturing processes and energy consumption of a product during its use. In addition, there are incentives to produce energy on-site and to purchase environmentally preferable power, determined in accordance with ASTM E06.71.10.

6.1 Prerequisite - Develop Energy Policy

Top management of the organization shall develop and implement a corporate energy policy that shall establish the organization's overall direction in terms of its commitment to energy conservation and environmental performance. The policy shall:

- Be appropriate to the nature and scale of the organization's activities, products, and services;
- Include a commitment to continual improvement;
- Include a commitment to comply with relevant local, state, and federal regulations, and with other requirements to which the organization subscribes;
- Provide the framework for setting and reviewing objectives and targets; and
- Be documented, implemented, and communicated.

The policy should focus on the organization's mission, vision, and core values. Specific local or regional conditions should be considered, as should the organization's image and the views of other interested parties. Other interested parties may include employees, shareholders, customers, consumers, local communities, environmental groups, lenders, and regulators.

Intent

Develop and implement a corporate energy policy that will establish the overall direction of the organization in terms of its commitment to energy conservation and increasing the environmental performance of the regional power baseline.

Requirements

Top management of the organization shall develop and implement a corporate energy policy that shall establish the organization's overall direction in terms of its commitment to energy conservation and environmental performance. The policy shall:

- Be appropriate to the nature and scale of the organization's activities, products, and services;
- Include a commitment to continual improvement;
- Include a commitment to comply with relevant local, state, and federal regulations, and with other requirements to which the organization subscribes;
- Provide the framework for setting and reviewing objectives and targets; and
- Be documented, implemented, and communicated.

The policy should focus on the organization's mission, vision, and core values. Specific local or regional conditions should be considered, as should the organization's image and the views of other interested parties. Other interested parties may include employees, shareholders, customers, consumers, local communities, environmental groups, lenders, and regulators.

Possible Points: Required

Scope: Corporate

Boundaries:

Corporate energy usage

Documentation:

- Corporate Energy Policy Statement

Methodology:

Consider best management practices and example statements from the EPA Energy Star program as prescribed in the *Guidelines for Energy Management* document located at www.energystar.gov.

Related Credits: None

6.2 Building Energy Performance

6.2.1 The organization shall receive one point if it conducts a building energy baseline from historical energy use data,, for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

6.2.2 The organization shall receive up to three additional points if it conforms to 6.2.1 and conducts a building energy baseline from historical energy use data for facilities such as warehouses, office building, showrooms, supply partner facilities (other than final assembly), that are associated with the product being assessed (Note: one point for each facility, maximum of three points).

6.2.1 Building Energy Performance

Intent

Establish energy performance to understand energy consumption.

Requirements

The organization shall receive one point if it conducts a building energy baseline from historical energy use data, for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

Possible Points: 1

Scope: Facility

Boundaries

Buildings directly associated with manufacturing and/or final assembly of the product being assessed.

Documentation

- Provide a summary of the annual bills, including usage amounts (kilowatt hours, therms, gallons, etc...) for each type of energy used by the building over the performance period.

Methodology

To obtain the baseline energy performance, average together three consecutive years of historical energy data. The three years of data must fall within a six year period. If major energy efficiencies improvements have been made recently, the best approach is to use the energy data from the most distant years within the six year interval.

The data for the performance period is to include energy from all sources. Generally this information will come from whole-building energy utility meters for each type of fuel used in the building.

At a minimum, the applicant must develop and document the building energy performance by providing a summary of the annual bills, including usage amounts (kilowatt hours, therms, gallons, etc...) for each type of energy used by the building over the performance period.

The energy use data will generally include energy sources such as electricity, natural gas, fuel oil, diesel fuel, district steam or hot water, district chilled water, propane, liquid propane, and/or wood.

Related Credits

- 5.2 Carbon Neutral Materials
- 6.4.2 Gate-to-Gate Analysis
- 6.3.1 & 6.3.2 - Energy Star Rating
- 6.7.1 Onsite and Offsite Renewable Energy
- 6.7.2 Onsite and Offsite Renewable Energy
- 6.7.3 Onsite and Offsite Renewable Energy
- 6.7.4 Onsite and Offsite Renewable Energy
- 6.8.1 GHG Inventory Baseline
- 6.8.2 GHG Reduction by 2%
- 6.8.3 GHG Reduction by 4%
- 6.8.3 GHG Reduction by 6%
- 6.8.5 Greenhouse Gas Voluntary Reporting Program

6.2.2 Building Energy Performance

Intent

Establish energy performance to understand energy consumption.

Requirements

The organization shall receive up to three additional points if it conforms to 6.2.1 and conducts a building energy baseline from historical energy use data for facilities such as warehouses, office building, showrooms, supply partner facilities (other than final assembly), that are associated with the product being assessed (Note: one point for each facility, maximum of three points).

Possible Points: 3

Scope: Other facilities associated with the product.

Boundaries

Warehouses, office building, showrooms, and supply partner facilities (other than final assembly), that are associated with the product being assessed (Note: one point for each facility, maximum of three points).

Documentation

- Provide a summary of the annual bills, including usage amounts (kilowatt hours, therms, gallons, etc...) for each type of energy used by the building over the performance period.

Methodology

To obtain the baseline energy performance, average together three consecutive years of historical energy data. The three years of data must fall within a six year period. If major energy efficiencies improvements have been made recently, the best approach is to use the energy data from the most distant years within the six year interval.

The data for the performance period is to include energy from all sources. Generally this information will come from whole-building energy utility meters for each type of fuel used in the building.

At a minimum, the applicant must develop and document the building energy performance by providing a summary of the annual bills, including usage amounts (kilowatt hours, therms, gallons, etc...) for each type of energy used by the building over the performance period.

The energy use data will generally include energy sources such as electricity, natural gas, fuel oil, diesel fuel, district steam or hot water, district chilled water, propane, liquid propane, and/or wood.

Related Credits

- 5.2 Carbon Neutral Materials
- 6.4.2 Gate-to-Gate Analysis
- 6.3.1 & 6.3.2 - Energy Star Rating
- 6.7.1 Onsite and Offsite Renewable Energy
- 6.7.2 Onsite and Offsite Renewable Energy
- 6.7.3 Onsite and Offsite Renewable Energy
- 6.7.4 Onsite and Offsite Renewable Energy
- 6.8.1 GHG Inventory Baseline
- 6.8.2 GHG Reduction by 2%
- 6.8.3 GHG Reduction by 4%
- 6.8.3 GHG Reduction by 6%
- 6.8.5 GHG Voluntary Reporting Program

6.3 EnergyStar Equivalency

6.3.1 The organization shall receive two points if it demonstrates an EnergyStar equivalent rating of at least 60, for buildings directly associated with manufacturing and/or final assembly of the product being assessed; calculated using the method described in the LEED-EB Reference Guide, Credit EA 1.

6.3.2 The organization shall receive up to three additional points if it conforms to 6.3.1 and demonstrates an EnergyStar rating of at least 60 for facilities such as warehouses, office buildings, showrooms, supply partner facilities (other than final assembly) etc., that are associated with the product being assessed; calculated using the method described in the LEED-EB Reference Guide, Credit EA 1 (Note: one point for each facility, maximum of three points)

6.3.1 EnergyStar Equivalency

Intent

Reduce energy consumption to achieve an equivalency EPA ENERGY STAR® rating.

Requirements

The organization shall receive two points if it demonstrates an EnergyStar equivalent rating of at least 60, for buildings directly associated with manufacturing and/or final assembly of the product being assessed; calculated using the method described in the LEED-EB Reference Guide, Credit EA 1.

Possible Points: 2

Scope: Facility

Boundaries

Buildings directly associated with manufacturing and/or final assembly of the product being assessed.

Documentation

- Provide calculations showing that the building energy efficiency and performance meet the equivalent of the EPA ENERGY STAR® rating defined above.
- Provide a summary of the annual bills, including usage amounts (kilowatt hours, therms, gallons, etc...) for each type of energy used by the building over the performance period.

Methodology

The EPA ENERGY STAR® equivalent rating calculation is to be completed using the *LEED-EB Reference Guide, Version 2, EA Credit Prerequisite 2*. Since

furniture manufacturing facilities are not covered by the EPA ENERGY STAR® rating tool, the alternate method described for an equivalency rating is to be used.

To achieve the above, the applicant must use the building energy baseline data calculated in previous sections, and then document the reduction using one of the two options defined in the LEED-EB Reference Guide.

Related Credits

- 5.2 Carbon Neutral Materials
- 6.4.2 Gate-to-Gate Analysis
- 6.3.1 & 6.3.2 - Energy Star Rating
- 6.8.1 GHG Inventory Baseline
- 6.8.2 GHG Reduction by 2%
- 6.8.3 GHG Reduction by 4%
- 6.8.3 GHG Reduction by 6%
- 6.8.5 GHG Voluntary Reporting Program

6.3.2 EnergyStar Equivalency

Intent

Reduce energy consumption to achieve an equivalency EPA ENERGY STAR® rating.

Requirements

The organization shall receive up to three additional points if it conforms to 6.3.1 and demonstrates an EnergyStar rating of at least 60 for facilities such as warehouses, office buildings, showrooms, supply partner facilities (other than final assembly) etc., that are associated with the product being assessed; calculated using the method described in the LEED-EB Reference Guide, Credit EA 1 (Note: one point for each facility, maximum of three points)

Possible Points: 3

Scope: Facility

Boundaries

Warehouses, office building, showrooms, and supply partner facilities (other than final assembly), that are associated with the product being assessed (Note: one point for each facility, maximum of three points).

Documentation

- Provide calculations showing that the building energy efficiency and performance meet the equivalent of the EPA ENERGY STAR® rating defined above.
- Provide a summary of the annual bills, including usage amounts (kilowatt hours, therms, gallons, etc...) for each type of energy used by the building over the performance period.

Methodology

The EPA ENERGY STAR® equivalent rating calculation is to be completed using the *LEED-EB Reference Guide, Version 2, EA Credit Prerequisite 2*. Since furniture manufacturing facilities are not covered by the EPA ENERGY STAR® rating tool, the alternate method described for an equivalency rating is to be used.

To achieve the above, the applicant must use the building energy baseline data calculated in previous sections, and then document the reduction using one of the two options defined in the LEED-EB Reference Guide.

Related Credits

- 5.2 Carbon Neutral Materials
- 6.4.2 Gate-to-Gate Analysis
- 6.3.1 & 6.3.2 - Energy Star Rating

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- 6.8.1 GHG Inventory Baseline
- 6.8.2 GHG Reduction by 2%
- 6.8.3 GHG Reduction by 4%
- 6.8.3 GHG Reduction by 6%
- 6.8.5 GHG Voluntary Reporting Program

6.4 Embodied Energy

6.4.1 Cradle-to-Gate Analysis

The organization shall receive one point for assessing the amount of embodied energy consumed for the materials used within the product. The assessment to be completed using publicly available Life-Cycle Inventory (LCI) data that exist for each material.

6.4.2 Gate-to-Gate Analysis

The organization shall receive one point for conducting a Life-Cycle Inventory (LCI) of the amount of embodied energy per unit, associated with the processes used during manufacturing of the product.

6.4.3 Gate-to-Gate - 10% Reduction

The organization shall receive one point for a 10% per unit reduction of embodied energy associated with the processes used during manufacturing of the product.

6.4.1 Cradle-to-Gate Analysis

Intent

Understand the amount of energy used to produce and transport the raw materials used in the product line.

Requirements

The organization shall receive one point for assessing the amount of embodied energy consumed for the materials used within the product. The assessment is to be completed using publicly available Life-Cycle Inventory (LCI) data that exist for each material.

Possible Points: 1

Scope: Product

Boundaries

Raw materials from cradle-to-gate associated with the product line being assessed.

Documentation

- Provide an analysis of the embodied energy consumed in extracting and transporting the raw materials used in the product line using available tools noted below.

Methodology

Use LCI software tools for gathering and tracking energy usage data. Consider using methods such as:

- BEES (Building for Environmental and Economic Sustainability) developed by the National Institute of Standards and Technology, located at www.bfrl.nist.gov/oea/software/bees.
- Franklin US LCI Database, developed by Franklin and Associates, found at www.pre.nl/download/manuals/DatabaseManualFranklinUS98.pdf
- IDCE (International Design Center for the Environment) eLCie tool, found at www.idce.org.
- LCSEA Framework for Life-Cycle Impact Assessment (ASTM E06.71.10)
- NCMS (National Center for Manufacturing Sciences), found at www.ncms.org.
- US EPA TRACI (Tools for the Reduction and Assessment of Chemical and other environmental Impacts), found at www.epa.gov/ORD/NRMRL/std/sab/taci/index.
- US Life Cycle Inventory Database developed by the National Renewable Energy laboratory found at, www.nrel.gov/docs/fyo5osti/37661 or www.nrel.gov/lci.
- Or obtain information from material supplier declaring the above requirements have been met. Include details demonstrating an embodied energy assessment was performed and the data is clearly defined.

Related Credits

5.3.1 – Life Cycle Thinking

5.3.2 – Life Cycle Assessment

5.3.3 – 3rd Party Review of LCA

6.4.2 Gate-to-Gate Analysis

Intent

Understand the amount of energy used to convert raw materials into the product line.

Requirements

The organization shall receive one point for conducting a Life-Cycle Inventory (LCI) of the amount of embodied energy associated with the processes used during manufacturing of the product.

Possible Points: 1

Scope: Product

Boundaries

Process energy from gate-to-gate associated with the product line being assessed.

Documentation

- Provide an analysis of the embodied energy consumed converting materials into the product using the available tools noted below.

Methodology

- Use LCI software tools for gathering and tracking energy usage data. Consider using methods such as:
- BEES (Building for Environmental and Economic Sustainability) developed by the National Institute of Standards and Technology, located at www.bfrl.nist.gov/oe/software/bees.
- Franklin US LCI Database, developed by Franklin and Associates, found at www.pre.nl/download/manuals/DatabaseManualFranklinUS98.pdf
- IDCE (International Design Center for the Environment) eLCie tool, found at www.idce.org.
- LCSEA Framework for Life-Cycle Impact Assessment (ASTM E06.71.10)
- NCMS (National Center for Manufacturing Sciences), found at www.ncms.org.
- US EPA TRACI (Tools for the Reduction and Assessment of Chemical and other environmental Impacts), found at www.epa.gov/ORD/NRMRL/std/sab/taci/index.
- US Life Cycle Inventory Database developed by the National Renewable Energy laboratory found at, www.nrel.gov/docs/fyo5osti/37661 or www.nrel.gov/lci.
- Or obtain information from component supplier declaring the above requirements have been met. Include details demonstrating an embodied energy assessment was performed and the data is clearly defined.

Related Credits

5.3.1 – Life Cycle Thinking

5.3.2 – Life Cycle Assessment

5.3.3 – 3rd Party Review of LCA

6.4.3 Gate-to-Gate 10% Reduction

Intent

Reduce the amount of energy used to convert raw materials into the product line being assessed.

Requirements

The organization shall receive one point for a 10% reduction of embodied energy associated with the processes used during manufacturing of the product.

Possible Points: 1

Scope: Product

Boundaries

Process energy from gate-to-gate associated with the product line being assessed.

Documentation

- Provide an analysis showing at least a 10% per manufacturing unit reduction of the embodied energy consumed converting materials into the product using the available tools noted below.

Methodology

- Use LCI software tools for gathering and tracking energy usage data. Consider using methods such as:
- BEES (Building for Environmental and Economic Sustainability) developed by the National Institute of Standards and Technology, located at www.bfrl.nist.gov/oe/software/bees.
- Franklin US LCI Database, developed by Franklin and Associates, found at www.pre.nl/download/manuals/DatabaseManualFranklinUS98.pdf
- IDCE (International Design Center for the Environment) eLCie tool, found at www.idce.org.
- LCSEA Framework for Life-Cycle Impact Assessment (ASTM E06.71.10)
- NCMS (National Center for Manufacturing Sciences), found at www.ncms.org.
- US EPA TRACI (Tools for the Reduction and Assessment of Chemical and other environmental Impacts), found at www.epa.gov/ORD/NRMRL/std/sab/taci/index.
- US Life Cycle Inventory Database developed by the National Renewable Energy laboratory found at, www.nrel.gov/docs/fyo5osti/37661 or www.nrel.gov/lci.
- Or obtain information from component supplier declaring the above requirements have been met. Include details demonstrating a 10% per manufacturing unit reduction of embodied energy was achieved and the data is clearly defined.

Related Credits

5.3.1 – Life Cycle Thinking

5.3.2 – Life Cycle Assessment

5.3.3 – 3rd Party Review of LCA

6.5 Finished Product Energy Consumption

6.5.1 California Title 24

The organization shall receive one point if its lighting products meet Title 24 of the California Energy Code as described in chapter 5, section 5.9, table 9; and section 5.13 of the 2005 Nonresidential Compliance Manual. This credit applies only if the product line being assessed includes lighting products.

Intent:

Reduce energy consumption during product usage.

Requirements:

The organization shall receive one point if it reduces energy consumption of lighting products during product usage by meeting Title 24 of the California Energy Code as described in chapter 5, section 5.9, table 9; and section 5.13 of the 2005 Nonresidential Compliance Manual.

Possible Points: 1

Scope: Product

Boundaries:

Task lighting products associated with the product line being assessed.

Documentation:

Provide light fixture specification documentation detailing lumens and efficiencies.

Methodology:

Reference Title 24 of the California Energy Code as described in chapter 5, section 5.9, table 9; and section 5.13 of the 2005 Nonresidential Compliance Manual at www.energy.ca.gov.

Related Credits

6.6 Transportation

6.6.1 Voluntary Transportation Program

The organization shall receive one point if its principle carrier for the facility directly associated with manufacturing and/or final assembly of the products being assessed, participates in a voluntary carrier and shipper program such as the EPA's Smartway Transportation Partnership or an equivalent program.

6.6.2 Carrier and Shipper Emission Reduction Strategies

An organization can earn one point by fulfilling one of the two criteria below for its principle carrier for the facility directly associated with manufacturing and/or final assembly of the product being assessed:

Option A: The organization shall reduce the environmental impact of freight transportation by developing and implementing technologies and strategies to facilitate reductions in fuel consumption and emissions associated with freight transportation activities, including receiving and shipping of raw materials, components, and finished products; or

Option B: The organization shall develop, document, and implement technologies and strategies that help truck carriers save fuel, reduce air pollution, and reduce emissions that contribute to climate change.

6.6.1 Voluntary Transportation Program

Intent

Reduce environmental impact on carrying freight.

Requirements

The organization shall receive one point if it participates in a voluntary carrier and shipper program such as the EPA's Smartway Transportation Partnership or an equivalent program.

Possible Points: 1

Scope: Corporate

Boundaries

Shippers and Carriers

Documentation

- Documentation from selected Voluntary Transportation Program identifying participation by the applicant.

Methodology

Voluntary transport partnership programs are available today for both shippers and carriers. Such programs address reduction of greenhouse gas emissions, fuel consumption, criteria pollutants (NO_x and PM), and operating costs associated with ground freight transportation operations.

Most programs provide software models to assist shippers and carriers with assessing the current emissions and fuel efficiency of fleets and freight operations. These tools allow fleets and companies to evaluate the efficiency improvements and emission reductions available through application of various technologies and strategies.

Generally these programs will require action plans describing how the shipper or carrier will achieve a specific commitment, while a report progress toward achieving the goal is usually required annually.

The EPA's *SmartWay Transportation Partnership* program is an example of a voluntary program. The program can be found at www.epa.gov/smartway/.

Related Credits

- 6.6.1 Voluntary Transportation Program
- 6.6.2 Carrier and Shipper Emission Reduction Strategies
- 6.8.1 GHG Inventory Baseline
- 6.8.2 GHG Reduction by 2%
- 6.8.3 GHG Reduction by 4%
- 6.8.3 GHG Reduction by 6%
- 6.8.5 GHG Voluntary Reporting Program

6.6.2 Carrier and Shipper Emission Reduction Strategies

Intent

Reduce environmental impact on carrying freight.

Requirements

An organization can earn one additional point by fulfilling one of the two criteria below:

Option A: The organization shall reduce environmental impact of freight transportation by developing and implementing technologies and strategies to facilitate reductions in fuel consumption and emissions associated with freight transportation activities, including receiving and shipping of raw materials, components, and finished products; or

Option B: The organization shall develop, document, and implement technologies and strategies that help truck carriers save fuel, reduce air pollution, and reduce emissions that contribute to climate change.

Possible Points: 1

Scope: Corporate

Boundaries

Shippers and Carriers.

Documentation

- Procedure and/or programs documenting strategies and reductions.

Methodology

Shippers and carriers can reduce environmental impact of their freight transportation through several technologies and strategies. The following are a few:

Carriers can integrate cost saving, fuel efficient technology and strategies into their fleet:

- Idle Reduction
- Improved Aerodynamics
- Improved Freight Logistics
- Automatic Tire Inflation Systems
- Advanced Lubricants
- Advanced Powertrain Technologies

Shippers can implement facility measures that improve efficiency and reduce emissions:

- Pick-up and Delivery Scheduling
- Full Truck Loads
- Warehouse Improvements
- Electric Forklifts
- Driver Comfort Stations
- Idle-Reduction at Docks

Related Credits

- 6.6.1 Voluntary Transportation Program
- 6.6.2 Carrier and Shipper Emission Reduction Strategies
- 6.8.1 GHG Inventory Baseline
- 6.8.2 GHG Reduction by 2%
- 6.8.3 GHG Reduction by 4%
- 6.8.3 GHG Reduction by 6%
- 6.8.5 GHG Voluntary Reporting Program

6.7 On-site and Off-site Renewable Energy

The organization may receive up to a maximum of four points for using increasing levels of on-site and off-site renewable energy to help reduce greenhouse gases and other environmental impacts associated with fossil fuel energy use. This may be accomplished by a combination of individual actions by the organization or its suppliers for the sum of the points allocated to those individual actions. Example: One point would be awarded for implementing 1% of on-site renewable energy. Two additional points would be awarded for meeting the 10% of the total corporate energy requirements with renewable power or certificates over the performance period.

6.7.1 The organization shall receive one point if it uses on-site renewable energy for 1% of its energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

OR

If it uses off-site renewable energy/certificates for 5% of its energy requirement for buildings directly associated with the manufacturing and/or final assembly of the product being assessed.

Off-site renewable energy sources are as defined by the Center for Resource Solutions (RS) Green-e certified power marketer, a Green-e accredited utility program, or through Green-e certified tradable Renewable Certificates or the equivalent.

6.7.2 The organization shall receive an additional point if it uses on-site renewable energy for 2% of its energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

OR

If it uses off-site renewable energy/certificates for 10% of its energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

6.7.3 The organization shall receive an additional point if it uses on-site renewable energy for 3% of its energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

OR

If it uses off-site renewable energy/certificates for 15% of its energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

6.7.4 The organization shall receive an additional point if it uses on-site renewable energy for 4% of its energy requirement for buildings directly

associated with manufacturing and/or final assembly of the product being assessed.

OR

If it uses off-site renewable energy/certificates for 20% of its total energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

Intent

Encourage and recognize usage of increasing levels of on-site and off-site renewable energy in order to reduce environmental impacts associated with fossil fuel energy use.

The organization may receive up to a maximum of four points for using increasing levels of on-site **nonpolluting-source** and **off-site renewable energy or** renewable energy certificates to help reduce greenhouse gases and other environmental impacts associated with fossil fuel energy use. This may be accomplished by a combination of individual actions by the organization or its suppliers for the sum of the points allocated to those individual actions. Example: One point would be awarded for implementing 1% of on-site renewable energy. Two additional points would be awarded for meeting the 10% of the total corporate energy requirements with renewable power or certificates over the performance period.

Off-site renewable energy sources are as defined by the Center for Resource Solutions (RS) Green-e certified power marketer, a Green-e accredited utility program, or through Green-e certified tradable Renewable Certificates or the equivalent.

6.71 On-site and Off-site Renewable Energy Usage

Requirements

The organization shall receive one point if it uses on-site renewable energy for 1% of its energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

OR

If it uses off-site renewable energy/certificates for 5% of its energy requirement for buildings directly associated with the manufacturing and/or final assembly of the product being assessed.

Possible Points: 1

Scope: Facility

Boundaries

Building directly associated with manufacturing and/or final assembly of the product being assessed. (Optional: All other buildings on that site, whether or not

associated with the product line being assessed, may also be included in the calculation.)

Documentation

- Provide proof of reclamation of on-site energy generated over the performance period:
 - System schematic diagrams and narrative highlights on-site renewable energy systems installed in the building or site.
 - Metered energy output of on-site renewable energy system over the performance period.
 - Calculations documenting the percentage of the building's total energy requirements that were supplied by on-site renewable energy systems for the performance period.

OR

- Provide proof of renewable power or certificates used over the performance period:
 - Documentation of the percentage of the building's total energy use that was met with renewable power or certificates.
 - Documentation that supplied renewable power or certificates met the referenced Green-e requirements or equivalent.
 - Letter stating a commitment to continue purchases of renewable power or certificates at the same or higher level over the next performance period.

Methodology

On-site energy generation by reclamation:

- Examples of reclamation could be burning sawdust for heat and recovering steam for heat/energy.
- Consider referencing California Rule 21 and the ANSI IEEE *1547 Standard for Interconnecting Distributed Resources* in the California Distributed Energy Resource Guide located at www.energy.ca.gov/distegen/.

On-site renewable energy generation:

- Eligible systems include photovoltaic, solar thermal, bio-fuel based electrical (untreated wood waste, agricultural crops or waste, animal waste and other organic waste, landfill gas), geothermal heating, low-impact hydro electric and wave and tidal power.

Renewable energy certificates:

- Consider referencing the Green-e Renewable Electricity Certification Program
 - Green-e Standards for Renewable Energy
 - Center for Resource Solutionsat 414.561.2100 or www.green-e.org
- Consider referencing the Low Impact Hydropower Certification Program At 503.227.1763 or www.lowimpacthydro.org.

Related Credits

5.2 - Climate Neutral Materials

6.2.1 & 6.2.2 - Energy Baseline

6.3.1 & 6.3.2 - Energy Star Rating

6.4.1 - Cradle-to-Gate Energy Analysis

6.4.2 - Gate-to-Gate Energy Analysis

6.7.1 – 1% onsite OR 5% offsite renewable energy production

6.7.2 – 2% onsite OR 10% offsite renewable energy production

6.7.3 – 3% onsite OR 15% offsite renewable energy production

6.7.4 – 4% onsite OR 20% offsite renewable energy production

6.8.1 – Greenhouse Gas Baseline

6.8.2 – Participate in a voluntary greenhouse gas reporting program

6.8.3 – 2% reduction in greenhouse gas at the manufacturing/assembly facility

6.8.4 – 4% reduction in greenhouse gas at the manufacturing/assembly facility

6.8.5 – 6% reduction in greenhouse gas at the manufacturing/assembly facility

6.7.2 On-site and Off-site Renewable Energy Usage

Requirements

The organization shall receive one point if it uses on-site renewable energy for 2% of its energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

OR

If it uses off-site renewable energy/certificates for 10% of its energy requirement for buildings directly associated with the manufacturing and/or final assembly of the product being assessed.

Possible Points: 1

Scope: Facility

Boundaries

Building directly associated with manufacturing and/or final assembly of the product being assessed. (Optional: All other buildings on that site, whether or not associated with the product line being assessed, may also be included in the calculation.)

Documentation

- Provide proof of reclamation of on-site energy generated over the performance period:
 - System schematic diagrams and narrative highlights on-site renewable energy systems installed in the building or site.
 - Metered energy output of on-site renewable energy system over the performance period.
 - Calculations documenting the percentage of the building's total energy requirements that were supplied by on-site renewable energy systems for the performance period.

OR

- Provide proof of renewable power or certificates used over the performance period:
 - Documentation of the percentage of the building's total energy use that was met with renewable power or certificates.
 - Documentation that supplied renewable power or certificates met the referenced Green-e requirements or equivalent.
 - Letter stating a commitment to continue purchases of renewable power or certificates at the same or higher level over the next performance period.

Methodology

On-site energy generation by reclamation:

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- Examples of reclamation could be burning sawdust for heat and recovering steam for heat/energy.
- Consider referencing California Rule 21 and the ANSI IEEE *1547 Standard for Interconnecting Distributed Resources* in the California Distributed Energy Resource Guide located at www.energy.ca.gov/distegen/.

On-site renewable energy generation:

- Eligible systems include photovoltaic, solar thermal, bio-fuel based electrical (untreated wood waste, agricultural crops or waste, animal waste and other organic waste, landfill gas), geothermal heating, low-impact hydro electric and wave and tidal power.

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Related Credits

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6.3.1 & 6.3.2 - Energy Star Rating

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6.4.2 - Gate-to-Gate Energy Analysis

6.7.1 – 1% onsite OR 5% offsite renewable energy production

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6.7.3 – 3% onsite OR 15% offsite renewable energy production

6.7.4 – 4% onsite OR 20% offsite renewable energy production

6.8.1 – Greenhouse Gas Baseline

6.8.2 – Participate in a voluntary greenhouse gas reporting program

6.8.3 – 2% reduction in greenhouse gas at the manufacturing/assembly facility

6.8.4 – 4% reduction in greenhouse gas at the manufacturing/assembly facility

6.8.5 – 6% reduction in greenhouse gas at the manufacturing/assembly facility

6.7.3 On-site and Off-site Renewable Energy Usage

Requirements

The organization shall receive one point if it uses on-site renewable energy for 3% of its energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

OR

If it uses off-site renewable energy/certificates for 15% of its energy requirement for buildings directly associated with the manufacturing and/or final assembly of the product being assessed.

Possible Points: 1

Scope: Facility

Boundaries

Building directly associated with manufacturing and/or final assembly of the product being assessed. (Optional: All other buildings on that site, whether or not associated with the product line being assessed, may also be included in the calculation.)

Documentation

- Provide proof of reclamation of on-site energy generated over the performance period:
 - System schematic diagrams and narrative highlights on-site renewable energy systems installed in the building or site.
 - Metered energy output of on-site renewable energy system over the performance period.
 - Calculations documenting the percentage of the building's total energy requirements that were supplied by on-site renewable energy systems for the performance period.

OR

- Provide proof of renewable power or certificates used over the performance period:
 - Documentation of the percentage of the building's total energy use that was met with renewable power or certificates.
 - Documentation that supplied renewable power or certificates met the referenced Green-e requirements or equivalent.
 - Letter stating a commitment to continue purchases of renewable power or certificates at the same or higher level over the next performance period.

Methodology

On-site energy generation by reclamation:

- Examples of reclamation could be burning sawdust for heat and recovering steam for heat/energy.

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- Consider referencing California Rule 21 and the ANSI IEEE *1547 Standard for Interconnecting Distributed Resources* in the California Distributed Energy Resource Guide located at www.energy.ca.gov/distegen/.

On-site renewable energy generation:

- Eligible systems include photovoltaic, solar thermal, bio-fuel based electrical (untreated wood waste, agricultural crops or waste, animal waste and other organic waste, landfill gas), geothermal heating, low-impact hydro electric and wave and tidal power.

Renewable energy certificates:

- Consider referencing the Green-e Renewable Electricity Certification Program
 - Green-e Standards for Renewable Energy
 - Center for Resource Solutionsat 414.561.2100 or www.green-e.org
- Consider referencing the Low Impact Hydropower Certification Program At 503.227.1763 or www.lowimpacthydro.org.

Related Credits

5.2 - Climate Neutral Materials

6.2.1 & 6.2.2 - Energy Baseline

6.3.1 & 6.3.2 - Energy Star Rating

6.4.1 - Cradle-to-Gate Energy Analysis

6.4.2 - Gate-to-Gate Energy Analysis

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6.7.3 – 3% onsite OR 15% offsite renewable energy production

6.7.4 – 4% onsite OR 20% offsite renewable energy production

6.8.1 – Greenhouse Gas Baseline

6.8.2 – Participate in a voluntary greenhouse gas reporting program

6.8.3 – 2% reduction in greenhouse gas at the manufacturing/assembly facility

6.8.4 – 4% reduction in greenhouse gas at the manufacturing/assembly facility

6.8.5 – 6% reduction in greenhouse gas at the manufacturing/assembly facility

6.7.4 On-site and Off-site Renewable Energy Usage

Requirements

The organization shall receive one point if it uses on-site renewable energy for 4% of its energy requirement for buildings directly associated with manufacturing and/or final assembly of the product being assessed.

OR

If it uses off-site renewable energy/certificates for 20% of its energy requirement for buildings directly associated with the manufacturing and/or final assembly of the product being assessed.

Possible Points: 1

Scope: Facility

Boundaries

Building directly associated with manufacturing and/or final assembly of the product being assessed. (Optional: All other buildings on that site, whether or not associated with the product line being assessed, may also be included in the calculation.)

Documentation

- Provide proof of reclamation of on-site energy generated over the performance period:
 - System schematic diagrams and narrative highlights on-site renewable energy systems installed in the building or site.
 - Metered energy output of on-site renewable energy system over the performance period.
 - Calculations documenting the percentage of the building's total energy requirements that were supplied by on-site renewable energy systems for the performance period.

OR

- Provide proof of renewable power or certificates used over the performance period:
 - Documentation of the percentage of the building's total energy use that was met with renewable power or certificates.
 - Documentation that supplied renewable power or certificates met the referenced Green-e requirements or equivalent.
 - Letter stating a commitment to continue purchases of renewable power or certificates at the same or higher level over the next performance period.

Methodology

On-site energy generation by reclamation:

- Examples of reclamation could be burning sawdust for heat and recovering steam for heat/energy.

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- Consider referencing California Rule 21 and the ANSI IEEE *1547 Standard for Interconnecting Distributed Resources* in the California Distributed Energy Resource Guide located at www.energy.ca.gov/distegen/.

On-site renewable energy generation:

- Eligible systems include photovoltaic, solar thermal, bio-fuel based electrical (untreated wood waste, agricultural crops or waste, animal waste and other organic waste, landfill gas), geothermal heating, low-impact hydro electric and wave and tidal power.

Renewable energy certificates:

- Consider referencing the Green-e Renewable Electricity Certification Program
 - Green-e Standards for Renewable Energy
 - Center for Resource Solutionsat 414.561.2100 or www.green-e.org
- Consider referencing the Low Impact Hydropower Certification Program At 503.227.1763 or www.lowimpacthydro.org.

Related Credits

5.2 - Climate Neutral Materials

6.2.1 & 6.2.2 - Energy Baseline

6.3.1 & 6.3.2 - Energy Star Rating

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6.7.4 – 4% onsite OR 20% offsite renewable energy production

6.8.1 – Greenhouse Gas Baseline

6.8.2 – Participate in a voluntary greenhouse gas reporting program

6.8.3 – 2% reduction in greenhouse gas at the manufacturing/assembly facility

6.8.4 – 4% reduction in greenhouse gas at the manufacturing/assembly facility

6.8.5 – 6% reduction in greenhouse gas at the manufacturing/assembly facility

6.8 Greenhouse Gases

By fulfilling the following criteria, an organization can earn up to six points in the Greenhouse section.

6.8.1 Greenhouse Gases Inventory Baseline

The organization shall receive one point if it establishes a baseline for greenhouse gas (GHG) emissions from such activities as energy use, industry processes, including all emissions sources of the six major GHGs below: Calculation of the baseline shall be based on the total number of units produced within the facility where manufacturing and/or final assembly of the product being assessed occurs.

- Carbon Dioxide (CO₂)
- Methane (CH₄)
- Nitrous Oxide (N₂O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF₆)

6.8.2 Greenhouse Gas Reduction by 2%

The organization shall receive an additional point if it conforms to 6.8.1 and reduces greenhouse emission inventory by 2% from the baseline for all emissions sources of the six previously listed GHGs. Calculation of the baseline shall be based on the facility where manufacturing and/or final assembly of the product occurs.

6.8.3 Greenhouse Gas Reduction by 4%

The organization shall receive an additional point if it conforms to 6.8.1 and reduces greenhouse emission inventory by 4% from the baseline for all emissions sources of the six previously listed GHGs. Calculation of the baseline shall be based on the facility where manufacturing and/or final assembly of the product occurs.

6.8.4 Greenhouse Gas Reduction by 6%

The organization shall receive an additional point if it conforms to 6.8.1 and reduces greenhouse emission inventory by 6% from the baseline for all emissions sources of the six previously listed GHGs. Calculation of the baseline shall be based on the facility where manufacturing and/or final assembly of the product occurs.

6.8.5 Greenhouse Gas Voluntary Reporting Program

The organization shall receive two points if it participates in a voluntary GHG Reporting program, where companies annually inventory and report their GHG emissions; and voluntary commitment to reducing their GHG emissions. EPA

Climate Leaders Program, Chicago Climate Exchange, or similar programs are acceptable.

6.8.1 Greenhouse Inventory Baseline

Intent

Establish baseline for Greenhouse Gas (GHG) emissions.

Requirements

The organization shall receive one point if it establishes a baseline for greenhouse gas (GHG) emissions from such activities as energy use, industry processes, including all emissions sources of the six major GHGs identified below. Calculation of the baseline shall be based on total number of units produced within the facility where manufacturing and/or the final assembly of the product being assessed occurs.

GHG emission inventory to include the following:

- Carbon Dioxide (CO₂)
- Methane (CH₄)
- Nitrous Oxide (N₂O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF₆)

Possible Points: 1

Scope: Facility

Boundaries

Based on total number of units produced within the facility where manufacturing and/or the final assembly of the product being assessed occurs.

Documentation

- Annual GHG Inventory Summary Data Sheet.

Methodology

There are several methods for creating a GHG baseline. Consider using such programs as EPA Climate Leaders GHG Inventory Protocol www.epa.gov/climateleaders/, Chicago Climate Exchange Program www.chicagoclimatex.com, or a similar program.

If a formalized protocol is not used, the following steps can be used:

STEP 1

Average together three consecutive years of historical emissions data. The three years of data must fall within a six year period. If major GHG reduction

improvements have been made recently, the best approach is to use the data from the most distant years within the six year interval.

STEP 2

Identify GHG emission sources associated with operations, and categorizing them as core direct or core indirect.

Core Direct emissions are from sources that are owned or controlled by the company, e.g., emissions from combustion in owned or controlled boilers, furnaces, vehicles; emissions from chemical production in owned or controlled process equipment. These emissions result from stationary, mobile, and process-related sources at a facility. They are emitted as a consequence of the import of electricity, heating/cooling, or steam.

Indirect emissions are a consequence of the activities of the company, but occur at sources owned or controlled by another company. Indirect emissions for the purchaser are characterized as direct emissions for the facility where the emissions are generated. An example of indirect emissions is the emissions from the generation of purchased electricity consumed by a company or otherwise brings into the organizational boundaries of the reporting company (i.e., not self-generated) for its own use. For many companies, purchased electricity represents one of the largest sources of GHG emissions and the most significant opportunities to reduce these emissions.

STEP3

Normalizing the data. Normalizing factors will be measured in physical units (i.e. number of chairs produced). This will allow the applicant to account for increases or decreases in production over time. This ratio of GHG emissions (over an appropriate normalizing factor) will assist with tracking year-to-year changes in emissions more accurately.

STEP 4

Method for estimating the GHG emission factors. For most small- to medium-sized companies and for many larger companies, *core direct* emissions should be calculated based on the purchased quantities of commercial fuels (such as natural gas and heating oil) multiplied by relevant published emissions factors. *Core indirect* emissions should typically be calculated from metered electricity consumption and supplier-specific, local grid, or other published emission factors.

The BIFMA document has supplied a calculation sheet to facilitate this method.

Related Credits

5.2 Carbon Neutral Materials

6.2.1 & 6.2.2 Energy Baseline

6.3.1 & 6.3.2 Energy Star Rating

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- 6.4.1 Cradle-to-Gate Energy Analysis
- 6.4.2 Gate-to-Gate Energy Analysis
- 6.6.1 Voluntary Transportation Program
- 6.6.2 Carrier and Shipper Emission Reduction Strategies
- 6.7.1 Onsite and Offsite Renewable Energy
- 6.7.2 Onsite and Offsite Renewable Energy
- 6.7.3 Onsite and Offsite Renewable Energy
- 6.7.4 Onsite and Offsite Renewable Energy
- 6.8.1 GHG Inventory Baseline
- 6.8.2 GHG Reduction by 2%
- 6.8.3 GHG Reduction by 4%
- 6.8.3 GHG Reduction by 6%
- 6.8.5 GHG Voluntary Reporting Program

6.8.2 Greenhouse Gas Reduction by 2%

Intent

Reduce Greenhouse Gas (GHG) emissions.

Requirements

The organization shall receive an additional point if it conforms to 6.8.1 and reduces greenhouse emission inventory by 2% from the baseline for all emissions sources of the six previously listed GHGs. Calculation of the baseline shall be based on the facility where manufacturing and/or final assembly of the product occurs.

Possible Points: 1

Scope: Facility

Boundaries

Based on total number of units produced within the facility where manufacturing and/or the final assembly of the product being assessed occurs.

Documentation

- Annual GHG Inventory and Goal Tracking Sheet.

Methodology

GHG reduction opportunities can be accomplished by examining the Annual GHG Inventory Summary Data Sheet and developing a list of emission reduction activities.

Emission reduction activities generally fall into the following categories:

Energy Efficiency: Companies can reduce their use of electricity and/or use it more efficiently by investing in energy efficient technologies. Examples of energy reductions could include improved building energy systems, industrial energy systems, vehicle fuel efficiencies, and implemented energy management systems.

Low Carbon or No Carbon Energy Use: Examples of low carbon energy used would include Renewable Energy, Coal Mine Methane, Landfill Gas, and Sewage Treatment gas.

Process Optimization: Process optimization can result in directly reduced GHG and conventional pollutant emissions. In addition to these direct emission reductions, indirect emission reductions may occur from improvements in energy efficiency, resource efficiency, waste minimization, and emissions reductions.

Carbon Sequestration: Carbon can be sequestered in sinks including soil, woody debris, living plants, and wood products. Some methods of sequestering carbon,

(e.g. forestry, land use management, underground reservoirs) may be temporary in that the removed carbon may be returned to the atmosphere at some point in the future through intentional or unintentional activities such as harvesting of forest land or forest fires.

In addition to considering emission reduction opportunities within a company's direct and indirect core emissions inventory, applicants may also use emission offset projects towards completion of their GHG reduction goal.

Related Credits

- 5.2 Carbon Neutral Materials
- 6.2.1 & 6.2.2 Energy Baseline
- 6.3.1 & 6.3.2 Energy Star Rating
- 6.4.1 Cradle-to-Gate Energy Analysis
- 6.4.2 Gate-to-Gate Energy Analysis
- 6.6.1 Voluntary Transportation Program
- 6.6.2 Carrier and Shipper Emission Reduction Strategies
- 6.7.1 Onsite and Offsite Renewable Energy
- 6.7.2 Onsite and Offsite Renewable Energy
- 6.7.3 Onsite and Offsite Renewable Energy
- 6.7.4 Onsite and Offsite Renewable Energy
- 6.8.1 GHG Inventory Baseline
- 6.8.2 GHG Reduction by 2%
- 6.8.3 GHG Reduction by 4%
- 6.8.3 GHG Reduction by 6%
- 6.8.5 GHG Voluntary Reporting Program

6.8.3 Greenhouse Gas Reduction by 4%

Intent

Reduce Greenhouse Gas (GHG) emissions.

Requirements

The organization shall receive an additional point if it conforms to 6.8.1 and reduces greenhouse emission inventory by 4% from the baseline for all emissions sources of the six previously listed GHGs. Calculation of the baseline shall be based on the facility where manufacturing and/or final assembly of the product occurs.

Possible Points: 1

Scope: Facility

Boundaries

Based on total number of units produced within the facility where manufacturing and/or the final assembly of the product being assessed occurs.

Documentation

- Annual GHG Inventory and Goal Tracking Sheet.

Methodology

GHG reduction opportunities can be accomplished by examining the Annual GHG Inventory Summary Data Sheet and developing a list of emission reduction activities.

Emission reduction activities generally fall into the following categories:

Energy Efficiency: Companies can reduce their use of electricity and/or use it more efficiently by investing in energy efficient technologies. Examples of energy reductions could include improved building energy systems, industrial energy systems, vehicle fuel efficiencies, and implemented energy management systems.

Low Carbon or No Carbon Energy Use: Examples of low carbon energy used would include Renewable Energy, Coal Mine Methane, Landfill Gas, and Sewage Treatment gas.

Process Optimization: Process optimization can result in directly reduced GHG and conventional pollutant emissions. In addition to these direct emission reductions, indirect emission reductions may occur from improvements in energy efficiency, resource efficiency, waste minimization, and emissions reductions.

Carbon Sequestration: Carbon can be sequestered in sinks including soil, woody debris, living plants, and wood products. Some methods of sequestering carbon,

(e.g. forestry, land use management, underground reservoirs) may be temporary in that the removed carbon may be returned to the atmosphere at some point in the future through intentional or unintentional activities such as harvesting of forest land or forest fires.

In addition to considering emission reduction opportunities within a company's direct and indirect core emissions inventory, applicants may also use emission offset projects towards completion of their GHG reduction goal.

Related Credits

- 5.2 Carbon Neutral Materials
- 6.2.1 & 6.2.2 Energy Baseline
- 6.3.1 & 6.3.2 Energy Star Rating
- 6.4.1 Cradle-to-Gate Energy Analysis
- 6.4.2 Gate-to-Gate Energy Analysis
- 6.6.1 Voluntary Transportation Program
- 6.6.2 Carrier and Shipper Emission Reduction Strategies
- 6.7.1 Onsite and Offsite Renewable Energy
- 6.7.2 Onsite and Offsite Renewable Energy
- 6.7.3 Onsite and Offsite Renewable Energy
- 6.7.4 Onsite and Offsite Renewable Energy
- 6.8.1 GHG Inventory Baseline
- 6.8.2 GHG Reduction by 2%
- 6.8.3 GHG Reduction by 4%
- 6.8.3 GHG Reduction by 6%
- 6.8.5 GHG Voluntary Reporting Program

6.8.4 Greenhouse Gas Reduction by 6%

Intent

Reduce Greenhouse Gas (GHG) emissions.

Requirements

The organization shall receive an additional point if it conforms to 6.8.1 and reduces greenhouse emission inventory by 6% from the baseline for all emissions sources of the six previously listed GHGs. Calculation of the baseline shall be based on the facility where manufacturing and/or final assembly of the product occurs.

Possible Points: 1

Scope: Facility

Boundaries

Based on total number of units produced within the facility where manufacturing and/or the final assembly of the product being assessed occurs.

Documentation

- Annual GHG Inventory and Goal Tracking Sheet.

Methodology

GHG reduction opportunities can be accomplished by examining the Annual GHG Inventory Summary Data Sheet and developing a list of emission reduction activities.

Emission reduction activities generally fall into the following categories:

Energy Efficiency: Companies can reduce their use of electricity and/or use it more efficiently by investing in energy efficient technologies. Examples of energy reductions could include improved building energy systems, industrial energy systems, vehicle fuel efficiencies, and implemented energy management systems.

Low Carbon or No Carbon Energy Use: Examples of low carbon energy used would include Renewable Energy, Coal Mine Methane, Landfill Gas, and Sewage Treatment gas.

Process Optimization: Process optimization can result in directly reduced GHG and conventional pollutant emissions. In addition to these direct emission reductions, indirect emission reductions may occur from improvements in energy efficiency, resource efficiency, waste minimization, and emissions reductions.

Carbon Sequestration: Carbon can be sequestered in sinks including soil, woody debris, living plants, and wood products. Some methods of sequestering carbon,

(e.g. forestry, land use management, underground reservoirs) may be temporary in that the removed carbon may be returned to the atmosphere at some point in the future through intentional or unintentional activities such as harvesting of forest land or forest fires.

In addition to considering emission reduction opportunities within a company's direct and indirect core emissions inventory, applicants may also use emission offset projects towards completion of their GHG reduction goal.

Related Credits

- 5.2 Carbon Neutral Materials
- 6.2.1 & 6.2.2 Energy Baseline
- 6.3.1 & 6.3.2 Energy Star Rating
- 6.4.1 Cradle-to-Gate Energy Analysis
- 6.4.2 Gate-to-Gate Energy Analysis
- 6.6.1 Voluntary Transportation Program
- 6.6.2 Carrier and Shipper Emission Reduction Strategies
- 6.7.1 Onsite and Offsite Renewable Energy
- 6.7.2 Onsite and Offsite Renewable Energy
- 6.7.3 Onsite and Offsite Renewable Energy
- 6.7.4 Onsite and Offsite Renewable Energy
- 6.8.1 GHG Inventory Baseline
- 6.8.2 GHG Reduction by 2%
- 6.8.3 GHG Reduction by 4%
- 6.8.3 GHG Reduction by 6%
- 6.8.5 GHG Voluntary Reporting Program

6.8.5 Greenhouse Gas Voluntary Reporting Program

Intent

Encourage participation in public GHG Voluntary Reporting Programs.

Requirements

The organization shall receive two points if it participates in a Voluntary GHG Reporting Program, where companies annually inventory and report their GHG emissions; and voluntary commitment to reducing their GHG emissions. EPA Climate Leaders Program, Chicago Climate Exchange, or similar programs are acceptable.

Possible Points: 2

Scope: Corporate

Boundaries:

Corporate-wide

Documentation:

- Documentation from selected GHG Voluntary Reporting Program identifying participation by the applicant.
- Annual GHG Inventory and Goal Tracking Sheet.

Methodology:

Most voluntary GHG programs work with participates to develop long-term comprehensive climate change strategies. Participating applicants set corporate-wide GHG reduction goals and inventory their emissions to measure progress.

Generally, programs will require participates to develop a corporate-wide GHG inventory of all sources of the six major gases (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) using specific GHG inventory protocols, set aggressive corporate-wide GHG emissions reduction goals to be achieved over a specific period of time, develop a corporate GHG inventory management plan, report annual inventory data and document progress towards their reduction goal, and publicize their participation, reduction pledge, and accomplishments achieved through the program.

By reporting inventory data, participates create a lasting record of their accomplishments and identify themselves as corporate environmental leaders and strategically position themselves as climate change policies unfold.

Consider using such programs as EPA Climate Leaders GHG Inventory Protocol www.epa.gov/climateleaders/, the Chicago Climate Exchange Program www.chicagoclimatex.com, or similar programs.

Related Credits

- 5.2 Carbon Neutral Materials
 - 6.2.1 & 6.2.2 Energy Baseline
 - 6.3.1 & 6.3.2 Energy Star Rating
 - 6.4.1 Cradle-to-Gate Energy Analysis
 - 6.4.2 Gate-to-Gate Energy Analysis
 - 6.6.1 Voluntary Transportation Program
 - 6.6.2 Carrier and Shipper Emission Reduction Strategies
 - 6.7.1 Onsite and Offsite Renewable Energy
 - 6.7.2 Onsite and Offsite Renewable Energy
 - 6.7.3 Onsite and Offsite Renewable Energy
 - 6.7.4 Onsite and Offsite Renewable Energy
 - 6.8.1 GHG Inventory Baseline
 - 6.8.2 GHG Reduction by 2%
 - 6.8.3 GHG Reduction by 4%
 - 6.8.3 GHG Reduction by 6%
 - 6.8.5 GHG Voluntary Reporting Program

7.0 HUMAN AND ECOSYSTEM HEALTH

7.1 Prerequisites

7.1.1 Demonstration of Compliance

The organization shall screen all facilities for compliance with environmental and health and safety requirements of their products and processes. The organization shall evaluate compliance with all applicable environmental and health and safety regulations that govern toxic and hazardous substance use and risk management associated with human and ecosystem health. The organization or any representative of the organization shall not have any human or ecosystem health related criminal violations within the previous three years. Any human or ecosystem health related criminal violation at an acquired company which preceded the date of acquisition shall not preclude an organization from participating in this standard.

7.1.2 Key Chemical, Risk, and EMS Policies

The organization shall adopt a policy statement. The policy statement shall be publicly available and communicated to all persons working for or on behalf of the organization. In addition to the aforesaid topics, the organization shall document the following:

- An environmental policy that includes commitments to prevention of pollution, continuous improvement, and compliance with applicable regulations and other obligations;
- A chemical management policy that includes a statement of how the company assesses and reduces human and ecosystem health impacts; and
- Incorporation of life-cycle thinking into company policies.

7.1.1 Prerequisite - Demonstration of Compliance

The facility/facilities shall screen compliance with environmental, health and safety requirements their products and processes to determine applicability to this standard.

Intent

To assure compliance with all applicable environmental regulations and all health and safety regulations which govern toxic and hazardous substance use and risk management associated with human and ecosystem health.

Requirements

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The facility/facilities are in compliance with all applicable environmental requirements governing toxic and/or hazardous discharges to the air and water or the generation of toxic and/or hazardous waste. The facility/ies also have no outstanding unresolved significant violations within the past 3 years or current significant noncompliance that have not been corrected or resolved by demonstrated adherence to a binding compliance schedule to abate the violations.

Participation in this standard is inappropriate if the screen shows any of the following types of significant violations:

- Corporate criminal conviction or plea for violation of applicable environmental or health and safety laws requirements within a prior 5-year period.
- Has/have been assessed by a court of appropriate jurisdiction a civil fine, penalty, or damages of \$100,000.00 or more for violation of applicable environmental or health and safety requirements within a 3-year period before seeking to attain this standard.
- Has/have been found, by a court of appropriate jurisdiction, to have been responsible for an illegal action that caused substantial endangerment to the public health, safety, or welfare or to the environment within a 3-year period before seeking to attain this standard.
- Has/have been assessed by an enforcement agency action an administrative penalty of \$50,000.00 or more for a violation of applicable environmental requirements that occurred within a 3-year period before seeking to attain this standard.

Examples of significant violations include:

- Classified as a Significant Noncompliance (SNC) under the Clean Water Act (CWA) or Resource Conservation Recovery Act (RCRA) programs
- Classified as a High Priority Violation under the Clean Air Act (CAA) program
- Classified as a Major Violation under the Occupational Safety and Health Administration (OSHA) specific to chemical handling, management, and/or exposure

Possible Points: Prerequisite

Scope: Corporation

Boundaries: all applicable environmental and health and safety regulations that govern toxic and hazardous substance use and risk management associated with human and ecosystem health

Documentation

To meet the environmental, health and safety compliance requirement, a facility/ies shall:

- Provide a statement signed by a responsible official that he or she has reviewed the facility/facilities compliance record and that, to the best of his or her knowledge, the facility/facilities is/are in compliance with all applicable environmental requirements and has/have no outstanding unresolved past or current violations that have not been corrected or resolved by the facility/facilities adherence to a binding compliance schedule to abate the violations.
- In the case of a change of ownership, provide the environmental record of the new owner in determining whether the compliance requirement can be met.

Related Credits:

7.2 – ISO 14001 or equivalent EMS

8.3 – Comply with external safety management system

Resources:

Include all media (water, waste, air)

FOIAs

EPA ECHO website

7.1.2 Key Chemical, Risk, and EMS Policies

Intent

To adopt a policy statement to reduce worker exposure, community impact, risk of legacy issue, and product liability.

Requirements

The policy statement shall be publicly available and document the following minimum elements:

1. Environmental Policy which includes commitments to
 - a. Prevention of pollution
 - b. Continuous improvement
 - c. Compliance with applicable regulations and other obligation
2. Chemical Management Policy which includes...
 - a. A statement of how it assesses human and ecosystem health impacts
 - b. A statement of how a company reduces human and ecosystem health impacts
3. Incorporation of life-cycle thinking
4. Communication to all persons working for or on behalf of the organization

Possible Points: Prerequisite

Scope: Corporation

Boundaries: Business Systems

Documentation

Written policy statement(s) containing the required elements

Methodology: Policies or incorporate into other policies.

Related Credits:

5.1 - Design for the Environment Program

5.3.1 - Life Cycle Thinking

5.3.1 - Life Cycle Assessment

7.2 – ISO 14001 or equivalent EMS

7.3 – Chemical inventory and tracking system

Resources:

An integrated, robust management system that incorporates health, safety and the environment can provide a platform for this and several of the credits in this section. Consider including the requirements of Credit 7.2 - Environmental Management System (EMS)

7.2 ISO 14001 or Equivalent

The organization shall receive two points if it documents conformance with ISO 14001 *Environmental management systems – Specification with guidance for use*, or a recognized equivalent, for all facilities associated with the product being assessed.

Intent

Document compliance with ISO 14001 *Environmental management systems – Specification with guidance for use*, or a recognized equivalent.

ISO 14001 is an international standard that specifies the requirements for an environmental management system. It is based on a continuous improvement approach that incorporates the establishment of an environmental policy, targets and objectives, and the continual process of planning, implementing, measuring and checking, and reviewing those elements.

Requirements

Company shall meet the requirements of ISO 14001 *Environmental management systems – Specification with guidance for use*, or a recognized equivalent for all facilities associated with sustainable product manufacturing.

Possible Points: 2

Scope: Facility

Boundaries: Environmental Management

Documentation:

Formal EMS system that includes (at a minimum) the following:

- Builds upon the environmental policy required by prerequisite 9.2
- Elements that consider the environmental impact of activities
- Commitment and a demonstration of such commitment to legal requirements
- Sets goals to minimize environmental impacts
- Assigns resources and responsibilities to ensure an effective management system
- Appropriate training and competence so all key team members are aware and understand their role in the management system.
- Sufficient documentation to demonstrate an effective system
- Procedures to ensure an effective system
- Emergency response plans
- Key environmental performance indicators identified and a corresponding measurement system

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- Self initiated audits
- Correction action procedures
- Periodic reviews

OR

- Current Certificate of Registration to ISO 14001 or equivalent criteria issued by an accredited Registrar
- Demonstrating compliance to ISO 14001 (current version)

Methodology: Document ISO 14001 alignment or certification

Related Credits:

5.1 - Design for the Environment Program

5.3.1 - Life Cycle Thinking

5.3.1 - Life Cycle Assessment

5.3.3 - 3rd Party Review of LCA

6.4.1 - Cradle-to-Gate Energy Analysis

6.4.2 - Gate-to-Gate Energy Analysis

Resources:

Consult with environmental management systems professional to prepare for corporate registration audit. Compliance to ISO 14001 may be met through federal or state programs such as US EPA's National Performance Track or Michigan's Clean Corporate Citizen program.

7.3 Chemical Management Plan (CMP) - (Facility)

The organization shall establish a chemical management plan (CMP) to manage chemicals in products and processes. By fulfilling one of the following three criteria, an organization can earn one point as detailed below.

- The organization shall receive one point if it develops and implements a system for inventory tracking and control of process, product, and facility management chemicals that includes acquisition, use, storage, transportation, and final disposition; or
- The organization shall receive one point if it adopts as part of best management practices (BMPs) chemical hazard recognition using elements of the Process Safety Management Standard (OSHA Std. 29 CFR 1910.119) and/or EPA Risk Management Plan (RMP) (40 CFR Part 68); or
- The organization shall receive one point if its CMP contains a documented action plan for emergency planning and response that includes the basic reporting requirements of SARA Title III (U.S. Code Title 42- The Public Health and Welfare, Chapter 116 – Emergency Planning and Community Right to Know).

Intent

Establish a system for manage chemicals both in products and processes

Requirements

Develop and implement a system for inventory tracking and control of process, product, and facility management chemicals that includes:

- acquisition
- use
- storage
- transportation
- final disposition

OR

Adopt as part of best management practices (BMPs) chemical hazard recognition using elements of the Process Safety Management Standard (OSHA Std. 29 CFR 1910.119) and EPA Risk Management Plan (RMP) (40 CFR Part 68)

OR

CMP contains a documented action plan for emergency planning and response which includes the basic reporting requirements of SARA Title III (U.S. Code Title

42- The Public Health and Welfare, Chapter 116 – Emergency Planning and Community Right to Know)

Possible Points: 1

Scope: Facility

Boundaries: management chemicals that includes acquisition, use, storage, transportation, and final disposition

Documentation:

Purchase orders, manifests, billable materials records, MSDS, regulatory reporting requirements and routine inventory of used and unused chemicals. Self audit, regulatory inspections, EMS. Optional: third party certification.

CMP includes documented elements of PSM and a Risk Management Plan (RMP). Optional: third party certification.

CMP includes basic reporting requirements of SARA Title III. Integrated Environmental Management System. Optional: third party certification.

Related Credits:

7.2 – ISO 14001 or equivalent EMS

Resources:

Globally Harmonized System (GHS) of Classification and labeling of Chemicals and the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) may contain elements that align with this credit intent. Additionally an integrated environmental management system (EMS) may provide a good starting point for a Chemical management system. For guidance, Appendix ?? contains a list of chemicals of interest that may be used in furniture or in the production of furniture. This list is intended to be used for guidance and is not an exhaustive list of all chemicals that should be considered or used in the furniture manufacturing process.

Other website to consider:

- DOE - Environment, Safety and Health – Chemical Management Tools
http://www.eh.doe.gov/chem_safety/tools.html

- MSDS Search <http://www.msdssearch.com/>

-American Chemistry Council-Responsible Care Program
http://www.americanchemistry.com/s_acc/sec_statistics.asp?CID=176&DID=304

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- OSHA Process Safety Management – Hazard Recognition
<http://www.osha.gov/SLTC/processsafetymanagement/recognition.html>
- EPA's Risk Management Planning Rules <http://ehso.com/RMPs.htm>
- Emergency Planning and Community Right to Know
http://www.access.gpo.gov/uscode/title42/chapter116_.html

7.4 Effects of Process and Product Chemicals

The organization shall design safer products and processes by using design for the environment (DFE) protocol to identify and assess the human health and ecosystem health impacts of chemicals of concern. Evaluation may take place at the:

- Product level; and/or
- Process level; and/or
- Maintenance/operations level.

The intent of the identification and assessment process is for the product manufacturer to collect data from the supply chain. The chemical constituents are to be reported and referenced by CAS number. Chemical constituents of metal alloys can be based on generic composition defined by appropriate standards organizations. No further review of wood and other natural fibers is required; however products using these materials shall report added chemical constituents as defined below.

7.4.1 Product Level (Material Specification)

The organization shall identify all chemical constituents of the materials incorporated in to the product, and shall assess them for human and ecosystem impact. Product level materials excludes finishes, stains and other surface treatments. By fulfilling one or more of the following criteria, an organization can earn a maximum of four points as detailed below.

Option One

7.4.1.1 Basic (1 point)

Identify and assess all MSDS reportable chemicals down to 10,000 ppm for hazardous chemicals and down to 1,000 ppm all carcinogens for materials that add up to 95% by weight of the final product – 1 point.

Or Option Two

7.4.1.2 Advanced (maximum of 4 points)

Identify and assess all chemical constituents down to 100 parts per million for materials that add up to:

- 75% by weight of final product (2 points); or
- 90% by weight of product (3 points); or
- 99.9% by weight of product; (4 points).

7.4.2 Process Level (Process Chemicals)

The organization shall receive one point if it identifies and assesses all process chemical constituents down to 1,000 ppm of at least 3 manufacturing processes associated with the manufacture of the product (either by the organization itself or its supply chain), and assesses them for human and ecosystem impact. The scope of this credit shall include the following manufacturing processes (if applicable to the product): plating, cleaning, degreasing, coating, finishing, metal fabrication (forming, stamping, cutting, etc.), wood fabrication, treatments, welding, casting, molding, sanding and gluing. Manufacturing processes does not cover the extraction and initial processing of raw materials. If there are only 1 or 2 manufacturing processes then all process chemical constituents must be identified and assessed.

The organization shall receive one point if they can demonstrate that there are no process chemicals associated with the manufacturing of the product (as described above) either by the organization itself or its supply chain.

7.4.3 Maintenance/Operations Level

The organization shall receive one point if it identifies and assesses all chemical constituents down to 1,000 ppm of 50 percent (by purchase amount) of all maintenance and operating chemicals not directly used in the manufacture of the product, and assesses them for human and ecosystem impact.

7.4.4 Chemical Reduction Strategy

The organization shall receive one point if it develops a strategy to improve public and environmental health by reducing the use of materials and processes with significant life cycle impacts. The strategy shall be based on the findings of 7.4.1, 7.4.2, and 7.4.3. Significance shall be based on quantity of chemical used, relative impact, applicable impact categories, likelihood of impact, and feasibility.

Intent

Through the Design for Environment (DfE) protocol, evaluate the human health and ecosystem health impacts of chemicals (of concern) using life-cycle thinking and improve public and environmental health by designing safer products and processes.

Credits are available for evaluating chemicals of concern at three levels: product, facility, and corporate. An extra credit is available for developing a strategy to minimize the human and ecosystem health impacts of chemical use.

Foot notes:

1. The DfE protocol is established through prerequisite 5.2

2. Chemicals of concern are chemicals with known/anticipated impacts to human health and ecosystem health, as identified/defined in section X [BIFMA SAS Chemical List] of the Guidance Document.
3. Life cycle impact categories pertaining to “human health and ecosystem health” (shall/must/may?) include: Global warming; Ozone depletion; Acidification; Eutrophication; Photochemical smog; Terrestrial toxicity; Aquatic toxicity; and Human health. The current credit does not cover resource depletion and land use (see credits 7.X)

7.4.1 Product Level (Material Specification)

Requirements:

Identifying all chemicals down to 0.1% (by weight) of the materials specified and used to manufacture the product (seeking conformance) and assess chemicals of concern:

75% by weight of product.

95% by weight of product

99.9% by weight of product

99.99% by weight of product down to 0.01% (by weight) of materials

Possible Points: 4

Scope: Product

Boundaries: identification and assessment process is for the product manufacturer to collect data from the supply chain.

Documentation:

1. Submit documentation to demonstrate assessment (evaluation) results.
2. Submit a copy of the strategy to reduce chemicals of concern.

Methodology: The chemical constituents are to be reported and referenced by CAS number. Chemical constituents of metal alloys can be based on generic composition defined by appropriate standards organizations. No further review of wood and other natural fibers is required; however products using these materials shall report added chemical constituents as defined below.

Related Credits:

5.1 - Design for the Environment Program

5.3.1 - Life Cycle Assessment

7.2 – ISO 14001 or equivalent EMS

7.3 – Chemical inventory and tracking system

7.4.2 Process Level (Process Chemicals)

Requirements:

Identify 50% (by \$ of purchase amount) of all process chemicals down to 0.1% used directly in the manufacture of the product (seeking conformance) and assess chemicals of concern.

Possible Points: 1

Scope: Facility

Boundaries: The organization shall receive one point if it identifies and assesses all process chemical constituents down to 1,000 ppm of **at least 3 manufacturing processes** associated with the manufacture of the product (either by the organization itself or its supply chain), and assesses them for human and ecosystem impact. The scope of this credit shall include the following manufacturing processes (if applicable to the product): plating, cleaning, degreasing, coating, finishing, metal fabrication (forming, stamping, cutting, etc.), wood fabrication, treatments, welding, casting, molding, sanding and gluing. Manufacturing processes does not cover the extraction and initial processing of raw materials.

Documentation:

1. Submit documentation to demonstrate assessment (evaluation) results.
2. Submit a copy of the strategy to reduce chemicals of concern.

Methodology: Assess for human and ecosystem impact. The chemical constituents are to be reported and referenced by CAS number. Chemical constituents of metal alloys can be based on generic composition defined by appropriate standards organizations. No further review of wood and other natural fibers is required; however products using these materials shall report added chemical constituents

Related Credits:

- 5.1 - Design for the Environment Program
- 5.3.1 - Life Cycle Assessment
- 7.2 – ISO 14001 or equivalent EMS
- 7.3 – Chemical inventory and tracking system

7.4.3 Maintenance/Operations Level

Requirements:

Identify 50% (by \$) of all maintenance and operating chemicals down to 0.1% not directly used in the manufacture of the product (seeking conformance) and assess chemicals of concern. Maintenance and operations chemicals include maintenance chemicals, janitorial supplies, landscape chemicals, HVAC chemicals, water & wastewater treatment chemicals, etc.

Possible Points: 1

Scope: Facility – Maintenance and Operating Chemicals

Boundaries: Assesses all chemical constituents down to 1,000 ppm of 50 percent (by purchase amount) of all maintenance and operating chemicals not directly used in the manufacture of the product, and assesses them for human and ecosystem impact.

Documentation:

1. Submit documentation to demonstrate assessment (evaluation) results.
2. Submit a copy of the strategy to reduce chemicals of concern.

Methodology: Assess all maintenance and operating chemical constituents down to 1,000 ppm of 50 percent (by purchase amount), for human and ecosystem impact.

Related Credits:

- 5.1 - Design for the Environment Program
- 7.2 – ISO 14001 or equivalent EMS
- 7.3 – Chemical inventory and tracking system

7.4.4 Chemical Reduction Strategy

Requirements:

Develop a strategy to improve public and environmental health by reducing the use of materials and processes that have significant life cycle impacts. Significance should be based on quantity of chemical used, relative impact, applicable impact categories likelihood of impact and feasibility. This strategy shall be based on 9.5.1, 9.5.2 and/or 9.5.3.

Possible Points: 1

Scope: Facility / Product

Boundaries: Materials / Operations

Documentation:

1. Submit documentation to demonstrate assessment (evaluation) results.
2. Submit a copy of the strategy to reduce chemicals of concern.

Methodology: Develop a strategy to reduce the use of materials and processes with significant life cycle impacts.

Related Credits:

- 5.1 - Design for the Environment Program
- 5.10.1 – Policy statement that company will design and manufacture products

that have a long and useful life

7.1.2 – Chemical, Risk, and Environmental Policies

7.2 – ISO 14001 or equivalent EMS

7.3 – Chemical inventory and tracking system

7.4.1.1 – Product Chemical Content, MSDS level

7.4.1.2 - Product Chemical Content, 0.01% level

7.4.2 – Process level chemical content

7.4.3 – Maintenance & Operations Chemicals

7.5.2 – Reduction/Elimination of Chemicals of Concern

Resources for Section 7.4 Effects of Process and Product Chemicals:

1. Design for the Environment
2. LCI / LCA tools
3. Chemical assessment tools
4. Green chemistry and green engineering
5. EMS

There are many life-cycle based tools that can help assess an organization environmental impacts. The potential list of tools includes McDonough Braungart Design Chemistry's Cradle to Cradle Design Protocol, SC Johnson's Greenlist™, National Center for Manufacturing Sciences' Simplified LCA, and other recognized strategies.

Impact Categories include:

- Acidification
- Bioaccumulation
- Criteria Air Pollutants
- Depletion
- Ecological Toxicity
- Eutrophication
- Fossil Fuel Depletion
- Global Warming
- Habitat Alteration
- Human Health
- Persistence/Biodegradation
- Photochemical Smog
- Solid and Hazardous
- Stratospheric Ozone
- Waste
- Water Intake

The Standard may/will provide a list of chemicals of concern, including a designation of whether the chemical occurs at the level of product, process or other (e.g. maintenance).

7.5 Reduction/Elimination of Chemicals of Concern

The organization shall minimize the impact on human and ecosystem health of chemicals used in or associated with production of furniture.

Intent

Minimize impact on human and ecosystem health of chemicals used in or associated with production of furniture.

7.5.1 Elimination From Products

The organization shall document that the product does not contain chemicals of concern in the following classifications down to 100 ppm. The organization shall receive two points for each classification that is shown not to be present above 100 ppm (maximum eight points available):

- persistent, bioaccumulative, and toxic (PBT); and
- very persistent, very bioaccumulative (vPvB); and
- carcinogen, mutagen, reproductive toxicant (CMR); and
- endocrine disruptor (ED).

Requirements:

Commit to a voluntary reduction and/or elimination of chemicals of concerns that are recognized as being one or more of the following:

- (i) Persistent, Bioaccumulative and Toxic (PBT);
- (ii) Very Persistent, Very Bioaccumulative (vPvB);
- (iii) Carcinogen, Mutagen, Reproductive Toxicant (CMR);
- (iv) Endocrine Disruptors (ED).

Strategies include elimination or specifying materials where target chemicals are not present.

Note: This credit is constructed to offer a voluntary approach that provides for flexibility, continuous improvement and recognizes that the manufacturer has *control/influence over chemicals of concern through material specification*

Possible Points: Up to 8

Scope: Product

Boundaries: Product being assessed.

Documentation:

Submit documentation to demonstrate assessment (evaluation) results down to 100 ppm of all chemicals in final product.

Methodology:

Document that the product does not contain chemicals of concern in the specified classifications down to 100 ppm. Calculate reductions (*the baseline will be established as the average of any three consecutive years of the prior six years*).

Related Credits:

- 5.1 - Design for the Environment Program
- 7.2 – ISO 14001 or equivalent EMS
- 7.3 – Chemical inventory and tracking system
- 7.4.1.2 - Product Chemical Content, 0.01% level
- 7.4.2 – Process level chemical content
- 7.4.3 – Maintenance & Operations Chemicals

Resources:

Use tracking system and strategies associated with Credit 7.5

7.5.2 Reduction From Processes

Following from credit 7.4.2, an organization can earn points by reducing and/or eliminating chemicals of concern that are recognized as being:

- persistent, bioaccumulative, or toxic (PBT); and/or
- very persistent, very bioaccumulative (vPvB); and/or
- a carcinogen, mutagen, or reproductive toxicant (CMR); and/or
- an endocrine disruptor (ED); and/or
- the chemical has recognized potential to contribute to any of the following life-cycle impact categories: Acidification; Aquatic Toxicity; Eutrophication; Global Warming; Photochemical Smog Formation; Stratospheric Ozone Depletion; or Terrestrial Toxicity.

An organization can earn points by fulfilling the criteria below but shall not receive more than four total points for 7.5.2 regardless of how many criteria it fulfills beyond this limit.

7.5.2.1 On initial certification, an organization shall receive:

- One point for demonstrating a 10-19 % reduction, on an absolute basis, in chemical(s) in one or more of the above categories; or
- Two points for demonstrating a 20-29 % reduction, on an absolute basis, in chemical(s) in one or more of the above categories; or

- Three points for demonstrating a 30-39 % reduction, on an absolute basis, in chemical(s) in one or more of the above categories; or
- Four points for demonstrating a reduction of 40 % or more, on an absolute basis, in chemical(s) in one or more of the above categories.

On re-certification, the organization shall earn points earned in this category by demonstrating further reductions in increments of 10% (on an absolute basis), or by showing the levels of reduction detailed above in a different set of chemicals without an increase in the former set.

Requirements:

Commit to a voluntary reduction and/or elimination of chemicals of concerns that are recognized as being one or more of the following:

- (i) Persistent, Bioaccumulative and Toxic (PBT);
- (ii) Very Persistent, Very Bioaccumulative (vPvB);
- (iii) Carcinogen, Mutagen, Reproductive Toxicant (CMR);
- (iv) Endocrine Disruptors (ED)
- (v) Eutrophication
- (vi) other recognized significant life cycle impact category that directly impacts human or ecosystem health

A chemical is eligible for a point if it is present and/or released at any stage of the processing of the final product. Presence or release during processing may be intentional or unintentional; direct or indirect. (e.g. as in, intentionally added versus background levels). For the purposes of this credit, a chemical of concern is considered successfully phased-out if the presence or release of said chemical in the process is below 1000 ppm. Where reduction is achieved by substitution there shall be no net increase of chemicals from any of the categories.

The total of 4 points can be achieved through a combination of two different strategies: **A** – provides flexibility in which chemicals are targeted for phase-out; chemicals may be present, but must demonstrate a progressive decrease in concentration; **B** – a more rigid and stringent approach in which a select subset of predefined chemicals must be eliminated. Both approaches are needed to obtain the full 4 points. A specific chemical cannot simultaneously earn a point under A and B.

A. One credit point per 10% reduction per applicable chemical compared to a baseline content of said chemical. For re-certification, must demonstrate a further 10% incremental reduction compared to content level filed for previous certification for that chemical OR show reduction in a different set of chemicals without an increase in former set of chemicals. [Maximum X points]

Example 1: Chemical A reduced 10%; Chemical B reduced 20%; Chemical C reduced 10%; TOTAL = 4

Example 2: Chemical A reduced 10%; Chemical B reduced 30%. TOTAL = 4

Possible Points: Up to 4

Scope: Processes used to manufacture product

Boundaries: Product being assessed.

Documentation:

Submit documentation to demonstrate assessment (evaluation) results down to 1000 ppm of targeted chemicals and demonstrate reduction within a three year period.

Methodology: Calculate reductions (*We assume the baseline will be established as the average of any three consecutive years of the prior six years*) Action: demonstrate reduction in specified chemical categories

Related Credits:

- 5.1 - Design for the Environment Program
- 7.2 – ISO 14001 or equivalent EMS
- 7.3 – Chemical inventory and tracking system
- 7.4.1.2 - Product Chemical Content, 0.01% level
- 7.4.2 – Process level chemical content
- 7.4.3 – Maintenance & Operations Chemicals

7.5.2.2 An organization can earn points if it documents that the processes used to manufacture the product do not contain any chemical of concern at a concentration greater than 1,000 ppm in one or more of the listed classifications. The organization shall receive one point for each of the classifications in 7.5.2 that is shown to be absent above this concentration.

A chemical is relevant to 7.5.2 if it is present and/or released at any stage of the processing of the final product. Presence or release during processing may be intentional or unintentional; direct or indirect (e. g., intentionally added chemicals, or background levels). For the purposes of 7.5.2, a chemical of concern shall be considered successfully phased out if the presence or release of the chemical in the process is below 1,000 ppm. Where reduction is achieved by substitution, there shall be no net increase of chemicals from any of the above categories.

Requirements:

Demonstrated absence of all candidates from a select subset of chemicals of concern (to be defined) at time of first certification or any subsequent re-certification [Maximum 4 points]

Notes:

1. The term “material-of-origin” is used to refer to the source(s) of the chemical and is the relevant point of reference for calculating content of said chemical.
2. This credit is constructed to offer a voluntary approach that provides for flexibility, continuous improvement and recognizes that the manufacturer has *control/influence over chemicals of concern through material specification.*

Possible Points: Up to 4

Scope: Processes used to manufacture product

Boundaries: Product being assessed.

Documentation:

Methodology: Calculate reductions (*We assume the baseline will be established as the average of any three consecutive years of the prior six years*) Action: demonstrate reduction in specified chemical categories

Related Credits:

- 5.1 - Design for the Environment Program
- 7.2 – ISO 14001 or equivalent EMS
- 7.3 – Chemical inventory and tracking system
- 7.4.1.2 - Product Chemical Content, 0.01% level
- 7.4.2 – Process level chemical content
- 7.4.3 – Maintenance & Operations Chemicals

Resources for Section 7.5.2

Use tracking system and strategies associated with Credit 7.5

7.5.3 Reductions from Maintenance/Operations level

Following from credit 7.4.3, an organization can earn points by reducing and/or eliminating chemicals of concern that are recognized as being:

- persistent, bioaccumulative, and toxic (PBT); and/or
- very persistent, very bioaccumulative (vPvB); and/or
- a carcinogen, mutagen, or reproductive toxicant (CMR); and/or
- an endocrine disruptor (ED); and/or

- the chemical has recognized potential to contribute to any of the following life-cycle impact categories: Acidification; Aquatic Toxicity; Eutrophication; Global Warming; Photochemical Smog Formation; Stratospheric Ozone Depletion; Terrestrial Toxicity

On initial certification, an organization shall receive:

- One point for demonstrating a 20% reduction in chemical(s) in one or more of the above categories; or

On re-certification, the organization shall earn a point earned in this category by demonstrating further reductions in increments of 10%, or by showing the levels of reduction detailed above in a different set of chemicals without an increase in the former set.

Requirements:

Possible Points: 1

Scope: Processes used to manufacture product

Boundaries: Product being assessed.

Documentation:

Methodology: Calculate reductions (*We assume the baseline will be established as the average of any three consecutive years of the prior six years*) Action: demonstrate reduction in specified chemical categories

Related Credits:

- 5.1 - Design for the Environment Program
- 7.2 – ISO 14001 or equivalent EMS
- 7.3 – Chemical inventory and tracking system
- 7.4.1.2 - Product Chemical Content, 0.01% level
- 7.4.2 – Process level chemical content
- 7.4.3 – Maintenance & Operations Chemicals

7.5.4 Reduction of Hazardous Wastes and Air Emissions

The scope of these credits shall include the following manufacturing processes: plating, cleaning, degreasing, coating, finishing, metal fabrication (forming, stamping, cutting, etc.), wood fabrication, treatments, welding, casting, molding, sanding and gluing. Manufacturing processes do not cover the extraction and initial processing of raw materials.

7.5.4.1 Hazardous Waste

The organization shall receive one point if it either reduces the amount of hazardous waste generated from the manufacturing of the product by at least 10% on an absolute basis over three years, or at least 20% on a normalized basis, or demonstrates that there is no hazardous waste generated in the process of manufacturing the product.

Requirements:

Reduce the amount of hazardous waste generated from the manufacturing of the product by at least 20% on a per unit basis over 3 years

OR

Demonstrate that there is no hazardous waste generated in the process of manufacturing the product.

Possible Points: 1

Scope: Facility

Boundaries: scope of these credits shall include the following manufacturing processes: plating, cleaning, degreasing, coating, finishing, metal fabrication (forming, stamping, cutting, etc.), wood fabrication, treatments, welding, casting, molding, sanding and gluing. Manufacturing processes does not cover the extraction and initial processing of raw materials.

Methodology: Calculate reductions (*We assume the baseline will be established as the average of any three consecutive years of the prior six years*) **Action:** Document at least 10% on an absolute basis over three years, or demonstrates that there is no hazardous waste generated in the process.

Related Credits:

- 5.1 - Design for the Environment Program
- 5.11 – Solid Waste Reduction Program
- 7.2 – ISO 14001 or equivalent EMS
- 5.3.1 - Life Cycle Assessment

7.5.4.2 Air Emissions

By fulfilling one or both of the following criteria, an organization can earn either one point, as detailed below.

The organization shall receive one point if it reduces hazardous air pollutants from the manufacturing of the product by at least 10% on an absolute basis, or at least 20% on a normalized basis, or demonstrates that there are no hazardous air pollutants released in the process of manufacturing the product;

OR

The organization shall receive one point if it reduces criteria air pollutants from the manufacturing of the product by at least 10% on an absolute basis, or at least 20% on a normalized basis, or demonstrates that there are no hazardous air pollutants released in the process of manufacturing the product.

Requirements:

Hazardous Air Pollutants

Reduce hazardous air pollutants from the manufacturing of the product by at least 20% on a per unit basis

OR

Demonstrate that there are no hazardous air pollutants released in the process of manufacturing the product

Criteria Air Pollutants

Reduce criteria air pollutants from the manufacturing of the product by at least 20% on a per unit basis

OR

Demonstrate that there are no hazardous air pollutants released in the process of manufacturing the product

Possible Points: 1

Scope: Facility

Boundaries: scope of these credits shall include the following manufacturing processes: plating, cleaning, degreasing, coating, finishing, metal fabrication (forming, stamping, cutting, etc.), wood fabrication, treatments, welding, casting, molding, sanding and gluing. Manufacturing processes does not cover the extraction and initial processing of raw materials.

Methodology: Calculate reductions (*We assume the baseline will be established as the average of any three consecutive years of the prior six years*) Action: Document at least 10% on an absolute basis over three years, or demonstrates that there is no hazardous waste generated in the process

Related Credits:

- 5.1 - Design for the Environment Program
- 5.11 – Solid Waste Reduction Program
- 7.2 – ISO 14001 or equivalent EMS
- 5.3.1 - Life Cycle Assessment

Documentation for Section 7.5.4

Demonstrate (on a per unit basis) either reduction of or the elimination of:

- hazardous waste as defined by the Resource Conservation and Recovery Act (40 CFR 240-299)

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- hazardous air pollutants as defined by the Clean Air Act (40 CFR 63)
- Criteria air pollutants as defined by the Clean Air Act (40 CFR 50)

Resources:

US EPA has a number of guidance documents and programs to support reduction in hazardous waste and air emissions.

A robust environmental management system can provide a platform for identifying, tracking and reducing releases of wastes and air emissions.

7.6 Low Emitting Furniture

The organization shall ensure good indoor air quality by reducing irritating, odorous, and/or harmful indoor air contaminants in finished products. By fulfilling one or both of the criteria in 7.6.1 and 7.6.2, an organization may earn either one or two points, as detailed below.

Individual furniture components of workstations (e.g., file cabinets, desks, drawer pedestals, work surfaces, tables, vertical panels, privacy screens, etc.) may obtain either or both points of this credit by meeting the maximum allowed emission factors for either an open plan workstation or a private office, using configurations as defined in ANSI/BIFMA M7.1-2007. This criteria also applies to items not necessarily intended to be in workstations like easels, conference tables, etc.

All surfaces are allowed a maximum emission factor depending upon the intended use environment. The maximum emission factor is calculated based on the guideline concentration for a chemical substance as defined in 7.6.1 or 7.6.2, the total surface area for the open plan workstation or private office, and the air flow rates for the open plan workstation or private office.

The standard test method to be used to demonstrate compliance is the ANSI/BIFMA M7.1-2007 Standard Test Method for Determining VOC emissions from Office Furniture Systems, Components and Seating.

7.6.1 The organization shall receive one point if furniture emissions concentrations or factors meet the following criteria as defined in ANSI/BIFMA X7.1-2007 at 168 hours:

Workstation systems (open plan or private) office emissions concentration limits

TVOCtoluene	≤0.5 mg/m ³
Formaldehyde	≤ 50 ppb
Total Aldehydes	≤ 100 ppb
4-Phenylcyclohexene	≤0.0065 mg/m ³

Seating office emissions concentration limits

TVOCtoluene	≤ 0.25 mg/m ³
Formaldehyde	≤ 25 ppb
Total Aldehydes	≤ 50 ppb
4-Phenylcyclohexene	≤ 0.00325 mg/m ³

Individual furniture components maximum emission factors

	ANSI/BIFMA M7.1-2007 Open Plan Workstation	ANSI/BIFMA M7.1-2007 Private Office Workstation
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Formaldehyde, (ug/m ² hr)	42.3	85.1
TVOC, (ug/m ² hr)	345	694
Total Aldehyde, (umol/m ² hr)	2.8	5.7
4-Phenylcyclohexene, (ug/m ² hr)	4.5	9.0

7.6.2 The organization shall receive one point if furniture emissions do not exceed the individual Volatile Organic Chemical (VOC) concentration limits listed in normative A at 336 hours (14 days) or sooner when determined in accordance with the ANSI/BIFMA M7.1-2007 standard test method. These criteria are based on California EPA's OEHHA's reference exposure VOC limits in the CA Section 01350 specification, on the Standard Practice for the Testing of Volatile Organic Emissions from Various Sources using Small-Scale Environmental Chambers, and on the 2006 California office furniture bid specification.

NOTE – When the emission factor at 336 hours is determined using the power-law defined in ANSI/BIFMA M7.1-2007 Section 10.4 and 10.5, emission factors with $-0.20 < b < 0.20$ shall be reported as constant.

Seating may obtain this credit by meeting ½ the maximum acceptable limits for a workstation as defined in 7.6.2.

Small chamber testing of component pieces of workstations per the ANSI/BIFMA M7.1-2007 standard is acceptable for this point, provided that there is third-party oversight in selecting representative components and in applying the calculations in ANSI/BIFMA M7.1-2007 Section 10.6.1 and 10.6.2 to estimate the emission factor of a product.

Intent:

Ensure good indoor air quality by reducing potentially irritating, odorous, and/or harmful indoor air volatile organic compound chemical emission concentrations from finished products that are to the comfort and wellbeing of occupants.

Requirements:

Furniture emissions shall meet the emission requirements of the BIFMA X 7.1 Standard at 168 hours (7days).[1 point]

Emissions from workstations and seating meet the criteria at 168 hours

Workstation systems (open plan and private office)

TVOC_{toluene} < 0.5 mg/m³
 Formaldehyde < 50 ppb
 Total Aldehydes < 100 ppb

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4-Phenylcyclohexene < 0.0065 ppb

Seating and Individual furniture components

TVOC_{toluene} < 0.25 mg/m³

Formaldehyde < 25 ppb

Total Aldehydes < 50 ppb

4-Phenylcyclohexene < 0.00325 ppb

Furniture emissions shall meet the individual VOC criteria listed in Annex A at 336 hours (14 days). These criteria is based on California Section 01350 limits as listed in the 2006 California office furniture bid specification.

Individual furniture components (chairs included) may obtain this credit by meeting ½ the maximum acceptable limit. Use the chamber emission factor, and a model calculation using the surface area in the BIFMA M7.1 configuration Appendix 2.

- Panels – 11.08 m²
- Work surfaces- 6.103 m²
- Storage Unites – 4.569 m²

Acceptable chamber testing protocols:

- 1) BIFMA M7.1 Standard Test Method for Determining VOC emissions from Office Furniture Systems, Components and Seating.
- 2) Method for Measuring Chemical Emissions from Various Sources Using Dynamic Environmental Chambers, prepared for the Greenguard Certification Program by Air Quality Sciences.
 - a. For the one year period from the ANSI approval date of the BIFMA M7.1 as a transition period, the office iVOC concentrations for this credit may be calculated using the following alternate chamber measurement data provided that the office concentrations are calculated using all other exposure model calculation steps and parameters described in BIFMA M7.1

Possible Points: Up to 2

Scope: Product

Boundaries: Product Emissions

Documentation

Certification Documents

OR

10/19/07

107

DRAFT BIFMA SUSTAINABILITY ASSESSMENT STANDARD - 2007

Lab Reports that comply with BIFMA M7.1 Section 12

Methodology: Testing

Related Credits: None

8.0 SOCIAL RESPONSIBILITY

8.1 Prerequisites

The organization shall ensure employee health and safety by establishing management processes that will detect, avoid or respond to actual and potential threats to the health and safety of all personnel.

The processes shall include the following components:

- Identification of the local, national and international health and safety laws applicable to the facility.
- Appointment of a management representative with defined responsibilities
- An employee health and safety policy
- Documented procedures for the management of the system including a corrective action process that addresses regulatory compliance and actual and potential threats to employee health and safety
- Establishment and maintenance of employee health and safety metrics
- Health and safety training for all employees
- Regular evaluation of compliance to applicable health and safety laws, as well as internal procedures and requirements

Intended scope of assessment: The entire facility in which final assembly occurs for the products being assessed.

Labor and Human Rights

The organization shall protect and respect the rights of human resources at the local, national and global levels by ensuring that forced or involuntary labor is not used or supported in any form, that employment is voluntary, and that child labor is not used or supported in any form.

See definitions section. If other forced labor or child labor definitions apply to the organization's operations than those supplied in this standard, and the definitions are more restrictive, the more restrictive definitions shall apply.

Intended scope of assessment: The corporation

8.1.1 Employee Health and Safety Management

Intent

To ensure employee health and safety by establishing management processes that will detect, avoid or respond to actual and potential threats to the health and safety of personnel.

Requirements

Develop and implement an employee health and safety management process that includes the following components:

- Identification of the local and national health and safety laws applicable to the facility.
- Appointment of a management representative with defined responsibilities
- An employee health and safety policy
- Documented procedures for the management of the system including a corrective action process that addresses regulatory compliance and actual and potential threats to employee health and safety
- Establishment and maintenance of employee health and safety metrics
- Health and safety training for all employees
- Regular evaluation of compliance to applicable health and safety laws, as well as internal procedures and requirements

Possible Points: Prerequisite

Scope: The entire facility in which final assembly occurs for the products being assessed.

Boundaries: Health and safety laws applicable to the facility.

Documentation

Policies, procedures and records used in the management of the system which can be used demonstrate compliance to the pre-requisite requirements. Records need to show active management of the system over the past 12 months.

Methodology:

Create documented procedures for the management of the system including a corrective action process that addresses regulatory compliance and actual and potential threats to employee health and safety. Consider benchmarking other organizations who have demonstrated effective health and safety management practices and achieved measureable improvement. Review requirements and recommendations from the US Occupational Health and Safety Administration (OSHA) for employee health and safety practices. Review international health and safety management standards such as OHSAS 18001 in designing and implementing the management system.

Related Credits:

7.1.1 – Demonstration of Compliance

8.1.1 – Safety Management System with all the trimming

8.1.2 Labor and Human Rights

Intent

To protect and respect the rights human resources at the local, national and global levels.

Requirements

The organization shall protect and respect the rights of human resources at the local, national and global levels by ensuring that forced or involuntary labor is not used or supported in any form, that employment is voluntary, and that child labor is not used or supported in any form.

Possible Points: Prerequisite

Scope: The entire facility in which final assembly occurs for the products being assessed

Boundaries: Forced labor and child labor laws applicable to the facility.

Documentation

Be able to provide documentation of applicable laws and regulations and provide documentation of compliance with the requirements.

Methodology: Prohibit use of child or forced labor.

Related Credits:

8.2 - Social Responsibility Policy

8.2 Policy on Social Responsibility

The organization shall receive one point if it adopts a corporate position on social responsibility. It shall develop a documented, publicly available policy on social responsibility that, at minimum, addresses:

- Fair hiring practices
- Education for applicable employees in this subject area
- Corporate ethics
- Receipt of gifts
- Insider trading

Intended scope of assessment: The corporation

Intent

To encourage the adoption of a corporate position on social responsibility.

Requirements

The organization shall receive one point if it adopts a corporate position on social responsibility. It shall develop a documented, publicly available policy on social responsibility that, at minimum, addresses:

- Fair hiring practices
- Education for applicable employees in this subject area
- Corporate ethics
- Receipt of gifts
- Insider trading

Possible Points: 1

Scope: Corporation

Boundaries: Corporation

Documentation: Provide copy of social responsibility policy and identify how it is made public.

Methodology:

Consider benchmarking policies of other organizations that have demonstrated effective social responsibility practices.

Related Credits:

8.1.2 – Ensure that forced and child labor are prohibited

8.2 - Social Responsibility Policy

8.4 – Implement a Diversity Policy

8.5 – Community Outreach and involvement

8.3 External Health and Safety Management Standard

The organization shall receive one point if it enhances productivity and employee welfare by implementing policies and procedures that go beyond the requirements of 8.1.1 by conforming to the requirements of a publicly available external health and safety management system standard.

Intended scope of assessment: The entire facility in which final assembly occurs for the products being assessed

Intent

To enhance productivity and employee welfare by implementing policies and procedures that go beyond the requirements of Prerequisite 8.1.1.

Requirements

The organization shall receive one point if it conforms to the requirements of a publicly available external health and safety management system standard.

Possible Points: 1

Scope: The entire facility in which final assembly occurs for the products being assessed

Boundaries: The entire facility in which final assembly occurs for the products being assessed

Documentation

Provide documentation of audit showing conformance to external standard. This could include: self certification documentation, customer (second party) audit results or third party audit results that are less than 3 years old at the time of assessment. Records need to show active management of the system over the past 12 months.

Methodology

Standards that may be used include but are not limited to:

- OHSAS 18001 - <http://www.bsi-global.com/en/Shop/Publication-Detail/?pid=000000000030164695>
- Any state health and safety program approved by US Occupational Safety and Health Administration whose scope includes employees of commercial organizations as shown at www.osha.gov/fso/osp/index
- An equivalent national or local standard originating outside the US.
- implementing policies and procedures that go beyond the requirements of 8.1.1 by conforming to the requirements of a publicly available external health and safety management system standard.

Related Credits: None

8.4 Diversity

The organization shall receive one point if it promotes diversity in the workforce, in management, and corporate governance bodies while recognizing the unique local norms which exist in different countries around the world. The organization shall develop and implement a diversity policy that includes the following components:

- Identification of and compliance to the local, national and international diversity rules and regulations applicable to the facility
- Documented procedures for the management of the system.
- Establishment of appropriate feedback mechanisms
- A corrective action process
- Establishment and maintenance of employee diversity metrics and internal performance tracking and reporting
- Diversity education available for employees
- Regular evaluation of compliance to applicable diversity rules and regulations, as well as internal procedures and requirements.

Intended scope of assessment: The entire facility in which final assembly occurs for the products being assessed.

Intent

To promote diversity in workforce, management, and corporate governance bodies while recognizing the unique local norms which exist in different countries around the world.

Requirements

The organization shall receive one point if it develops and implements a diversity management process that includes the following components:

- Identification of and compliance to the local and national diversity rules and regulations applicable to the facility
- Documented procedures for the management of the system.
- Establishment of appropriate feedback mechanisms
- A corrective action process
- Establishment and maintenance of employee diversity metrics and internal performance tracking and reporting
- Diversity education available for employees
- Regular evaluation of compliance to applicable diversity rules and regulations, as well as internal procedures and requirements.

Possible Points: 1

Scope: The entire facility in which final assembly occurs for the products being assessed.

Boundaries: Facility in which final assembly occurs.

Documentation

Policies, procedures and records developed to demonstrate compliance to the requirements.

Methodology

Benchmark other organizations which have demonstrated effective diversity management practices.

Related Credits:

8.2 - Social Responsibility Policy

8.5 Engage in Community Outreach and Involvement

The organization shall receive one point if it demonstrates good corporate citizenship to benefit the communities in which it operates. It shall demonstrate at least two volunteer efforts and/or financial contributions supporting community projects within each 12 month period.

Intent

Encourage companies to be good corporate citizens and benefit the communities in which they operate.

Requirements

The organization shall receive one point if it demonstrates at least two volunteer efforts and/or financial contributions supporting community projects within each 12 month period.

Possible Points: 1

Scope: Corporation

Boundaries: Corporation

Documentation: Provide evidence of volunteer time or financial contributions.

Methodology

These are examples of the types of community projects that could be considered:

- Scholarships
- Highway Clean up
- Sponsorship of community charitable events
- Participation in children tutoring programs
- Community benefit programs

Related Credits:

8.2 - Social Responsibility Policy

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8.6 Social Responsibility Reporting

The organization shall promote transparency through public reporting of social responsibility activities and results. Wherever possible, it shall use widely accepted metrics to evaluate the effects of these policies and activities on the company's stakeholders. By fulfilling one or both of the following criteria, the organization can earn up to three points, as detailed below.

Intended scope of assessment: The corporation

Requirements 1 point

Publish a public report that, at minimum, addresses:

- Employee Health and Safety Management
- Labor and Human Rights Management
- Diversity
- Community Outreach and Involvement

Requirements 2 points

Publish a comprehensive public report that follows reporting elements in Global Reporting Initiative G3 Social Responsibility section, the SA8000 Social Accountability standard or other internationally recognized guideline.

Intent

Promote transparency through public reporting of social responsibility activities and results. Wherever possible, it shall use widely accepted metrics to evaluate the effects of these policies and activities on the company's stakeholders.

Possible Points

By fulfilling one or both of the following criteria, the organization can earn up to three points, as detailed below.

8.6.1 Requirements 1 point

Publish a public report that, at minimum, addresses:

- Employee Health and Safety Management
- Labor and Human Rights Management
- Diversity
- Community Outreach and Involvement

8.6.2 Requirements 2 points

Publish a comprehensive public report that follows reporting elements in Global Reporting Initiative G3 Social Responsibility section, the SA8000 Social Accountability standard or other internationally recognized guideline.

Scope: Corporation

Boundaries: Corporation

Documentation

For either requirement provide copy of social responsibility report demonstrating public availability.

Methodology

Create a social responsibility report and post on company web site or make available to the public through other means. Include social responsibility activities in the company annual report. Sources for identifying potential reporting elements:

- Web Sites of firms recognized for corporate social responsibility reporting.
- List of companies that issue Corporate Social Responsibility reports.

www.siran.org

- Global Reporting Initiative G3 Guidelines- www.globalreporting.org

Related Credits:

8.2 - Social Responsibility Policy

8.3 – Comply with external safety management system

8.4 – Implement a Diversity Policy

8.5 – Community Outreach and involvement

8.7 Supply chain

Intent

Through the use of internationally recognized social responsibility criteria, the organization shall encourage continuous improvement in the supply chain relative to sustainable business criteria, and particularly to social responsibility. By fulfilling the following criteria, an organization may earn up to three points, as detailed below.

Requirements 1 point

Establish a documented supplier assessment tool (which may be a self-assessment tool) containing social responsibility criteria for its suppliers. At a minimum, the Assessment tool shall contain criteria in the following categories:

- Child labor;
- Forced labor;
- Health and safety;
- Discrimination; and
- Discipline/harassment.
- Working hours
- Compensation
- Freedom of association and collective bargaining

Requirements 2 points

The organization shall receive two additional points if it conforms to 8.7.1 and provides completed responses to the assessment tool from suppliers comprising at least 75% of its total

direct material spend for all products, measured using actual annual spend data for a consecutive 12-month time period within the previous 2 years. For suppliers that are part of the "75% of total material spend" that act as brokers, distributors, inventory management providers, etc. and do *not* manufacture and/or assemble the components/products purchased by the organization, the assessment tool responses must be obtained from their suppliers who do manufacture and/or assemble the components/products.

8.7 Supply chain

Intent

Through the use of internationally recognized social responsibility criteria, the organization shall encourage continuous improvement in the supply chain relative to sustainable business criteria, and particularly to social responsibility.

Possible Points

By fulfilling the following criteria, an organization may earn up to three points, as detailed below.

8.7.1 Requirements 1 point

Establish a documented supplier assessment tool (which may be a self-assessment tool) containing social responsibility criteria for its suppliers. At a minimum, the assessment tool shall contain criteria in the following categories:

- Child labor;
- Forced labor;
- Health and safety;
- Discrimination
- Discipline/harassment.
- Working hours
- Compensation

8.7.2 Requirements 2 points

The organization shall receive two additional points if it conforms to 8.7.1 and provides completed responses to the assessment tool from suppliers comprising at least 75% of its total direct material spend for all products, measured using actual annual spend data for a consecutive 12-month time period within the previous 2 years. For suppliers that are part of the “75% of total material spend” that act as brokers, distributors, inventory management providers, etc. and do *not* manufacture and/or assemble the components/products purchased by the organization, the assessment tool responses must be obtained from *their* suppliers who do manufacture and/or assemble the components/products.

Scope: Corporation

Boundaries: Global Supply Chain

Methodology: Include social responsibility in Supplier Assessment Tool.
Reference Institute for Supply Management- www.ism.ws

Related Credits:

- 8.1.1 – Safety Management System with all the trimming
- 8.1.2 – Ensure that forced and child labor are prohibited
- 8.2 - Social Responsibility Policy
- 8.3 – Comply with external safety management system
- 8.4 – Implement a Diversity Policy
- 8.5 – Community Outreach and involvement
- 8.6.1 – Social Responsibility Reporting
- 8.6.2 - Social Responsibility Reporting following GRI, G3, or SA8000

9.0 Resources

- BIFMA Sustainability Guidelines
<http://www.bifma.org/documents/SusGdlines.pdf>
- ASTM E2432-05 Standard Guide for General Principles of Sustainability Relative to Buildings
Download 6-page standard for \$33 at >>
http://www.astm.org/cgi-bin/SoftCart.exe/STORE/filtrexx40.cgi?U+mystore+vqpm0798+L+E2432+/usr6/htdocs/astm.org/DATABASE.CART/REDLINE_PAGES/E2432.htm
- ASTM E2129-05 Standard Practice for Data Collection for Sustainability Assessment of Building Products
Download 10-page standard for \$33 at >>
http://www.astm.org/cgi-bin/SoftCart.exe/STORE/filtrexx40.cgi?U+mystore+vqpm0798+L+E2129+/usr6/htdocs/astm.org/DATABASE.CART/REDLINE_PAGES/E2129.htm
- ASTM E1991-05 Standard Guide for Environmental Life Cycle Assessment (LCA) of Building Materials/Products
Download 9-page standard for \$33 at >>
http://www.astm.org/cgi-bin/SoftCart.exe/STORE/filtrexx40.cgi?U+mystore+vqpm0798+L+E1991+/usr6/htdocs/astm.org/DATABASE.CART/REDLINE_PAGES/E1991.htm
- ASTM E2114-05a Standard Terminology for Sustainability Relative to the Performance of Buildings
Download 5-page standard for \$33 at >>
http://www.astm.org/cgi-bin/SoftCart.exe/STORE/filtrexx40.cgi?U+mystore+vqpm0798+L+E2114+/usr6/htdocs/astm.org/DATABASE.CART/REDLINE_PAGES/E2114.htm
- ASTM E917-05 Standard Practice for Measuring Life-Cycle Costs of Buildings and Building Systems
Download 19-page standard for \$39 at >>
http://www.astm.org/cgi-bin/SoftCart.exe/STORE/filtrexx40.cgi?U+mystore+vqpm0798+L+E917+/usr6/htdocs/astm.org/DATABASE.CART/REDLINE_PAGES/E917.htm

DRAFT BIFMA SUSTAINABILITY ASSESSMENT STANDARD - 2007

- Collaboration for High Performance Schools Section 01350
<http://www.chps.net/manual/index.htm#specs>
- MBDC Cradle to Cradle
website: <http://www.mbdc.com/certified.html>
document: http://www.mbdc.com/docs/Certification_Outline.pdf
criteria: <http://www.mbdc.com/docs/CertificationCriteria.pdf>
- Natural Step System Conditions
<http://www.NaturalStep.org>
- GreenSeal Office Furniture Choose Green Report --
http://www.greenseal.org/recommendations/CGR_office_furniture.pdf
- Unified Sustainable Textile Standard© 2.0
<http://mts.sustainableproducts.com/standards.htm>
- SCS EPP Standards -- Carpet Face Fiber, Carpet Broad Loom, and Flooring Management Systems
 - http://www.scscertified.com/manufacturing/manufacture_facefiber.html
 - <http://www.scscertified.com/carpet/>
 - http://www.scscertified.com/manufacturing/manufacture_flooring.html
- Global Reporting Initiative (GRI) Sustainability Reporting Guidelines (2000) Social Equity Performance Indicators
http://www.sustainableproducts.com/susproddef2.html#Performance_Indicator
S
- Business for Social Responsibility – issue briefs
<http://www.bsr.org/CSRResources/IssueBriefsList.cfm?area=all>
- Electronic Product Environmental Assessment Tool (EPEAT)
Description of Voluntary Environmental Performance Criteria for Computers, Laptops and Monitors and EPEAT Product Rating System as Designed by the EPEAT Development Team --
<http://www.epeat.net/files/EPEAT%20Full%20Criteria%20050602.pdf>
- EPA/WBDG Federal Green Construction Guide for Specifiers: 12700-Systems Furniture: <http://fedgreenspecs.wbdg.org>
- DfE Furniture Flame Retardancy Partnership: Furniture foam flame retardants alternatives assessment
<http://www.epa.gov/dfe/pubs/flameret/ffr-alt.htm>
- United States Green Building Council (USGBC)

Environmental calculators for measuring the environmental benefits of waste reduction/recycling efforts. They are mostly relevant to materials management:

The Waste Reduction Model (WARM) - calculates greenhouse gas (GHG) emissions implications of alternate management strategies for about 3 dozen materials:

<http://yosemite.epa.gov/oar/globalwarming.nsf/content/ActionsWasteWARM.html>

The greenhouse gas equivalencies calculator will let you translate those GHG emissions into things like barrels of oil and acres of trees:

<http://www.usctcgateway.net/tool>

ReCon will help to estimate GHG emissions and energy impacts for purchasing materials with varying degrees of post-consumer recycled content:

<http://yosemite.epa.gov/oar/globalwarming.nsf/content/ActionsWasteToolsRecon.html>

This tool will let you estimate the GHG emissions of various waste management decisions for durable goods:

<http://yosemite.epa.gov/oar/globalwarming.nsf/content/ActionsWasteToolsDGC.html>

This calculator (not an EPA product, although they helped fund the development) estimates GHG emissions, energy implications, and some water issues from resource management decisions, including recycling, source reduction and electronics recycling:

<http://www.nerc.org/documents/aboutcalc.html>

MORE RESOURCES:

BEES (US Govt. developed LCA tool)

California High Performance Schools Best Practices Design Manual

A comprehensive guide to planning, designing, maintaining and operating a high performance school. Includes a materials specification, criteria scorecard and an array of fact sheets on topics ranging from acoustics to mold prevention.

California High Performance Schools (CHPS) List of CHPS-Compliant Low Emitting Materials. Products listed in the Compliant Materials Table have been chamber tested to meet the indoor air quality guidelines outlined in CHPS Specification Section 01350.

California State Recycled Content Product Database

Creating a High Performance Workspace: G/Rated Tenant Improvement Guide. This helpful resource guide identifies key steps toward ensuring healthy, productive, durable, and resource-efficient workspaces. It includes dozens of helpful strategies, fact sheets, model specifications, a glossary of terms, and a list of regional vendors and product manufacturers.

EPA's Energy Star Building Label Program

EPA's Environmentally Preferred Products Database

Green Guide for Health Care

The Green Guide for Health Care™ is the health care sector's first quantifiable sustainable design toolkit integrating environmental and health principles and practices into the planning, design, construction, operations and maintenance of their facilities. This Guide provides the health care sector with a voluntary, self-certifying metric toolkit of best practices that designers, owners, and operators can use to guide and evaluate their progress towards high performance healing environments.

Example Programs/Partnerships/Initiatives The following resources are provided as a partial list of the many available programs and organizations working on sustainable business practices.

- Global Reporting Initiative
<http://www.globalreporting.org>
- World Business Council for Sustainable Development (WBCSD)
<http://www.wbcsd.ch>
- EPA National Environmental Performance Track Program
<http://www.epa.gov/performance-track>
- Federal Trade Commission (FTC) “Guides for the Use of Environmental Marketing Claims”:
<http://www.ftc.gov/bcp/online/pubs/buspubs/epaclaims.htm>
- Green Suppliers Network
www.greensuppliers.gov
- The Natural Step
http://www.naturalstep.org/gateway_business.php