AECOM

Sustainable Furniture Certification Guide

PSPC

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1. Introduction

Policy Drivers

The intent of this document is to provide guidance and recommendations to support the Government of Canada's sustainability priorities, primarily those outlined in the Greening Government Strategy and the Ocean Plastics Charter, as well as PSPC's commitments and targets detailed within the Minister of Public Services and Procurement Mandate Letter, the Baseline Greening Placemat , the Real Property Sustainability Handbook and the Real Property Plastics Action Plan.

Purpose

This document identifies sustainable furniture procurement strategies that are focussed on alternative materials and plastics reduction in the workplace. It primarily serves as a guide to advise designers on the certification points that can be supported through sustainable furniture procurement targeting **plastic reduction** to help achieve various product and project certifications.

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2. Sustainable Furniture Procurement as Part of Wider Project Sustainability Strategies

Sustainable furniture procurement can support credits in applicable certification, but alone, rarely lead to the achievement of credits themselves. To achieve greater sustainability efforts requires integrated material management strategy across each project. For example, for a major reno/new construction, the credit requirements will most often apply to all materials used of the project, not just furniture. Even in fit-up projects, the fit-up materials outside of furniture will impact whether credit is achieved. In addition, if the listed credits/strategies cannot be achieved by the project, they represent best practices for furniture procurement considerations and many support Government of Canada priorities and Real Property Services commitments.

For additional guidance see PSPC's Project Sustainability Planning and Tracking Tool (PSPTT). This tool is for project teams to help craft a project specific sustainability strategy. This customizable tool confirms the PSPC applicable sustainability commitments for various project types and the applicable national objectives that should guide sustainable project planning, including considerations for materials and furniture. The PSPTT is in the form of an excel document intended to help project teams (and the consultants hired to support the work), scope, plan, track, and report on how sustainability commitments will be met or exceeded over the project's life cycle.

Relationship between Plastic Reduction and PSPC Real Property Sustainability Handbook Priority Commitments

The furniture sustainability specifications within the Furniture Specification Document (part of this wider Furniture Sustainability Toolkit) were developed in the context of the PSPC Real Property Sustainability Handbook Sustainability Priority Commitments. These include:

Low Carbon + Energy

Climate Change Resilience

Water

Material + Waste

Biodiversity + Nature-Nature based Solutions

Occupant + Community

While the impact of this Toolkit is aimed towards the reduction of plastic waste (Priority Commitment: Material & Waste), a reduction of plastic waste may also directly, or indirectly contribute to other Priority Commitments. The entanglement demands an integrated approach to overall sustainability efforts. To note, not one element alone can fully mitigate plastic waste, but together can support plastic reduction, greening priorities of the Government of Canada and advance Priority Commitments as outlined in the PSPC Sustainability Handbook. The PSPC Real Property Sustainability Handbook also identifies mandatory certification requirements by project type. To note, sustainable furniture is only one part of obtaining a certification for each environmental standard certification.

	New Construction	Recapitalization	Interior Fit ups >1,000m2
Minimum LEED certification level (or equivalent industry standard such as Green Globes or Living Building Challenge)	Gold (Platinum aspirational)	Gold	Silver
Minimum WELL certification level (or equivalent industry standards such as Fitwel)	Silver		
Minimum Fitwel certification level (or equivalent industry standards)		2 stars	1 star

Refer to handbook for further details and definitions of project types.

Circular Economy Approach

While the impact of this Toolkit aimed towards the reduction of plastic waste (Priority Commitment: Materials & Waste), a reduction of plastic waste may also directly, or indirectly contribute to other Priority Commitments. The entanglement demands an integrated approach to overall sustainability efforts. To note, not one element alone can fully mitigate plastic waste, but together can support plastic reduction, greening priorities of the Government of Canada and advance Priority Commitments as outlined in the PSPC Sustainability Handbook.

To further advance PSPC priority commitments will require a Circular Economy Approach. This approach is a holistic strategy aimed at transforming the traditional linear model of production and consumption grounded in the principles of:

Reduce, Rethink, and Redesign

A concerted effort to reduce process waste and design products with sustainability in mind. This reduction is not only limited to minimizing the environmental impact of production processes but also extends to designing products that are durable, repairable, and resource efficient. By rethinking the entire product life cycle, businesses can minimize waste generation from the outset, promoting a more sustainable and responsible approach to consumption.

Reuse, Repair, and Recycle

A focus on optimizing the product lifecycle through alternative consumption patterns. Reuse emphasizes extending the lifespan of products, encouraging consumers to adopt a mindset that prioritizes longevity over disposability. Repairability becomes a key design consideration, allowing for the maintenance and refurbishment of products, thereby minimizing the need for premature replacements. Additionally, recycling efforts are heightened, ensuring that materials are efficiently reclaimed and reintegrated into new products, closing the loop, and reducing the demand for virgin resources.

Recover and Regenerate

Involves recovering valuable resources from products that have reached the end of their life cycle, fostering a regenerative approach to waste management. The regenerative aspect involves utilizing recovered materials to create new products or to generate energy, completing the circle and promoting a sustainable and regenerative approach to resource management. In essence, the circular economy strives to create a closed-loop system where resources are continually cycled and reused, minimizing waste and environmental degradation.

How PSPC can Adopt a Circular Economy Approach in Furniture Procurement

PSPC can further embed a Circular Economy Approach in the procurement of furniture. Consider specifying furniture & assets with its full life cycle in mind, including:

Manufacturing

Manufacturing of products should consider and incorporate the use of sustainable wood, recycled content, chemical management, and low emitting materials & furniture.

Plan

Plan for the next stage of product life by specifying furniture that was designed to be durable, disassembled, repaired, and remanufactured or repurposed.

Product Packaging and Transportation

Reducing single-use plastics through sustainable packaging designs, optimizing packaging efficiency, promoting recyclability, utilizing reusable materials, and adopting eco-friendly transportation practices can collectively contribute to a significant mitigation of plastic waste across the supply chain.

Maintenance Needs and Warranties

Consider maintenance needs and warrantee guarantees to promote product longevity, reducing the likelihood of premature disposal, and encouraging responsible end-of-life practices.

Impacts of Manufacturing

Identify, track, and measure the impact of manufacturing including waste management plans and the use of chemicals.

Planning for Reuse

Plan for the reuse of existing product by incorporating flexibility and modularity into project goals to extend the lifespan of products, reduce the demand for new materials, and minimize the environmental impact associated with the disposal of furniture.

Sustainability Standards/Certifications: Summary

BIFMA LEVEL E3 is the most relevant standard for furniture environmental certification, however, while other certification systems listed below will work in conjunction with furniture, they are more directed at large-scale construction projects that will encompass all building materials and construction processes. Even if the listed credits/strategies cannot be achieved by the project, they represent best practices for furniture procurement considerations and many support GC priorities and RPS commitments. High-level aspects of the sustainability standards/certifications are included in the table below. To note, BIFMA and GreenGuard are product specific certifications while WELL v2 and Fitwel v3 address wider program management certification criteria. LEED v4 and GreenGlobes include credits/points for both product specific and wider program management criteria.

SUSTANABILITY STANDARDS/CERTIFICATIONS SUMMARY

Aspect	BIFMA	GreenGuard	WELL v2	FITWEL v3	LEED v4	Green Globes
Product Criteria	✓	✓			✓	✓
Program Criteria			✓	✓	✓	✓
Organization/ Origin	BIFMA (Business and Institutional Furniture Manufacturers Association)	Underwriters Laboratories (UL)	International WELL Building Institute (IWBI)	Center for Active Design (CfAD)	Canadian Green Building Council (CaGBC)	Green Building Initiative (GBI)
Primary Focus	Furniture sustainability and environmental impact	Indoor air quality and emissions	Health and well-being within built environments	Health and well-being in workplaces	Sustainable building design and construction	Sustainable building design and construction
Scope[1]	Specific to furniture and interior products	Focused on indoor air quality	Focused on human health and well-being in buildings	Focused on creating healthier workplaces	Comprehensive building design and construction	Comprehensive building design and construction
Key Criteria	Product material content, recyclability, energy use, and ergonomics	Emission levels, chemical content, product testing	Air, water, nourishment, light, fitness, thermal comfort, sound, mind	Physical activity, occupant safety, well-being amenities, healthy food options	Sustainable site development, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, innovation	Sustainable site development, energy efficiency, water conservation, materials use, indoor air quality
Certification Levels	Certified, Silver, Gold, Platinum	Certified, Gold, Platinum	Certified, Silver, Gold, Platinum	Certified, Silver, Gold, Platinum	Certified, Silver, Gold, Platinum	1 to 4 Globes
Geographic Applicability	Primarily North America	Global	Global	Global	Global	Primarily North America

[1] Note that scope in this context is focused on product categories for this document, but the certification types for this table are given at a project level.

Alignment with Product Specific Furniture Specifications

The chart below provides a high-level overview of the sustainability certification standards and key product specific furniture specification considerations related to furniture. The intent is to clearly show how different certifications can impact plastic reduction, but to also identify gaps that reinforce the understanding that additional furniture specifications are needed in addition to the product specific sustainability certification standards listed below.

Product Specific Criteria	LEVEL by BIFMA	GreenGuard	LEED v4	Green Globes
1. Alternative Packaging Material				
2. Alternative Recyclable Material Substitution	✓			
3. Bio-Based Non-Wood Renewable Material	✓		✓	
4. Bio-Based Renewable Material (Sustainable Wood)	✓		✓	✓
5. Bioplastics Utilization				
6. Plastic Component Weight Reduction				
7. Crude Oil Reduction Targets				
8. Design for Disassembly	✓	✓		✓
9. Durability Standards	✓	✓	✓	✓
10. Extended Product Declaration	✓			✓
11. Life Cycle Impact Reduction Goals	✓	✓		✓
12. Multi-material Alternatives			✓	
13. Recyclable Material Requirements			✓	
14. Solid Waste Diversion	✓	✓	✓	✓

Alignment with Program Specific Furniture Specifications

The chart below provides a high-level overview of the sustainability certification standards and key program specific furniture specification considerations related to furniture. The intent is to clearly show how different certifications can impact plastic reduction, but to also identify gaps that reinforce the understanding that additional furniture specifications are needed in addition to the product specific sustainability certification standards listed below.

Program Specific Criteria	WELL v2	FITWEL v3	LEED v4	Green Globes
1. Bioplastic Adoption				
2. Certification for Renewable Content		✓	✓	
3. Closed-Loop Manufacturing Processes				
4. Comprehensive LCA Standards			✓	
5. Design for Disassembly	✓	✓	✓	✓
6. Dynamic LCA for Design Standard				✓
7. Economic Input-Output LCA Models				
8. Extended Warranty				
9. Life Cycle Assessment for Recycled Materials			✓	
10. Renewable Content Reporting		✓	✓	
11. Repair-Refurbish Initiatives	✓			
12. Supplier Programs to Improve Efficiency of Packing/Shipping Orders				
13. Take-Back Program & Responsibilities	✓	✓		
14. Weighted Recyclable Content	✓		✓	
15. Waste Management Program	✓		✓	✓

3.0 Product Specific Certification Guidance

The following is a list of product specific certification standards that are related to furniture. Each program has their own points system structure with pre-determined criteria that every project can gain points towards to achieve different levels of certification. The description and relevant criteria are based on current information as of February 2024. For the most up-to-date product certification **guidance** please refer to the embedded URL links following each criterion.

3.1 LEVEL BY BIFMA

LEVEL certification is based on ANSI/BIFMA e3 Furniture Sustainability Standard which encompass a product's environmental, health and wellness, and social impacts.

LEVEL is an independent third-party certification system. Products can be awarded a LEVEL 1, LEVEL 2, or LEVEL 3; LEVEL 3 is the highest threshold a product can reach. The LEVEL sustainability certification follows the structure of the USGBC's LEED rating system. Within each of the four sections of the standard, credits can be acquired based on the products adherence to, or achievements beyond the prescribed requirements. Each credit increases the products ability to achieve a higher LEVEL (BIFMA, 2022).

	SILVER: LEVEL 1 (E1) **32-44 Total Points** at least 5 of which are product related points	**GOLD: LEVEL 2 (E2)** **45-62 Total Points** at least 11 of which are product related points	**PLATINUM: LEVEL 3 (E3)** **63-100 Total Points** at least 18 of which are product related points
Description	LEVEL 1 is the entry-level certification, indicating basic conformance with BIFMA sustainability standards.	LEVEL 2 represents a higher level of sustainability commitment compared to LEVEL 1.	LEVEL 3 is the highest certification level, signifying the most robust commitment to sustainability and responsible practices.
Criteria	Products at this level meet the minimum requirements for sustainability and environmental performance.	Products at this level meet more comprehensive and advanced sustainability criteria, indicating a greater focus on environmental and social responsibility.	Products at this level must meet the most stringent and comprehensive set of sustainability criteria, encompassing environmental, social, and economic considerations.

The reduction of plastic waste in furniture procurement may support these following BIFMA Credits. To note, while BIFMA's focus is broader than just plastic waste reduction, these specific credits contribute to this goal. The following lists possible points related

to plastic reduction in furniture procurement in this certification. Plastic reduction in furniture procurement is one part of each credit criteria but can contribute to this certification. A database of products that have achieved Level certification can be found on BIFMA's website.

Credit	Criteria	Points Available	Alignment with a LEED Credit
6.2.2	**Design for Durability, Repair, Retrofit, Remanufacturing, Recycling**	1	✓
6.2.3	**Extended Product Responsibility**	1	✓
6.3.2	**Bio-Based Non-Wood Renewable Materials**	1	✓
6.3.4.1	**30% Recycled Content**	1	
6.3.4.2	**50% Recycled Content**	1	✓
6.3.5	**Responsible Packaging**	1	
6.7.3	**Life Cycle Assessment (LCA) (MR Credit 7)**	3	✓
6.4.2.1	**Solid Waste Management Inventory, Allocation, and Data Submittal**	1	
6.4.2.2	**Solid Waste Diversion**	1	
6.7.5	**Environmental Product Declaration**	1	✓
7.6.1	**Low Emitting Furniture - Prerequisite**	0	✓
7.6.2	**Low Emitting Furniture - Intermediate**	1	✓
7.6.3	**Low Emitting Furniture - Advanced**	1	✓
	Total	**14**	

3.2 GREENGUARD

Last updated and based on ULE 2818 Greenguard 2024

GREENGUARD Certification is recognized and referenced in more than 400 building programs, standards, and specifications around the world, including WELL, Fitwel, LEED, CHPS, ASHRAE, Green Globes, NAHB, IgCC, and more.

Many types of furniture incorporate plastic components, such as chairs, tables, and other items. The production of furniture that includes plastics can involve processes like injection moulding, extrusion, or lamination, which may emit VOCs and other chemical byproducts. Once furniture is in use, particularly in indoor environments, there may be concerns related to off gassing as some plastics and the adhesives used in furniture manufacturing can release VOCs into the indoor air, impacting indoor air quality. This is especially relevant for enclosed spaces where ventilation may be limited. The disposal of furniture, particularly if it contains plastics, can lead to emissions during incineration or landfilling. Although GREENGUARD does not specifically target plastic waste reduction, the certification process can encourage furniture manufacturers to adopt practices that align with broader sustainability goals. The reduction of plastic waste in furniture procurement may support GREENGUARD certification efforts.

GREENGUARD Certification requires ongoing monitoring and verification to ensure that certified products maintain their low-emitting status. This focus on product stewardship may encourage manufacturers to design products with disassembly and recycling in mind, contributing to responsible end-of-life management and potential plastic waste reduction. Product emissions are measured following the testing requirements of the GREENGUARD Certification Program Method for Measuring and Evaluating Chemical Emissions from Building Materials, Finishes and Furnishings Using Dynamic Environmental Chambers, UL 2821 by an accredited indoor air quality testing laboratory recognized by UL Environment.

To note, GREENGAURD offers two certifications. While both certifications aim to address the impact of products on indoor environments, GREENGUARD Gold is often preferred for applications where more rigorous standards for chemical emissions are desired.

	STANDARD GREENGUARD	GREENGUARD GOLD
Focus	Low chemical emissions (VOCs) for indoor air quality	Stricter criteria for lower chemical emissions, including VOCs, total VOC content, and additional chemicals of concern

Criteria	Stringent but with a focus on VOCs	More stringent, addressing VOCs, total VOC content, and additional chemicals of concern
Typical Use	Various products, including furniture, building materials, and consumer goods	Recommended for products in environments with heightened indoor air quality concerns, such as schools and healthcare facilities

UL 2818 GREENGUARD Certification Program for Chemical Emissions For Building Materials, Finishes And Furnishings include the following criteria to mitigate chemical emissions. It includes specific criteria for specific product types. To note, while GREENGUARD considers the emission levels of various materials, it does not set explicit requirements for the reduction of specific materials like plastic. The focus is on minimizing emissions rather than reducing the use of certain materials. Moreover, Products may be GREENGUARD certified but still have environmental implications at the end of their life cycle if not managed sustainably.

Product Types held to Full Levels	Product Types held to Half Levels	Product Types held to Emission Factor Criteria
Insulation, Wall Finishes, Flooring, Paints and Coatings, Wood Finishes, Building Construction Materials, Countertops, Casework, Adhesives/Sealants, Ceiling Systems, Doors, Air Filters, Textiles, Visual Display Products, Window Treatments, Workstation Systems, Classroom Furniture, Residential Furniture and Movable Walls	Component Materials (upholstery, furniture construction adhesives, furniture panel textiles, surfacing materials and furniture insulation), Mattresses, Bedding and, Seating Units	Individual Furniture Items, Component Assemblies

Parameter	Full Concentration Levels (Applicable for Building Construction Materials and Finishes, Wood Finishes, Countertops, Casework, Visual Display Products, Furniture, Workstation Systems, Classroom Furniture, Residential furniture, and Movable Walls)	Half Concentration Levels (Applicable for Component Materials, Mattresses and Bedding, and Seating Units)	Emission Factor Levels (Applicable for individual furniture items and component assemblies)	
			Open Plan	Private Office
Applicable to All products				
Total VOCs (TVOC)	≤ 0.5 mg/m3	≤ 0.25 mg/m3	345 µg/m2*hr	694 µg/m2*hr
Formaldehyde	≤ 0.05 ppm	≤ 0.025 ppm	42.3 µg/m2*hr	85.1 µg/m2*hr
Total Aldehydes	≤ 0.1 ppm	≤ 0.05 ppm	2.8 µmol/m2*hr 5.7 µmol/m2*hr	5.7 µmol/m2*hr
Individual VOCs	≤ 0.1 TLV	≤ 0.1 TLV	≤ 0.1 TLV	≤ 0.1 TLV
Listing of measured carcinogens and reproductive toxins as identified by California Proposition 65, the U.S. National Toxicology Program (NTP), and the International Agency on Research on Cancer (IARC) must be provided.				
Applicable to Specific Products Only				
4-Phenylcyclohexene5	≤ 0.0065 mg/m3 ≤ 0.05 mg/m3	≤ 0.0033 mg/m3 ≤ 0.025 mg/m3	4.5 µg/m2*hr NA	19.0 µg/m2*hr NA

For GREENGUARD Gold Certification, product emissions are required to meet the additional exposure concentration criteria in Table X. or the emission factor ANSI/BIFMA e3-2012, Annex C and the additional emission factor criteria in criteria in Table X, applicable for individual furniture items and component assemblies. The criteria are to be met at a time point no sooner than 168 hours (7 days) and no greater than 336 hours (14 days) with no preconditioning of the product. Compliance may be achieved at time points prior to 336 hours, so long as it is demonstrated that emissions have already peaked.

Table 1

Individual VOCs1	≤1/100 TLV and ≤1/2 CA chronic REL (Office Seating: ≤1/100 TLV and ≤1/4 CA chronic REL)
Formaldehyde	≤0.0073 ppm/7.3 ppb (Office Seating: ≤0.00365 ppm/3.65 ppb)
1-Methyl-2-pyrrolidinine	≤0.16 mg/m3(Office Seating: ≤0.08 mg/m3)
Total VOCs	≤0.22 mg/m3
Total Aldehydes	≤0.043 ppm/43 ppb
PM10 (≤ 10µm)	≤0.02 mg/m3

INDIVIDUAL VOCS		Open Plan Criteria	Private Office Criteria
CAS #	CHEMICAL	(µg/m2hr)	(µg/m2hr)
1634-04-4	Methyl-tert-butyl ether	2762	5569
50-00-0	Formaldehyde	6.2	23
56-23-5	Carbon tetrachloride	14	28
75-35-4	1,1-Dichloroethylene	24	49
78-59-1	ne 24 49 78-59-1 l	691	1,392
Total VOCs		152	306
		1.2	2.4

4.0 Project Certification Guidance

The following is a list of project sustainability and wellness certification standards that include strategies for related to furniture. Each standard has their own points system structure with pre-determined criteria that every project can gain points towards to achieve different levels of certification. To note LEED v4 and GreenGlobes include program *and* product criteria. The description and relevant criteria are based on current information as of February 2024. For the most up-to-date certification **standards** guidance please refer to the embedded URL links following each criterion.

2.1 FITWEL

Last updated and based on version 2.1(v2.1), 2024.

FITWEL is a certification system focused on promoting health and well-being in the built environment. While FITWEL does not explicitly focus on plastic reduction, some of its features may indirectly contribute to more sustainable and environmentally friendly practices, including potential efforts to reduce the use of plastic.

Fitwel v3 is currently in preview mode, however content can be viewed by accessing the following link (Fitwel v3). As Fitwel v3 is currently not fully introduced, the reduction of plastic waste in furniture procurement may support the following FITWEL v2.1 points. Fitwel certifications provide 1-, 2-, or 3-Star ratings based on the number of points earned.

Category	Credit	Possible Points
6.3 Adopt and implement an Indoor Air Quality (IAQ) Policy	Furniture: Provide an official copy of IAQ policy (signed, dated, and on official letterhead) that meets all of the criteria listed below: • For Fitwel credit, products and materials must either: be certified to GREENGUARD Gold certification. • be tested and deemed compliant with the California Department of Public Health Standard Method V1.1–2010 or V1.2-2017; • be tested and deemed compliant with the AgBB Testing and Evaluation Scheme (2010); • meet the Green Star – Interiors v1.2 credit 12 for Indoor Pollutants to show compliance with low-emitting materials; or • comply with the ISO 16000-3: 2010, ISO 16000-6: 2011, ISO 16000-9: 2006, ISO 16000-11:2006 standards tested in parallel with AgBB • New furniture must be in compliance with ANSI/BIFMA M7.1-2011.	2.52

6.6 Adopt and implement a Green Purchasing Policy	Provide an official copy of the green purchasing plan (signed, dated, and on official letterhead) for the workplace or building which details a purchasing framework and implementation plan for the selection of products and services with reduced environmental impacts. Products must follow one of the following guidelines: • deemed compliant with the EPA's Comprehensive Procurement Guideline (CPG) Program, and are listed under the CPG Product Supplier Directory. • deemed compliant with the EPA's Safer Choice Label • are ECOLOGO Certified • are certified by the Global Ecolabelling Network (GEN) Sustainable products may contain a combination of the following characteristics: • includes recycled materials • production process conserves natural resources • prevents pollution • contains fewer toxic substances than alternate products • encourages environmentally positive practices • uses energy alternatives to fossil fuel	0.56
	Total	**3.08**

2.5 WELL Building Standard Certification

Last updated and based on version 2 (v2), 2024.

Current Version:

WELL, is a standard that aims to elevate building occupant health, comfort or knowledge through building design practices that enhance health and well-being. It is a point-based system that can be applied to new or existing buildings as well as commercial interior projects and community development. The certification addresses both project design and construction, as well as building operations. Buildings are awarded one of three levels: Silver, Gold, and Platinum (Well Building Standard, 2023).

The following considerations can contribute to Well Certification credits.

There are several well-established certificates utilized within the furniture industry that can assist identify suitable furniture. Cradle to Cradle Certified® products indicate a strong commitment to circular economy use of approved materials, whilst those that are GREENGUARD Gold Certified meet strict VOC requirements (X10, X11). Products that have an EPD (Environmental Product Declaration) provide a heavily detailed material breakdown, which can show exactly what materials have been used in the entire product process which may have a positive effect on category X08 & X14.

The reduction of plastic waste in furniture procurement may support the following WELL v2 Credits.

CATEGORY (CONCEPT): MATERIALS

Category	Credit	Possible Points
X04 Waste Management The safe ongoing management and disposal of hazardous waste, including construction and demolition waste.	**Manage Hazardous Waste** Project addresses hazardous waste through the following: A waste stream plan addresses the management of the following hazardous wastes per U.S. Environmental Protection Agency 40 CFR Part 273 Standards for Universal Waste Management, Subpart B or C (as applicable): Batteries.[54] Pesticides.[54] Equipment and lamps that may contain mercury.	2

	A waste stream plan includes the following: Waste receptacle access. Waste or source reduction (including prevention, minimization and reuse). Recycling and materials recovery (including batteries, pesticides, lamps and mercury-containing equipment). Disposal of waste.	
X08 Hazardous Material Reduction The restriction of heavy metals in various building materials and products, including furniture and furnishings and electrical components.	**Limit Hazardous Waste** For all newly installed furnishings and furniture (including textiles, finishes and dyes), all components that constitute at least 5%, by weight, furniture or furnishing assembly meet the following thresholds for material content: Mercury less than 100 ppm. Cadmium less than 100 ppm. Antimony less than 100 ppm. Hexavalent chromium in plated finishes less than 1000 ppm.	1
X10 Volatile Compound Reduction The restriction of hazardous VOC and SVOC compounds, halogenated flame retardants (HFRs), urea-formaldehyde, and select phthalates commonly used in building materials and products.	**Part 1: Manage Volatile Organic Compounds (VOCs)** For All Spaces The following requirements are met: At minimum, 20% by cost of the following newly installed components contain halogenated flame retardants at less than 100 ppm or the extent allowable by local code: Furniture. Window and waterproofing membranes, door and window frames and siding. Flooring, ceiling tiles and wall coverings. Piping and electrical cables, conduits and junction boxes. Sound and thermal insulation. Duct and pipe insulation. At minimum, 20% by cost of the following newly installed components contain urea-formaldehyde at less than 100 ppm or the extent allowable by local code: Composite wood products.	2

	Laminating adhesives and resins. Thermal insulation.	
	Part 2: Manage Semi-Volatile Organic Compounds (SVOCs) For All Spaces The following requirements are met: At minimum, 20% by cost of the following newly installed components contain total phthalates at less than 100 ppm or the extent allowable by local code: Flooring, including resilient and hard surface flooring and carpet. Wall coverings, window blinds and shades, shower curtains, furniture and upholstery. Plumbing pipes and moisture barriers. All newly installed electrical components contain total phthalates at less than 1000 ppm or the extent allowable by local code in the following: Fire alarms, meters, sensors, thermostats and load break switches.	1
	Part 3: Purchase Compliant Products For All Spaces Projects have a program in place that specifies the following: Future purchasing for repair, renovation or replacement of building materials and products that complies with requirements for 100% of components listed in Part 1: Manage Volatile Organic Compounds and Part 2: Manage Semi-Volatile Organic Compounds (SVOCs)	1
X11 Long-term Emission Control Testing and adherence to emission thresholds for newly purchased furniture and furnishings, flooring, and insulation.	Part 1: Manage Furniture And Furnishings Emissions For All Spaces Newly installed furniture and furnishings meet VOC emission thresholds set by one of the following programs, earning points based on the table below: Percent Compliance by Cost 50% (1 point)	2

	90% (2 points) ANSI/BIFMA e3-2011 Furniture Sustainability Standard sections 7.6.1 or 7.6.2, tested in accordance with ANSI/BIFMA Standard Method M7.1-2011 or any more recent version.[95] California Department of Public Health (CDPH) Standard Method v.1.1-2010 or any more recent version.	
X13 Enhanced Material Precaution Screening and labelling of products in accordance with programs that restrict the use of hazardous ingredient contents in materials and products.	Select Optimized Materials For All Spaces Newly installed furnishings, built-in furniture, interior finishes and finish materials comply with some combination of the following programs, earning points based on the table below: Percent Compliance by Cost 15% (1 point) 25% (2 points) Declare: Living Building Challenge Red List Free, Declare: Living Building Challenge Compliant or Living Product Challenge label. No GreenScreen® Benchmark 1, List Translator 1 or List Translator Possible 1 substances over 1,000 ppm, as verified by a qualified Ph.D. toxicologist or Certified Industrial Hygienist. Cradle to Cradle Certified™ products with a Bronze, Silver, Gold or Platinum level in the Material Health category or products with a Bronze, Silver, Gold or Platinum level Material Health Certificate from the Cradle to Cradle Products Innovation Institute.	2
X14 Material Transparency The compilation and availability of product descriptions, with ingredients evaluated and disclosed down to 1,000 ppm, through transparency labels.	**Promote Ingredient Disclosure** **Material information** All newly installed interior finishes and finish materials, furnishings (including workstations) and built-in furniture have some combination of the following material descriptions, with ingredients identified and disclosed to 1,000 ppm and earning points based on the table below: Minimum Percent by Cost 25% (by cost) – (1 point)	2

	50% (by cost) (2 points) Declare Label. Health Product Declaration. Any screening and hazard disclosure method accepted in USGBC's LEED v4 MR credit: Building Product Disclosure and Optimization - Material Ingredients, Option 1: material ingredient reporting. AND **Material library** The following is met: A digital or physical library is provided to occupants on compliant products as part of the resource library required through Feature C01: Health and Wellness Awareness. The library is prominently displayed and easily accessible to occupants.	
	Total	**13**

2.3 Leadership in Energy and Environmental Design

Last updated and based on version 4 (LEED v4 and v4.1), 2024.

LEED is an independent, third-party verification to acknowledge buildings that are sustainable, high performing and resilient. One of the main performance areas includes Materials Selection, which may be supported by furniture and fit-out material selection. Projects are awarded one of four levels based on their score: Certified, Silver, Gold, and Platinum. USGBC offers an online tool to help users define which rating system is most appropriate for their project.

The following LEED Credits may be supported by furniture procurement. For a full description of each credit see here (USGBC, 2023).

LEED ID+C: Commercial Interiors

CATEGORY: MATERIALS AND RESOURCES

Credit	Requirements		Possible Points
Interiors Life-Cycle Impact Reduction (Each or Both Options) *for further details of Options see here)	Option 1: Interior Furniture and Non-structural Elements Reuse (1-3 points)	Path 1: Furniture and Interior Non-structural Elements Reuse	1-3 10% : 1 25% : 2 40% : 3
		Path 2: Furniture Reuse or Interior structural Elements Reuse	20% : 1 40% : 2
	Option 2: Design for Flexibility and Disassembly (1-2) points)	Conduct an integrative planning process to increase the useful life of the project space.	1-2
	Option 3: Building Interiors Life Cycle Assessment (1-3 points CI & Retail)	Path 1: Conduct a life cycle assessment of the project's interior	1
		Path 2: Meet the requirements of Path 1 and conduct a life cycle assessment of the project' s interior design compared against a baseline interiors project (2 points).	2

		Path 3: Meet the requirements of Path 2 and incorporate building reuse and/or salvage materials into the project's scope of work. Demonstrate reductions compared with the interiors project baseline of at least 20% for global warming potential and demonstrate at least 10% reduction in two additional impact categories listed below	3
		Total	**4**

Credit	Requirements		Possible Points
Environmental Product Declarations (Each or Both Options) *for further details of Options see here)	Option 1: Environmental Product Declaration (1-point)	Use at least 10 different permanently installed products sourced from at least three different manufacturers that meet one of the disclosure criteria below. **Life-cycle assessment and environmental product declarations.** – Products with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that have at least a cradle to gate scope are valued as one whole product for the purposes of credit achievement calculation. – Product-specific Type III EPD -- Internally Reviewed. Products with an internally critically reviewed LCA in accordance with ISO 14071. Products with product-specific internal EPDs which conform to ISO 14025, and EN 15804 or ISO 21930 and have at least a cradle to gate scope are valued as one whole product for the purposes of credit achievement calculation. – Industry-wide Type III EPD -- Products with third-party certification (Type III), including external verification, in which the manufacturer is explicitly recognized as a participant by the program operator. Products with industry-wide EPDs, which conform to ISO 14025, and EN 15804 or ISO 21930 and have at least a cradle to gate scope are valued as one whole product for the purposes of credit achievement calculation. **Environmental Product Declarations which conform to ISO 14025 and EN 15804 or ISO 21930 and have at least a cradle to gate scope.** - Product-specific Type III EPD -- Products with third-party certification (Type III), including external verification and external critical review are valued as 1.5 products for the purposes of credit achievement calculation.	1
	Option 2: Embodied Carbon/LCA Optimization	Use products that have a compliant embodied carbon optimization report or action plan separate from the LCA or EPD. Use at least 5 permanently installed products sourced from at least three different manufacturers	1
		Total	**2**

Credit	Requirements	Possible Points
Responsible Sourcing of Raw Materials *for further details see here	Use products sourced from at least three different manufacturers that meet at least one of the responsible sourcing and extraction criteria below for at least 15%, by cost, of the total value of permanently installed building products in the project (1 point). Use products sourced from at least five different manufacturers that meet at least one of the responsible sourcing and extraction criteria below for at least 30%, by cost, of the total value of permanently installed building products in the project (2 points) • Extended Producer Responsibility • Bio-based materials • Wood products • Material reuse • Recycled content	1-2
	Total	**2**

Credit	Requirements		Possible Points
Material Ingredients (Each or Both Options) *for further details of Options see here)	Option 1: Material Ingredient Reporting	Use at least 10 different permanently installed products from at least three different manufacturers that use any of the following programs to demonstrate the chemical inventory of the product to at least 0.1% (1000 ppm) – ANSI/BIFMA e3 Furniture Sustainability Standard – Cradle to Cradle – Declare – Facts – NSF/ANSI 336 – Global Green TAG PHD labels issued after Jan 1, 2020 – Health Product Declarations – Living Product Challenge – Manufacture Inventory – Product Lens Certification	1
	Option 2: Material Ingredient Optimization	Use products that have a compliant material ingredient optimization report or action plan. Use at least 5 permanently installed products sourced from at least three different manufacturers.	1
		Total	**2**

Credit	Requirements		Possible Points
Construction and Demolition Waste Management (Each or Both Options) *for further details of Options see here)	Develop and implement a construction and demolition waste management plan and achieve points through waste prevention and/or diversion.	Option 1: Follow the Waste Management Plan and divert at least 50% of the total construction and demolition materials from landfills and incineration facilities (1 point)	1
		Follow the Waste Management Plan and prevent waste through reuse and source reduction design strategies. Salvage or recycle at least 50% of renovation and demolition debris and utilize waste minimizing design strategies and construction techniques for new construction elements.	1-2
		Total	**3**

3.2 Green Globes (New Construction & Sustainable Interiors)

Green Globes (formerly BREEAM/Green Leaf) is a points-based sustainability rating system used to assess the environmental performance of both existing buildings and projects. It can be used for both new construction (including major renovations) and for interior space fit-ups of existing spaces. Performance is awarded one to four 'Green Globes' based on an evaluated score.

	ONE GREEN GLOBES 35-54%	**TWO GREEN GLOBES** 55-69%	**THREE GREEN GLOBLES** 70%84%	**FOUR GREEN GLOBLES** **85-100%**
Criteria	Demonstrates a strong commitment to resource efficiency, reducing environmental impacts, and improving occupant wellness.	Demonstrates significant achievement in resource efficiency, reducing environmental impacts, and improving occupant wellness.	Demonstrates outstanding success in resource efficiency, reducing environmental impacts, and improving occupant wellness.	Demonstrates world-class leadership in resource efficiency, reducing environmental impacts, and improving occupant wellness.

Furniture Procurement can support the achievement of credits for both 'Green Globes for New Construction 2021' and 'FitUp' Programs. The following demonstrates possible criteria that may contribute to the mitigation of plastic waste in these specific Green Globes categories.

Green Globes for New Construction 2021 (NC) - Version 1.0

GBI's Green Globes for New Construction (NC) evaluates environmental sustainability, health & wellness of future tenants, and resilience of new construction and major renovation projects through the latest science, research, and alignments with technical advancements.
(Green Globes, 2024). The following lists possible points related to plastic reduction in furniture procurement in this certification. To note, plastic reduction in furniture procurement is one part of each credit criteria but can contribute to this certification.

Green Globes for New Construction Point Allocation

	Available Points	Possible Points Related to Plastic Reduction in Furniture Procurement
Project Management	100	
Site	150	
Energy	260	
Water Efficiency	190	
Materials	150	0-42
Indoor Environments	150	0-5
Total	1000	47

MATERIALS

Category	Sub-Category	Credit	Points Available
Product Life Cycle	**Product Life Cycle**	5.2.1.1 (ANSI #10.2.1.1) How many products include third-party verifications/certifications that evaluate the cradle to-gate product life cycle?	29
Reuse of Existing Structures and Materials	**Material Reuse from Off-Site**	5.5.2.2 (ANSI #10.5.2.2) What percentage of furnishings (including systems furniture) are reused, salvaged AND/OR refurbished for reuse within the project?	4
Waste	**Construction Waste**	5.6.1.1 (ANSI #10.6.1.1) Was a preconstruction waste management plan created prior to any construction or demolition activities?	2
		5.6.1.2 (ANSI #10.6.1.2) Was a final waste management summary report completed after construction documenting the results of the implementation of the preconstruction waste management plan?	1
		5.6.1.4 (ANSI #10.6.1.4) What percentage of construction waste, including building demolition waste and packaging, is diverted from the landfill through recycling, reuse, repurposing, or composting?	6
		Total	**42**

INDOOR ENVIRONMENTS

Category	Sub-Category	Credit	Possible Points
Source Control and Measurement of Indoor Pollutants	**Volatile Organic Compounds**	6.2.1.4 (ANSI #11.2.1.4) Do furniture, casework, cabinets, workstations, and seating comply with the below prescribed limits of VOC emissions AND/OR are certified?	0-1
		6.2.1.4.1 100% by cost of installed furniture products comply with ANSI/BIFMA e3 Section 7.6.1 Low Emitting Furniture - Prerequisite AND/OR are certified.	0-1
		6.2.1.4.2 90% by cost of installed furniture products comply with ANSI/BIFMA e3 Section 7.6.2 Low Emitting Furniture - Intermediate AND/OR are certified	0-1
		6.2.1.4.3 70% by cost of installed furniture products comply with ANSI/BIFMA e3 Section 7.6.3 Low Emitting Furniture - Advanced AND/OR are certified.	0-2
		Total	**3**

Green Globes for Sustainable Interiors

Green Globes for SI focuses solely on issues within the interior architect's or interior designer's scope of work. Certification may be pursued by building owners and individual tenants of commercial and institutional spaces who want to improve their workspace sustainability through elements within the interior design team's domain (Green Globes, 2024). The following lists possible points related to plastic reduction in furniture procurement in this certification. To note, plastic reduction in furniture procurement is one part of each credit criteria but can contribute to this certification.

Green Globes for Sustainable Interiors Point Allocation

	Available Points	Possible Points Related to Plastic Reduction in Furniture Procurement
Project Management	70	
Energy	300	
Water	90	
Materials & Resources	250	170
Emissions & Other Impacts	40	
Indoor Environments	250	18
Total	**1000**	**188**

MATERIALS & RESOURCES

Category	Sub-Category	Credit	Possible Points
Interior Fit-Outs (including Finishes and Furnishings)		4.1 Path A - Performance Path for Interior Fit-outs	0-60
		4.1 Path B - Prescriptive Path for Interior Fit-outs Was life cycle assessment and relative comparison of a minimum of two alternative interior fit-outs (including finishes and furnishings) performed during design, which resulted in the selection of an interior fit-out that has the least anticipated environmental impact based upon comparable applications?	0-50

		4.1.2.1 Based upon the appropriate application and specification of comparable products, what percentage of the interior fit-out materials and products (including finishes and furnishings) selected (based upon cost) have: • Environmental Product Declarations (EPDs) that utilize Program Operator verified EPD, conform to ISO standards, and minimally include cradle-to-gate scope: ◦ Industry Wide (Generic) EPD: Products specified for the interior fit-out shall include Type III Environmental Product Declaration (EPD)? AND/OR ◦ Brand Specific EPD: Products specified for the interior fit-out shall include Type III Environmental Product Declaration (EPD), where the EPDs are manufacturer specific products? AND/OR • Third-party certifications that are based upon a multiple attribute standard(s) developed by a consensus-based process from an approved standards development organization? Examples include NSF sustainability assessment standards, UL Environment sustainability standards, Sustainable Minds Transparency Report™ Framework, and other consensus-based assessment standards that are multiple attribute-based. AND/OR • Third-party verified product life cycle assessment based upon ISO 14040:2006 and ISO 14044:2006 and minimally covers cradle-to-gate scope? AND/OR • Third-party sustainable forestry certifications? 39% (50 points) 25% - 39% (35 points) 10% - 24% (20 points) 1% - 9% (0 points)	0-50
Minimized Use of Interior Materials		4.2.1 Are furnishings used that can be converted to serve multiple functions (e.g., seating that can also be used for sleeping)?	0-10
Deconstruction, Disassembly, and Reassembly		1.1 Modular furniture systems?	0-15
		1.2 Modular casework solutions?	0-15
		1.3 Are assemblies constructed to be erected by easily removable and reusable fastening methods?	0-15
Waste	**Construction and Operational Waste**	4.4.1.1 What percentage of the construction waste, including interior building demolition waste, will be diverted from the landfill?	Po0-20

		>74% (20 points) 50% - 74% (15 points) <50% (0 points)	
		4.4.1.3 Are any components of the interior fit-out made utilizing prefabricated construction methods?	0-5
Reuse of Non-structural Elements		4.6.1 What percentage of the existing interior ceilings, interior partitions, doors and frames, and/or cabinetry will be reused within the project? >95% (10 points) 81% - 95% (9 points) 66% - 80% (8 points) 41% - 65% (7 points) 26% - 40% (6 points) 10% - 25% (5 points) <10% (0 points)	0-10
		4.6.2 What percentage of the existing furnishings (including systems furniture) will be re-used and/or refurbished for reuse within the project? >65% (10 points) 41% - 65% (8 points) 26% - 40% (6 points) 10% - 25% (4 points) <10% (0 points) 10% - 25% (5 points) <10% (0 points)	0-10
		Total	**3**

INDOOR ENVIRONMENT

Category	Sub-Category	Credit	Possible Points
Source Control of Indoor Pollutants	Volatile Organic Compounds (VOCs)	6.2.1.1 Is there a requirement that adhesives and sealants comply with prescribed limits of VOCs and/or be certified?	0-9
		6.2.1.7 Is there a requirement that systems furniture and seating comply with prescribed limits of VOCs and/or be certified?	0-9
		Total	**0-18**

PSPC Resources

Handbook	URL
Placemat:	URL
PSPTT	URL
SA LINK	URL
PSPC Packaging Clauses	URL
My GC Workplace Fit-Up Standards	URL
PSPC Furniture Plastic Reduction Toolkit	URL

References

FITWEL:	https://www.fitwel.org/
Green Globes:	https://thegbi.org/green-globes-certification/why-green-globes/
LEED:	usgbc.org
LEVEL by BIFMA:	https://www.bifma.org/general/custom.asp?page=level-certified
Minimum Sustainability Requirements for Federal Government Office Furniture:	https://www.tpsgc-pwgsc.gc.ca/app-acq/rccgmb-gofacm/mobilierexigences-furniturerequirements-eng.html
Real Property Sustainability Handbook:	Available on GCDocs