

Lighting Fixtures, Ballasts, and Lamps

Covered Products:

This category shall cover the following lighting products:

A) Fixtures

- Overhead workspace luminaires
- High-bay lighting fixtures
- Recessed can fixtures
- Other interior fixtures
- Street lighting
- Parking lot lighting
- Wall packs
- Security lighting

B) Ballasts

- Efficient T-8 fluorescent ballasts
- Other electronic ballasts

C) Lamps

- Linear T-8 Lamps (fluorescents and LEDs)
- Linear T-5 Lamps (fluorescents and LEDs)
- Circular and U-Bend Lamps (fluorescents and LEDs)
- Replacement lamps for high-intensity discharge fixtures
- Screw-in LEDs
- Pin-based CFLs and LEDs

Products not compliant with this specification

- *Linear T-12 fluorescents are **not compliant with this specification***
- *Linear T-9 Fluorescents are **not compliant with this specification***
- *Please note that Fluorescent T-12, T-9, and circular and U-bend T-8 and T-5 lamps and fixtures are **not compliant with this specification**.*

Goal:

To eliminate the purchase of inefficient lighting and high mercury content lighting in New York State facilities and require highly efficient lighting, including the use of mercury-free LED technology when possible.

Background:

On December 28, 2012, Governor Andrew M. Cuomo issued Executive Order No. 88, which directed state agencies to decrease energy consumption in state buildings by 20 percent in seven years. This directive, coupled with Executive Order No. 4 and statistics from the United States Department of Energy indicating lighting is the largest source of electricity consumption in commercial buildings, provide an awareness of the potential opportunity in energy efficiency. By procuring highly efficiency lighting, large cost-savings and emission reductions may be realized across state government.

Highly efficiency lighting with little or no mercury content is now widely available to meet the state's sustainability directives.

Guidance:

Lighting upgrades and retrofits can be performed in different ways. Frequently facilities conduct lamp or ballast change-outs without changing out complete fixtures. It is recommended that all options be considered when changing out lighting. This specification is broken out into fixtures (A), ballasts (B), and lamps (C).

Specifications and recommendations are unique in these areas, though universal specifications and recommendations precede the specific breakouts. Please read the universal specifications and the specifications related to the fixtures, ballasts, or lamps being considered.

Definitions:

Ballast: A device used to start and operate fluorescent lamps. The ballast provides the necessary starting voltage, while limiting and regulating the lamp current during operation.

Color Rendering Index (CRI): A measure of how accurately an artificial light source displays colors. CRI is determined by comparing the appearance of a colored object under an artificial light source to its appearance under incandescent light. The higher the CRI, the better the artificial light source is at rendering colors accurately. High

(above 80) CRI is preferred in the home. ENERGY STAR requires that qualified fixtures have lamps with CRI above 80.

Compact Fluorescent Lamp (CFL): An (1) integrally ballasted fluorescent lamp with a medium screw base, (2) pin based (GU24) line voltage retrofit lamp, or (3) pin based (GU24) line voltage conversion lamp, with a rated range of 115 to 130 volts designed as a direct replacement for a general service incandescent lamp.

Dark Sky Compliant: A designation given to outdoor lighting fixtures that meet the International Dark Sky Association's (IDA) requirements for reducing excess ambient lighting and light pollution, including the effects of unnatural lighting on the environment. Examples of features for lights in this category include being fully shielded (having a full cutoff).

Efficacy: A description of the efficiency of a light source, as measured in light produced (lumens) per unit of power consumed (watts).

Fixture: A device designed to create artificial light comprised of a lamp and any corresponding ballast or driver.

Fluorescent Lamp: A tubular coated glass envelope containing mercury vapor that produces visible light when electricity is applied to the lamp's ballast.

Fluorescent System: A combination of fluorescent lamps and Ballasts that have been tested in accordance with the appropriate Illuminating Engineering Society (IES) and American National Standards Institute (ANSI) reference standards, and that meet Occupational Safety and Health Administration guidelines. These systems should be applied in accordance with national best practices in lighting design such as IES recommended practices and lighting power densities prescribed by the Energy Conservation Construction Code of New York State (2010).

Full cutoff: The luminous intensity (in candelas) at or above an angle of 90 above nadir is zero, and the luminous intensity (in candelas) at or above a vertical angle of 80 above nadir does not numerically exceed 10% of the luminous flux (in lumens) of the lamp or lamps in the luminaire.

Lamp: In the lighting industry, "lamp" is the term for a light source. Lamps typically refer to the light emitting portion of a luminaire designed to be changed out without the help of an electrician.

Lumen: The SI (International Systems of Units/ Système International d'Unités) unit for the amount of light emitted per second.

Luminaire: A complete electric light unit, including the lamp, corresponding ballast or driver, and optics.

Mercury: A chemical element necessary for fluorescent lighting and a known toxin.

Maximum Mercury: The total mass of mercury in a lamp, most frequently expressed in milligrams.

Photometry: the science of the measurement of light, in terms of its perceived brightness to the human eye. Also called photometrics.

Rated life: A light's estimated lifetime measured in hours. For all light bulbs, lifetime is determined by operating a sample of bulbs according to industry test standards. The time that half of the test sample fails is considered rated life. By definition, some lamps will fail before their rated life and some will operate beyond their rated life. The ENERGY STAR CFL criteria require additional testing to show that the sample can withstand a number of short start cycles and monitors early failures throughout testing.

Total Cost of Ownership (TCO): An analysis that can be used to assess all of the costs of owning a particular product throughout its lifecycle, including acquisition costs, operation expenses and end-of-life costs. It is intended to provide an apples-to-apples comparison between differing models or brands of a similar product.

Watt: The SI (International Systems of Units/ Système International d'Unités) unit for power, measured in Joules per second.

Standard Setting and Certification Entities:

Various national entities provide guidance and specifications for the purchase of energy efficient lighting equipment. They are defined here as a guide.

American National Standards Institute (ANSI): ANSI is a nonprofit organization that oversees the development of voluntary consensus standards for products, services, processes, systems and personnel in the United States. The organization also coordinates U.S. standards with international standards so that American products can be used worldwide. ANSI facilitates the development of American National Standards by accrediting the procedures of standards-developing organizations.

Consortium for Energy Efficiency (CEE): CEE is a nonprofit public benefit corporation that promotes the manufacture and purchase of energy-efficient products and services. CEE members include utilities, statewide and regional market transformation administrators, environmental groups, research organizations, and state energy offices in the U.S. and Canada. CEE partners (manufacturers, retailers, and government agencies) also contribute to the collaborative process. The U.S. Department of Energy and the Environmental Protection Agency both provide support through active participation as well as funding. Visit <https://www.cee1.org/> for additional information on CEE, including product specifications and a list of qualifying products.

Federal Trade Commission (FTC): A federal agency whose purpose is to create free enterprise, prevent restraint of trade and monopolies, and protect consumers against deceptive practices such as false advertising.

Illuminating Engineering Society (IES): IES is a nonprofit society whose mission is to improve the lighted environment by bringing together lighting professionals and by translating that knowledge into actions that benefit the public. Members of the IES are regarded as the top professionals in their industry and are globally respected for their knowledge. Lighting Standards and Guides are developed through the committee consensus standards development process approved by the American National Standards Institute (ANSI).

International Dark Sky Association (IDA): Administers the Fixed Seal of Approval program, which certifies outdoor lighting fixtures that minimize glare, reduce light trespass and protect the night sky. The IDA evaluates fixtures based on the Upward

Light Output Ratio (ULOR): meaning the "amount of upward flux a fixture produces." IDA also educates lighting designers, manufacturers, technical committees and the public about controlling light pollution. Visit <http://darksky.org/> for more information.

Designlights™ Consortium (DLC): DLC is a collaboration of utility companies, energy efficiency program administrators, and regional public service organizations that is committed to raising commercial awareness of the benefits of efficient lighting. For additional information on DLC, including product specifications and a list of qualifying products, visit the DLC website at <https://www.designlights.org/>.

National Electrical Manufacturers Association (NEMA): NEMA is the trade association for the electrical manufacturing industry. NEMA provides a forum for the development of technical standards that are in the best interest of the industry and users, advocacy of industry policies on legislative and regulatory matters, and collection, analysis, and dissemination of industry data.

Restriction of Hazardous Substances (RoHS) Directive: RoHS is a European Parliament and Council Directive that restricts the use of certain hazardous substances in electrical and electronic equipment. It bans the places on the EU market of new electrical and electronic equipment containing more than agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants.

Visit <https://www.gov.uk/guidance/rohs-compliance-and-guidance> for additional information on RoHS.

Nationally Recognized Testing Laboratory (NRTL): NRTL is a part of OSHA's Directorate of Technical Support and Emergency Management. The program recognizes private sector organizations as NRTLs, and recognition signifies that an organization has met the necessary qualifications specified in the regulations for the program. The NRTL program determines that specific equipment and materials or products meet consensus-based standards of safety to provide the assurance that these products are safe for use in the U.S. workplace.

Occupational Safety and Health Administration (OSHA): OSHA is an agency within the United States Department of Labor. OSHA's role is to assure safe and healthful working conditions by authorizing enforcement of the standards developed under the OSHA Act; assisting and encouraging the States in their efforts to assure safe and

healthful working conditions; and providing for research, information, education, and training in the field of occupational safety and health.

Underwriters Laboratories (UL): Underwriters Laboratories® is an independent product safety certification organization that tests products and writes standards for safety. UL evaluates more than 19,000 types of products, components, materials, and systems annually with 20 billion UL marks appearing on 72,000 manufacturers' products each year.

ENERGY STAR®: ENERGY STAR is a U.S. Environmental Protection Agency (EPA) voluntary program to identify and promote energy-efficient products and buildings to reduce energy consumption, improve energy security, and reduce pollution through voluntary labelling of or other forms of communication about products and buildings that meet the highest energy efficiency standards. Visit <https://www.energystar.gov/> for additional information on ENERGY STAR, including product specifications and a list of qualifying products.

Overarching Specifications:

The following guidelines apply to all fixture, ballast, and lamp purchases.

Mandatory Items:

Packaging:

- Packaging shall comply with Environmental Conservation Law section 37-0205. Packaging shall not contain inks, dyes, pigments, adhesives, stabilizers, or any other additives to which any lead, cadmium, mercury or hexavalent chromium is intentionally added or contain incidental concentrations of lead, cadmium, mercury or hexavalent chromium which together are greater than 100 parts per million by weight (0.01%).

Labeling:

- In accordance with the rule being generated by the FTC under 16 CFR Par 305, all lamp packages will have a "Lighting Facts" label that meets the requirements of the FTC.

RoHS Compliance:

- Restriction of Hazardous Substances is a directive of the European Parliament that covers a wide variety of toxins in electrical appliances. All fixtures shall be in ROHS compliance.

Proper recycling of old lamps and ballasts:

- Fluorescent lamps always contain mercury and should be recycled at a proper recycling center per state and local regulations. Ballasts can contain chemicals such as polychlorinated biphenyls (PCBs) that shall be recycled in accordance with state and local regulations.
- Vendors shall offer lamp and ballast collection services.

State and local energy codes for lighting levels:

New York State, in addition to some NYS municipalities, have minimum lighting level requirements for a variety of settings. Though minimum lighting levels shall be met per code, it is also recommended to use ASHRAE 90.1 recommendations regarding lighting levels.

Recommended Items:

The use of Design Lights Consortium (DLC)-listed LEDs:

- DLC-listed is highly recommended as these fixtures have a high degree of lighting quality, are energy efficient, and contain no mercury. In certain circumstances, such as with A-19 fixtures, the fixture type is not covered by the DLC. In this case, ENERGY STAR® certification is highly recommended.

The involvement of an Lighting Certified (LC) or Certified Lighting Efficiency Professional (CLEP) lighting designer:

- Lighting design is complex and involves a large number of variables. Using a certified lighting designer is recommended for any installation with a project cost over \$50,000.

Internal review of photometrics:

- Review of photometrics by internal staff is recommended for any installation with a project cost over \$10,000- the photometrics can be requested from the manufacturer.

Total cost of ownership analysis:

- Total cost of ownership analysis is recommended for all projects, and end of life costs (proper disposal or recycling) should be included in the analysis.

Packaging:

- The use of bulk packaging.
- The use of reusable packaging.
- The use of innovative packaging that reduces the weight of packaging, reduces packaging waste, or utilizes packaging that is a component of the product.
- That all packaging remain the property of the supplier and not become the property of the affected state entity under any circumstance or condition. The vendor shall certify that the packaging material will be reused, recycled, or composted, and managed in compliance with applicable local, state, and federal laws.
- Packaging that maximizes recycled content and/or meets or exceeds the minimum post-consumer content level for packaging in the U.S. Environmental Protection Agency Comprehensive Procurement Guidelines.
- Packaging that is recyclable or compostable.

Following manufacturer's recommendations for application and installation:

- It is possible to install high quality lighting that is not designed for the application intended. For example, sometimes high quality parking lot lighting can be installed in an office setting. This can lead to issues as the parking lot lighting may not meet the lighting needs of the office environment. It is also possible to improperly install fixtures in ways that can reduce their efficiency and/or their useful life. Following manufacturer's recommendations can help avoid these situations.
- Review and consider the process of changing out fixtures with vendors prior to making a purchase, some change outs will be more complex, labor intensive, and expensive than others.

The Qualified Products Lists for the Design Lights Consortium, ENERGY STAR, and the Consortium for Energy Efficiency can be at:

- DLC QPL
<https://www.designlights.org/QPL>
- ENERGY STAR LED Fixtures QPL
<https://www.energystar.gov/productfinder/product/certified-light-fixtures/results>
- CEE QPL

<http://library.cee1.org/content/commercial-lighting-qualifying-products-lists>

Please note specifications are divided into fixtures (A), ballasts (B), and lamps (C).

A. Fixture Specifications

All EO4 compliant fixture installations shall be either ENERGY STAR certified or Design Lights Consortium-listed:

- DesignLights Consortium (DLC). For a list of DLC-Qualified Fixtures, see <https://www.designlights.org/QPL>
- ENERGY STAR. For a list of ENERGY STAR-Certified Light Fixtures, go to <https://www.energystar.gov/productfinder/product/certified-light-fixtures/results>

DLC-listed fixtures are highly recommended because emit high-quality light, are energy efficient, and contain no mercury. In certain circumstances, such as with A19 fixtures, the fixture type is not covered by the DLC. In this case, ENERGY STAR certification is required.

1. Overhead Workspace Fixtures

- DLC-listed or ENERGY STAR-certified LED fixtures shall be used if there are multiple fixture replacements.

2. High-Bay Lighting Fixtures

- DLC-listed, LED-Illuminated fixtures shall be used if there are multiple fixture replacements.
- If there are individual fixture replacements, compliant high-bay fixtures may also include high-efficiency high-intensity discharge (HID) systems that contain ceramic metal halide lamps and electronic HID ballasts.
- If there are individual fixture replacements, compliant high-bay fixtures may also include high-efficiency, high-output T5 fluorescent lamps and compatible NEMA Premium Efficiency electronic ballasts.
- *High-bay fixtures that include magnetic ballasts, generic electronic fluorescent ballasts designed for 4-foot T8 systems, T12 (linear or U-bent) or T9 (circular) lamps, preheat fluorescent lamps, incandescent or halogen lamps, probe-start metal halide lamps, or mercury vapor lamps, are not compliant with this specification.*

3. Recessed Can Fixtures

- ENERGY STAR-certified LED-Illuminated fixtures shall be used if there are multiple fixture replacements.
- If individual fluorescent recessed can fixtures are needed, compliant fixtures shall include electronic ballasts and 4-pin compact fluorescent lamps only.

4. Track Lighting and Other Interior Fixtures

- DLC listed or ENERGY STAR certified LED fixtures shall be used when installing track lighting or other interior fixtures.

5. Outdoor Fixtures

- DLC listed or ENERGY STAR certified LED fixtures shall be used when installing new outdoor lighting fixtures.
- All EO4 compliant outdoor fixtures shall be full cut-off to avoid ambient light pollution.

Additional Guidance for Replacing Lighting Fixtures

- If replacing existing overhead lighting fixtures for interior illumination, or installing entirely new fixtures in a space, a DesignLights Consortium (DLC)-listed LED fixture is always recommended.
- LED products that do not meet DLC requirements should not be installed, with the exception of fixtures that are covered by the ENERGY STAR certification.
- When replacing individual fixtures or lamps, there may be a need for replacement with in-kind technology or very similar style LED technology to maintain coherence with existing fixtures in the room. In such cases, look for products that improve energy efficiency, reduce mercury and other toxic chemicals, and improve light quality.
 - For example, new fluorescent luminaires designed for 4-foot T8 fluorescent lamps should contain a NEMA Premium Efficiency electronic ballast and a high-efficiency T8 that is on the Consortium for Energy Efficiency (CEE) Qualified Product List (<http://library.cee1.org/content/commercial-lighting-qualifying-products-lists>).

- It is desirable that all outdoor lighting be International Dark-Sky Association (IDA)-compliant in order to mitigate the impact of artificial light on the nighttime environment. Visit <http://darksky.org/fsa/> for a list of compliant products.
- For outdoor lighting fixtures, consider factors in the environment that may disrupt the light. For example, fixtures should be designed to avoid interference from debris that can shorten the useful life of the light or inhibit light output, such as dirt and insects.
- It is important to always consider manufacturer's recommendations for use and installation.

B. Ballast Specifications:

In cases where **individual ballasts** fail, replacements may be needed. Below are specifications and purchasing guidance related to fluorescent and HID ballasts.

- All EO 4-compliant ballasts shall be RoHS-compliant.

1. Extra-efficient Electronic Ballasts for Linear 4-Foot T8 Fluorescent Systems

- All EO4-compliant replacement ballasts for 4-foot T8 fluorescent systems shall be extra-efficient. This means they shall be on the current list of *NEMA Premium Efficiency Ballasts* (https://www.nema.org/Policy/Energy/Efficiency/Documents/nema_premium_electronic_ballast_program.pdf).
- [*Generic electronic ballasts for 4-foot T8s do not comply with this specification.*](#)

2. Electronic Ballasts for High-Efficiency Linear Other T8 and T5 Fluorescent Systems

- All EO4-compliant replacement fluorescent ballasts (except for 4-foot T8 lamps, which shall be electronic and on the NEMA Premium Efficiency List) shall be electronic.

- *Magnetic fluorescent ballasts do not comply with this specification.*

3. Electronic Ballasts for Pin-Based Compact Fluorescent Lighting Systems

- All EO4-compliant replacement ballasts for pin-based compact fluorescent lamps shall be electronic and designed to be compatible with 4-pin CFLs, which are much more energy efficient than 2-pin CFLs.
- *Magnetic ballasts for pin-based CFLs do not comply with this specification.*

4. Electronic Ballasts for High Intensity Discharge (HID) Lighting Systems

- All EO 4-compliant replacement ballasts for high-intensity discharge (HID) lighting systems shall be electronic and be designed to accommodate ceramic metal halide lamps.
- *Magnetic HID ballasts do not comply with this specification.*

Additional Guidance for Replacing Ballasts

- Ballasts manufactured before 1980 may contain polychlorinated biphenyls (PCBs), which are highly persistent toxic chemicals; such ballasts shall be managed in accordance with state and local regulations.
- Newer ballasts (manufactured after 1980) should be collected and recycled.

C. Lamp Specifications:

This portion is to be used when replacing lamps but not upgrading to entirely new fixtures.

1. 4-foot T8 Linear Lamps

- All EO 4-compliant 4-foot linear tube lamps shall meet one of the following criteria:
 - DLC listed 4-foot LED linear T-8 Lamps (recommend for large lamp change-outs)
 - OR

- Fluorescent lamp on the CEE Qualified Product List (<http://library.cee1.org/content/commercial-lighting-qualifying-products-lists>)
- Maximum mercury content of 3.5 mg (RoHS-Compliant)
- Minimum rated life of 30,000 hours when tested on instant start ballasts with 3-hour starts

- *4-foot T8 lamps that are not on the CEE QPL are not compliant with this specification because they are less efficient and have a lower Color Rendering Index.*
- *4-foot high-output T8 (T8HO) fluorescent lamps are not compliant with this specification.*
- *4-foot T12 lamps are not compliant with this specification.*
- *Preheat 4-foot T8s and T12s are not compliant with this specification.*

Additional Guidance for Replacing 4-Foot Fluorescent Lamps

- If faced with the replacement of a 4-foot T12 fluorescent lamp, affected entities are highly encouraged to upgrade to a comparable DesignLights Consortium (DLC)-certified LED fixture. Changing to a T-8 fixture with a 4-foot linear LED insta-fit product is not recommended in this scenario.
- Please note that magnetic ballasts containing polychlorinated biphenyls (PCBs) were present in many T-12 products produced prior to 1978, and may still be present in older fixtures. PCBs present a serious environmental hazard and shall be disposed of in accordance with federal, state, and local requirements.

2. Linear T8 Lamps <4-foot

All EO 4-compliant fluorescent lamps shorter than 4 feet shall meet one of the following standards:

- DLC-listed LED T8 Lamp <4 feet in length
- OR
- High-efficiency fluorescent T8 lamp that meets the following criteria:
 - CRI = 80+
 - Rated Life Minimum: 24,000 hours when tested on instant start ballasts with 3-hour starts
 - Maximum mercury content: 3.5 mg per lamp (RoHS-compliant)

- *T12s shorter than 4 feet are not compliant with this specification.*
- *Preheat T8s that are shorter than 4 feet are not compliant with this specification.*

3. Linear T8 Lamps >4 foot

All EO 4-compliant T8 lamps longer than 4 feet shall meet one of the following standards:

- High-efficiency fluorescent T8 lamp that meets the following criteria:
 - CRI = 80+
 - Rated Life Minimum: 24,000 hours when tested on instant start ballasts with 3-hour starts
 - Maximum mercury content: 10 mg per lamp

OR

- DLC-listed LED T8 lamp >4 foot in length
(Note: there are currently no DLC-listed LED T8 lamps >4 feet in length; however, if they become available, they would comply with this specification.)
- *T12s longer than 4 feet are not compliant with this specification.*
- *Preheat T8s that are longer than 4 feet are not compliant with this specification.*

4. U-bend T8 Lamps

All EO 4-compliant U-bend T8 lamps shall meet the following standards:

- DLC-listed LED U-bend T8 lamp
(Note: there are currently no DLC-listed LED u-bent lamps; however, if they become available, they would comply with this specification. In the absence of a U-bend T8 lamp option, it is recommended that a full fixture replacement be instituted.)
- *U-bent T12 fluorescent lamps do not meet this specification.*

5. Linear T5 Lamps

All EO 4-compliant linear T5 lamps shall meet the following standards:

- High-efficiency linear fluorescent T5 lamp that meets the following criteria:
 - Minimum CRI: 80
 - Maximum mercury content: 3 mg per lamp (RoHS Compliant)
 - Minimum rated life: 30,000 hours on program start ballasts with 3-hour starts
- Minimum efficacy: 96 lumens/watt

OR

- DLC-listed LED T5 lamp
(Note: there are currently no DLC-listed linear LED T5 lamps; however, if they become available, they would comply with this specification.)

Additional Guidance for Replacing Linear T5 Fluorescent Lamps

High-CRI linear T5 fluorescent lamps are already a very energy-efficient technology.

It is recommended that purchasers consider upgrading to a DLC-Certified LED fixture, while weighing the cost, estimated energy savings, and rate of return on investment.

6. Circular T5 Lamps

All EO 4-compliant circular T5 lamps shall meet the following standards:

- DLC-listed Circular LED T5 lamp
(*Note: there are currently no DLC-listed circular LED T5 lamps; however, if they become available, they would comply with this specification. In the absence of a circular T-5 lamp option, it is recommended that a full fixture replacement be instituted*)
- Circular T9 lamps do not comply with this specification.

Additional Guidance for Replacing Linear, Circular and U-Bent Lamps

- LED replacement tube lamps are preferred because they have a significantly lower wattage than fluorescent tubes with a comparable lumen output. They are recommended for large-scale re-lamping projects.
- High-efficiency fluorescent lamps may be needed for small-scale lamp replacements in order to match other lamps in existing fixtures.
- It is often cost-effective to replace a fluorescent fixture with a DLC-listed LED fixture.
- Always check that lamps are compatible with the installed ballast.
- Replacement lamps should always be installed using manufacturer suggested guidelines.
- Many existing lights operate with magnetic ballasts, which may contain polychlorinated biphenyls (PCBs) if they were produced prior to 1978, and may still be present in older fixtures. PCBs present serious environmental and health hazards and shall be disposed of in accordance with federal, state, and local requirements.

7. Specifications for Screw-In Light Bulbs

This category includes both omni-directional lamps (e.g., A19, A21, globes, candles, bullets, replacements for screw-in high-intensity discharge lamps, etc.) as well as directional lamps (e.g., PAR lamps, BR20, BR30, MR16, etc.) for general lighting purposes.

All EO 4-compliant screw-in lamps shall meet the following standards:

- Light source is light emitting diodes (LEDs) AND be ENERGY STAR certified:
ENERGY STAR ENERGY STAR LED Fixtures QPL:

<https://www.energystar.gov/productfinder/product/certified-light-fixtures/results>

- *ENERGY STAR-certified CFLs and HID lamps do not meet this specification.*

Additional Guidance for Replacing Screw-in Lamps

- Screw-in lamps can be highly variable in terms of color temperature and light distribution. Review these items in every upgrade to ensure the new screw-in lamps will meet expectations.
- Please note that some – but a declining number of – ENERGY STAR-certified lamps are compact fluorescent lamps (CFLs). LEDs are preferable to CFLs because LEDs have a higher efficacy and a longer rated life; in addition, they are mercury-free.

8. Pin-based LED and Compact Fluorescent Replacement Lamps

All EO 4-compliant pin-based compact lamps shall meet one or more of the following standards:

- LED lamp with one or more of the following certifications/listings:
 - DesignLights Consortium (DLC)
 OR
 - ENERGY STAR
 AND
 - RoHS-Compliant
- Fluorescent lamp that meets the following criteria:
 - 4-pin base
 - Minimum rated lamp life of 12,000 hours
 - Maximum mercury content: 2.5 mg per lamp
 - CFLs shall not be used in outdoor applications

Additional Guidance for Replacing Pin-Based Compact Lamps

- Pin-based LED lamps may overheat in recessed cans that were not specifically designed for LED lamps (due to high-heat conditions). Read manufacturer's instructions carefully before using.
- Fixtures with 2-pin CFLs are less energy efficient than 4-pin. Therefore, it is recommended that fixtures with 2-pin CFLs be replaced with LED fixtures.
- CFLs that contain amalgam mercury (instead of liquid mercury) are preferred because they tend to have a lower mercury content and a longer rated life.
- CFLs should not be used outdoors because fluorescent technology does not function efficiently in colder temperatures.

State-Funded Food

Covered Services:

Any food that is paid for by State dollars, and includes: food that is eligible for reimbursement while in travel status and food that is provided with State dollars for conferences, meetings, and other events.

Please note that this specification does not permit affected entities to be reimbursed for expenses that exceed approved allowable rates.

Goal:

To encourage affected entities to purchase state-funded food from businesses that minimize their environmental impact and have high levels of environmental performance in accordance with the third party certification programs below.

Standard Setting and Certification Programs:

Green Restaurant Association – the Green Restaurant Association is a not-for-profit organization that administers a third party certification program that verifies that participating food service providers have high environmental performance. More information can be found at: www.dinegreen.com

New York Environmental Leaders Program – the New York Environmental Leaders Program (NYEL) is a green business program administered by the New York State Department of Environmental Conservation (DEC) that strives to incentivize higher levels of environmental performance by providing recognition and incentives. NYEL is free, voluntary, and open to all types of businesses, including food service providers. More information can be found at: www.dec.ny.gov/chemical/939.html

Taste NY Pledge – the Taste NY Pledge is administered by the New York State Department of Agriculture and Markets and promotes increasing the amount of locally sourced products served by food service providers. Using locally sourced products lowers the environmental impact of food products by decreasing the distance, and thus emissions, that food must travel before being served. Food Service providers that have taken the pledge offer food from local sources, for at least 10% of the products they serve, and educate the public on the local choices they offer.

Specifications:

All affected entities are encouraged to procure food from providers that:

- Have taken the Taste NY Pledge; or

- are a member of the Green Restaurant Association; or
- are a member of the New York Environmental Leaders program

State-Funded Lodging

Covered Services:

Any overnight accommodation that is paid for by the State for official state business. This includes in-state, out-of-state, and international travel.

Please note that this specification does not permit travelers to be reimbursed for expenses that exceed approved per diem rates.

Goal:

To support businesses that offer lodging options that minimize their environmental impact and have high levels of environmental performance in accordance with the third party certification programs below.

Standard Setting and Certification Programs:

New York Environmental Leaders Program – the New York Environmental Leaders Program (NYEL) is a green business program administered by the New York State Department of Environmental Conservation (DEC) that strives to incentivize high levels of environmental performance by providing recognition and incentives. NYEL is free, voluntary, and open to all types of businesses, including lodging establishments. More information can be found at: www.dec.ny.gov/chemical/939.html

Trip Advisor Green Leaders Program – the Trip Advisor Green Leaders Program is a green lodging program administered by the travel website Trip Advisor that provides recognition for establishments with high levels of environmental performance. While there are multiple levels of accreditation within the program, for this specification we consider a lodging establishment that takes part in the program at any of the levels to be participating in it. More information can be found at: <https://www.tripadvisor.com/GreenLeaders>

Specifications:

All affected entities are encouraged to book accommodations at lodging establishments that are members of the New York Environmental Leaders program or the Trip Advisor Green Leaders program.

Monochrome Toner Cartridges

Covered Products:

Monochrome toner cartridges.

Definitions:

“Clone” or “Compatible” Toner Cartridges (also referred to as “new builds”) – a new cartridge built using 100% new parts, not produced by the OEM but by a third party, and sold under a third party brand name.

“Compatible with” – remanufacturers may refer to their toner cartridges as “compatible with” certain OEM imaging devices. This is different than compatible toner cartridges.

High-yield Cartridge – a cartridge filled to obtain a maximum number of copies of printed material.

International Safe Transit Association (ISTA) – a testing and standard setting organization for packaging used for shipping goods.

OEM - original equipment manufacturer.

OEM Cartridge – a new cartridge produced by the OEM and sold under the brand name.

Remanufactured Toner Cartridge – a used OEM cartridge which has been restored to its original OEM performance and function and is thereby diverted from the solid waste stream, and which has been disassembled and cleaned, retaining, to the extent practicable, components that have been through at least one life cycle, and replacing any worn, damaged or end of life components. All components used in the construction of remanufactured cartridges must equal OEM performance and function.

Remanufacturer – a company that disassembles previously used toner cartridges into components, assembles the reusable parts into functioning printing cartridges, and introduces new or aftermarket parts or components only where expressly required (i.e., new toner).

Standard Cartridge – a cartridge that is partially full with ink or toner.

Standard Setting and Certification Programs:

American Society for Testing Materials (ASTM) – is one of largest voluntary standards development organizations in the world, and a trusted source for technical standards for materials, products, systems and services.

Standardized Test Methods Committee (STMC) – is a global committee, created by the International Imaging Technology Council, to promote standardized test methods for the printer cartridge industry. The STMC certification for remanufactured toner cartridge vendors signifies that the vendor’s employees are trained in and use STMC test methods.

UL EcoLogo – is an independent, third party standard setting and certification program that follows the Guiding Principles and Procedures for North American Type I Environmental Labeling adopted by the International Organization for Standardization (ISO 14024). Since its establishment in 1988, EcoLogo has been recognized or referenced in more than 350 specifications and standards.

Guidance:

It is recommended that prior to creating vendor bid documents affected entities should:

1. Inventory all imaging equipment and record toner cartridge needs, and
2. Determine the type of toner cartridges (for what type of machine and model number) have the highest volume of usage.

Specifications:

All affected entities are strongly encouraged to purchase high yield remanufactured toner cartridges as defined in this specification that meet the requirements recommended below, from vendors and manufacturers who meet the requirements recommended below.

A. Priority List:

The order of desirability for toner cartridge purchases among different types of monochrome toner cartridges is as follows:

- Priority 1 - Remanufactured High-yield Cartridges
- Priority 2 - High-yield Original Equipment Manufacturer (OEM) Cartridges
- Priority 3 - Remanufactured Standard Cartridges

Note: The purchase of “clone” or “compatible” toner cartridges as defined in this specification is discouraged.

B. Recommended Product Quality Requirements:

1. All components used in the construction of remanufactured cartridges should be dismantled and examined for damage and/or excessive wear, and all remanufactured toner cartridges should meet or exceed OEM cartridge standards for

quality and performance and meet approved remanufactured toner cartridge industry standards. All remanufactured toner cartridges should meet or exceed:

- The latest ASTM remanufactured toner cartridge standards;
 - The guidelines of UL EcoLogo CCD-039, Blue Angel, Nordic Swan, or equivalent Eco label; or
 - The results of third party performance testing by the Rochester Institute of Technology Imaging Products Laboratory (RIT), Buyers Lab, or equivalent independent laboratory.
2. Vendors should provide a separate declaration of the standards or guidelines being met, as described above, for the highest quantity purchased toner cartridges, including SKU numbers.
 3. Exterior surfaces shall be thoroughly cleaned, with all traces of old labels, and toner removed entirely.
 4. Remanufactured toner cartridges should not be manufactured or remanufactured with, or contain intentionally added mercury, lead, cadmium or chromium (VI) as constituents of the toner or toner cartridge. Vendors should provide documentation, with each shipment, that attests to compliance with this requirement.
 5. Remanufactured toner cartridges should not be manufactured or remanufactured with, or contain any hazardous substances in concentrations that cause the toner or cartridge to be classified with any of the following risk phases according to Annex I of the European Union Directive 67/548/EEC:
 - a. Very toxic by inhalation (R 26)
 - b. Very toxic in contact with skin (R 27)
 - c. Limited evidence of a carcinogenic effect (R 40)
 - d. May cause sensitization by inhalation (R 42)
 - e. May cause cancer (R 45)
 - f. May cause heritable genetic damage (R 46)
 - g. Danger of serious damage to health by prolonged exposure (R 48)
 - h. May cause cancer by inhalation (R 49)
 - i. May impair fertility (R 60)
 - j. May cause harm to the unborn child (R 61)
 - k. Risk of impaired fertility (R 62)
 - l. Possible risk of harm to the unborn child (R 63)
 - m. May cause harm to breastfed babies (R 64)
 - n. Possible risk of irreversible effects (R 68)
 6. Remanufactured toner cartridges should not be manufactured or remanufactured with azo-colorants (dyes or pigments) that may contain carcinogenic aromatic amines, as defined in Underwriter's Laboratory (UL) 2785 *Standard for Sustainability for Printing Cartridges*.

7. Vendors should document that the highest quantity purchased remanufactured toner cartridges have been tested for performance and in accordance with the above standards and guidelines and that the cartridges have met or exceeded those tests with each shipment.
8. Vendors should provide documentation which confirms that the emissions testing results for each type of cartridge purchased meets the specified requirements for release of total volatile organic compounds (TVOC), benzene, styrene, and dust as defined in RAL-UZ55 for monochrome print cartridges and determined in accordance with The BlueAngel's Basic Criteria for Award of the Environmental Label – Office Equipment with Printing Function (Printers, Copiers, Multi-function Devices – RAL – UZ171. See Table 1 for the allowable emission rate values for each substance.

Table 1: Permissible Test Values for Emission Rates As Determined According to Appendix S-M for Electrophotographic Devices – RAL UZ 171		
(All Values in mg/h, Except for Particle Emissions)		Monochrome Printing
Pre-operating Phase	TVOC*	1 (Desktop Devices) 2 (Floor-mounted Devices, Device Volume >250 l)
Print Phase (= Pre-operating + Print Phase)	TVOC*	10
	Benzene	<0.05
	Styrene	1.0
	Unidentified Single Substances	0.9
	VOC	0.9
	Ozone	1.5
Print Phase	Dust	4.0
Print Phase	PER10PW [Particles/10 min]	3.5 * 10 ¹¹

*Please see the list of volatile organic compounds which must be considered when measuring emissions from office equipment with printing function (see Appendix S-M, para. 4.5 VOCs).

C. Recommended Vendor Requirements:

Vendors (i.e., retailers, distributors and remanufacturers) should be required to:

1. Offer only OEM or remanufactured toner cartridges for which the manufacturer, wholesaler, distributor, retailer, or remanufacturer does not place restrictions on the recycling or remanufacturing of the cartridge.
2. Inform purchasers of available products and indicate the level of the priority list on which the product falls.

3. Provide page counts for all OEM and remanufactured cartridges in its proposal.
4. Provide a link to the current Safety Data Sheet (SDS) for each product provided to the customer.
5. Provide training for the end-users on installation and maintenance of the cartridge to optimize the performance and life of the cartridge, upon request of the customer.
6. Warrant no more than a 2% failure rate of toner cartridges supplied, over a time period based on consumption rate or another time period agreed to by the purchasing entity.
7. Provide 100% replacement warranty for all cartridges supplied for a minimum of one (1) year from the date of purchase. This warranty shall be provided with each cartridge and shall cover defects in the cartridge, material used in the cartridge, workmanship and damage during shipment.
8. If problems occur with imaging equipment due to a vendor's defective remanufactured toner cartridge:
 - a. Provide a competent factory-trained authorized service technician to repair the imaging equipment machine within one (1) business day, or
 - b. Reimburse the customer for any imaging equipment repair service performed due to the vendor's defective cartridge. If the imaging equipment cannot be repaired or restored to its previous condition, the vendor should pay for an equivalent replacement of the device at no cost to the customer.
9. Vendors should identify environmentally preferable product (EPP) items in their product catalogs along with prominent information about how the vendor defines EPP (e.g., if the vendor uses a symbol/icon to identify a "greener" product, provide information about what the symbol/icon represents). Any EPP symbols/icons displayed should be displayed along with EPP attribute details per product (e.g., a product with a recycled content symbol would also have in its product description details about the % total RC and % PCRC). EPP items should be easily found within online product catalogs through effective search tools, search filters, and related navigational tools.
10. Vendors are encouraged to provide EPP data by department, delivery location, or other demographic that is most applicable to the purchasing entity.
11. Vendors should set up a plan with the purchasing entity whereby all toner cartridge purchases will be delivered on a certain day of the week or will identify another consolidation method. Vendors should document or illustrate how their delivery consolidation methods will reduce the purchasing entity and the vendor's carbon footprint (e.g., reduction in fossil fuel use, carbon emissions, packaging materials, and on-site vehicle traffic).

12. Vendors should use only delivery service companies that are participants in EPA's Smartway Program.

D. Recommended Vendor Requirements on Remanufacturers

1. Vendors should offer remanufactured products from product remanufacturers certified to the standards specified by STMC, ISO 9001 for Quality Management Systems, or ISO 14001 for Environmental Management Systems for having the test equipment, printers and trained personnel for testing to those standards' guidelines. The certification signifies that the company's employees are trained in and use approved test methods.
2. If the remanufacturer is certified under the ASTM Guidelines, the vendor should provide ASTM documentation on the number of the remanufacturer's personnel who have successfully completed the training for the Guidelines and demonstrate that they are still current with their qualification. This includes the standardized testing certification for ASTM F 1856-98, ASTM F 2036, and ISTA 1A VERSION-99.
3. Vendors should provide documentation on the remanufacturers facility(ies), skilled personnel, and equipment and parts available to service, maintain, overhaul and repair all brands of imaging equipment that are associated with the models of cartridges listed in the solicitation.
4. Vendors should provide documentation on the remanufacturer's verification of testing on all toner cartridges after remanufacturing by installing the cartridge in an applicable device and running and inspecting test copies. A test copy for each toner cartridge purchased will be provided with each purchase shipment, printed on 100% recycled content paper with a minimum of 50% post-consumer recycled content, and printed double-sided.
5. Vendors should provide documentation that the exterior cartridge surfaces have been thoroughly cleaned by the remanufacturer, with all traces of old labels entirely removed.

E. Idling of Delivery Trucks:

Vendors should require all delivery drivers to turn off their engines upon stopping at the delivery location, or not allow an engine to idle at any location for more than 20 seconds, except in the following situations:

- The health and safety of employees, sub-contractors or the public is compromised by turning off the vehicle.
- The engine is required to power auxiliary equipment (e.g. hoist, lift platforms, hydraulic tools, inverters, compactors, medical equipment, specialized public safety radio communication and computer systems, etc.). Or,

- Vehicle/equipment manufacturer requires additional idle time for warm up or cool down for efficient and proper mechanical or functional operation of the unit.

F. Take Back:

Vendors should provide a viable method for the collection of spent cartridges for recycling or remanufacturing that does not create any waste or expense for the customer (e.g., by providing a pre-paid shipping/ mailing label to be used on the original box in which cartridges were received, or a collection container for pick up, etc.). Practices for take back should be reviewed and determined with the purchasing entity.

Vendors should recycle or remanufacture end-of-life cartridges and provide the buyer with the following details of its recycling/remanufacturing program in its annual report to the customer:

- The number of used toner/ink cartridges received from the customer, including the type of toner cartridge (OEM or remanufactured), the OEM's name, and the name of the department completing the return.
- The disposition of the returns, including the disposition of the remaining toner in used cartridges (e.g., remanufactured, sent to remanufacturer, recycled, etc.).

Vendors should ensure that remaining toner in used cartridges is recycled or disposed of in a manner that complies with all environmental and human health and safety laws.

At the customer's request, Vendors should provide manifests and any other documentation needed to confirm the proper management or disposal of material.

G. Packaging and Label Requirements:

If the original shipping container is used to return spent cartridges, the container should be constructed to permit use for returns.

The shipping container to be used for returns should include a label, on at least one of the long sides that says:

"IMPORTANT: SAVE THIS BOX AND ALL INTERNAL PACKAGING FOR
RETURN OF THE EMPTY CARTRIDGE."

Packaging shall comply with Environmental Conservation Law section 37-0205. Packaging shall not contain inks, dyes, pigments, adhesives, stabilizers, or any other additives to which any lead, cadmium, mercury or hexavalent chromium is intentionally added or contain incidental concentrations of lead, cadmium, mercury or hexavalent chromium which together are greater than 100 parts per million by weight (0.01%).

New York State encourages affected entities to adopt the following:

- The use of bulk packaging.
- The use of reusable packaging.
- The use of innovative packaging that reduces the weight of packaging, reduces packaging waste, or utilizes packaging that is a component of the product.
- That all packaging remain the property of the supplier and not become the property of the affected state entity under any circumstance or condition. The vendor shall certify that the packaging material will be reused, recycled, or composted, and managed in compliance with applicable local, state, and federal laws.
- Packaging that maximizes recycled content and/or meets or exceeds the minimum post-consumer content level for packaging in the U.S. Environmental Protection Agency Comprehensive Procurement Guidelines. If corrugated packaging is used, vendors should provide written documentation from the carton manufacturer/supplier that verifies a 50% minimum percentage of post-consumer recycled content.
- Packaging that is readily recyclable or compostable in the purchasing entity's community recycling program. (Contact the State's Environmental Agency to find out the products that are readily recyclable in residential programs.)

General Purpose Cleaners ~~Industrial and Institutional Cleaning Products~~

Covered Products:

This specification covers a wide variety of concentrated cleaners as well as related dilution and dispensing equipment, in addition to a limited number of ready-to use cleaners. They are divided into the following sub-categories:

- A. **Concentrated Bathroom Cleaners, Non-disinfecting and Non-sanitizing Only** (including concentrated restroom cleaners, tub and tile cleaners, grout cleaners and whiteners, descalers, mold and mildew cleaners, and toilet/urinal cleaners, etc.)
- B. **Concentrated Carpet, Rug and Upholstery Cleaners** (including concentrated pre-spray, spot and stain removers, carpet shampoos and bonnet cleaners, etc.)
- C. **Concentrated Degreasers** (including concentrated cleaner-degreasers, grease trap cleaners, etc.)
- D. **Concentrated Floor Cleaners** (including concentrated neutral floor cleaners, dust and damp mop cleaners, etc.)
- E. **Concentrated General Purpose Cleaners** (including also all-purpose and multi-purpose cleaners, peroxide-based cleaners, etc.)
- F. **Concentrated Glass Cleaners** (including also window, mirror and computer screen cleaners)
- G. **Concentrated Enzymatic Restroom Cleaners**
- H. **Ready-To-Use General-Purpose Cleaners and Glass Cleaners**
 - ~~A. **General Purpose Cleaners** are products that are used for routine cleaning of hard surfaces, including impervious flooring such as concrete, stone surfaces, or tile.~~
 - ~~B. **Restroom Cleaners** includes products used to clean hard surfaces in a restroom—such as counters, walls, floors, fixtures, basins, tubs, toilets, urinals, and tile.~~
 - ~~C. **Toilet Bowl Cleaners** are products intended to clean toilet bowls or urinals.~~
 - ~~D. **Carpet Cleaners** include products developed to perform routine cleaning or spot cleaning of carpets and rugs.~~
 - ~~E. **Carpet Spot Removers** includes products intended for the spot removal of stains on carpets and rugs.~~
 - ~~F. **Glass, Window, Mirror Cleaners** includes products used to clean windows, glass, dry erase boards, and mirrored surfaces.~~

Standard Setting and Certification Program: Definitions

American Society of Sanitary Engineering (ASSE) – Is a standard-setting organization whose standards apply to components of the plumbing system. These standards, with a heavy emphasis on backflow prevention devices, are used by national and local codes throughout the country.

Association of Occupational and Environmental Clinics (AOEC) – is a non-profit organization committed to improving the practice of occupational and environmental health through information sharing and collaborative research.

Green Seal - is a non-profit, independent, third party standard setting and certification organization that follows the Guiding Principles and Procedures for Type I Environmental Labeling adopted by the International Organization for Standardization (ISO 14024). Green Seal has developed environmental standards and certifies products for more than 40 major product categories. It has a number of standards for general purpose industrial cleaning products (GS-37). Learn more about Green Seal's environmental standards at <http://www.greenseal.org/certification/environmental.cfm>

UL EcoLogo - is an independent, third party standard setting and certification program that follows the Guiding Principles and Procedures for North American Type I Environmental Labeling adopted by the International Organization for Standardization leadership standard setting and third-party certification program as defined by (ISO 14024). Since its establishment in 1988, EcoLogo has been recognized or referenced in more than 350 specifications and standards. It has a number of standards (GCD-146) for general purpose Hard Surface Cleaners, for products meeting these standards. For additional information on this program as well as standards for other products, visit the EcoLogo website at <http://www.ecologo.org/en/>.

Specifications:

Third-Party Certifications:

All general purpose Industrial and Institutional Cleaning Products shall be certified by one of the following standards:

Green Seal or /GS-37 (5th Edition) UL EcoLogo (applicable standards listed below). /GCD-146 (2005 Edition)

A. Green Seal Standards

1. Green Seal GS-8 (2013), *Cleaning Products for Household Use*
2. Green Seal GS-34 (2013), *Cleaning and Degreasing Agents*
3. Green Seal GS-37 (2013), *Cleaning Products for Industrial and Institutional Use*
4. Green Seal GS-53 (2014), *Specialty Cleaning Products for Industrial and Institutional Use*

B. UL EcoLogo Standards

NOTE: Products that only meet UL's other standards, such as GREENGUARD, do not

meet the requirements of this specification unless expressly noted.

1. UL EcoLogo 2759 (2011), Standard for Sustainability for Hard Surface Cleaners

2. UL EcoLogo 2791 (2012), Standard for Sustainability for Drain and/or Grease Trap Additives: Biologically-based

1.3. UL EcoLogo 2792 (2012), Standard for Sustainability for Cleaning and Degreasing Compounds: Biologically-based

NOTE: this standard does not prohibit asthmagens (unlike GS-37 and UL EcoLogo 2759). If a product is certified under UL EcoLogo 2792, it must also be devoid of asthmagens with the following designations: respiratory sensitizers (Rs or RRs), or generally accepted asthmagens (G) as defined by the Association of Occupational and Environmental Clinics (AOEC), which can be found at <http://www.aoecdata.org/ExpCodeLookup.aspx>

2.4. UL EcoLogo 2795 (2012), Standard for Sustainability for Carpet and Upholstery Care Products

Concentrated Products and Dilution Systems:

Bidders shall make dilution equipment available free of charge for all concentrated cleaning products, including wall and mobile units. All concentrated cleaners must be designed and packaged as a Closed Loop Dilution-Control System that meets the following requirements:

- No open containers are allowed. The container must have "spill-resistant packaging" that requires coupling to a specially designed device in order to dispense the product.
- The container may not be able to be "practically accessed" during routine use. The packaging must not allow for access or exposure to the concentrated product after opening a cap or lid, or before or while connecting to the dispensing system.
- The container must contain a backflow prevention system that meets the current American Society of Sanitary Engineering (ASSE) 1055 standard.

~~An Alternative Self-Attestation is offered for companies that do not have Green Seal or EcoLogo certification for a specific product in the cleaning categories mentioned above, but can prove they meet one of these standards. In such cases, manufacturers must: Complete and sign and send an affidavit to: New York State Office of General Services, Attn: Environmental Services Unit, Corning Tower, 39th Floor, Empire State Plaza, Albany, NY 12242. This affidavit shall attest that the manufacturer's product meets or exceeds the existing GreenSeal/ EcoLogo criteria, and the manufacturer has the necessary data to support this claim. A sample affidavit may be found at: https://greencleaning.ny.gov/PublicCommentDocs/AppendixI_092409.pdf~~

~~Cleaning products meeting Green Seal or EcoLogo criteria will be added to the OGS Approved Green Cleaning Products List under the self-attestation category.~~

All industrial and institutional cleaning products listed on the “approved green cleaning products” list at www.greencleaning.ny.gov meet the GreenSeal/EcoLogo criteria. ~~, or have provided the requisite self-attestation to OGS.~~

Packaging:

~~Packaging shall comply with Environmental Conservation Law section 37-0205. Packaging shall not contain inks, dyes, pigments, adhesives, stabilizers, or any other additives to which any lead, cadmium, mercury or hexavalent chromium is intentionally added or contain incidental concentrations of lead, cadmium, mercury or hexavalent chromium which together are greater than 100 parts per million by weight (0.01%). New York State encourages affected entities to adopt the following:~~

- ~~• The use of bulk packaging.~~
- ~~• The use of reusable packaging.~~
- ~~• The use of innovative packaging that reduces the weight of packaging, reduces packaging waste, or utilizes packaging that is a component of the product.~~
- ~~• That all packaging remain the property of the supplier and not become the property of the affected state entity under any circumstance or condition. The vendor shall certify that the packaging material will be reused, recycled, or composted, and managed in compliance with applicable local, state, and federal laws.~~
- ~~• Packaging that maximizes recycled content and/or meets or exceeds the minimum post-consumer content level for packaging in the U.S. Environmental Protection Agency Comprehensive Procurement Guidelines.~~
- ~~• Packaging that is recyclable or compostable.~~

~~In accordance with Environmental Conservation Law section 37-0205, packaging shall not contain inks, dyes, pigments, adhesives, stabilizers, or any other additives to which any lead, cadmium, mercury or hexavalent chromium has been included as an element during manufacture or distribution in such a way that the sum of the concentrations levels of such lead, cadmium, mercury or hexavalent chromium exceed the following concentration level: 100 parts per million by weight (0.01%).~~

~~All bidders are encouraged to offer packaging which minimizes or eliminates the use of disposable containers; is made from recycled content; contains a minimum of 25% by weight of post consumer materials; and/or meets or exceeds the minimum post consumer content level for packaging in the U.S. Environmental Protection Agency Comprehensive Procurement Guidelines.~~

~~No general purpose cleaning products may be offered in aerosol containers.~~

Floor Finishes and Finish Removers

Covered Products:

This specification covers concentrated and ready-to-use floor polishes, finishes and waxes; floor strippers/removers; and floor polish restorers and maintainers.

Standard Setting and Certification Programs:

Association of Occupational and Environmental Clinics (AOEC) – is a non-profit organization committed to improving the practice of occupational and environmental health through information sharing and collaborative research.

Green Seal - is a non-profit, independent, third party standard setting and certification organization that follows the Guiding Principles and Procedures for Type I Environmental Labeling adopted by the International Organization for Standardization (ISO 14024). Green Seal has developed environmental standards and certifies products for more than 40 major product categories.

UL EcoLogo - is an independent, third party standard setting and certification program that follows the Guiding Principles and Procedures for North American Type I Environmental Labeling adopted by the International Organization for Standardization (ISO 14024). Since its establishment in 1988, EcoLogo has been recognized or referenced in more than 350 specifications and standards.

Specifications:

Where such products are cost competitive and meet form, function and utility requirements, affected entities shall purchase floor maintenance chemicals that meet the following criteria:

- No products shall be purchased in aerosol containers.
- All products shall be certified as meeting one of the following standards:
 - Green Seal
 - GS-40 (2014): *Floor-Care Products for Industrial and Institutional Use*
 - UL EcoLogo
 - UL EcoLogo 2777 (2011), *Standard for Sustainability for Hard Floor Care Products*
- Dilution equipment shall be offered free of charge for all concentrated floor maintenance products.

Packaging:

Packaging shall comply with Environmental Conservation Law section 37-0205. Packaging shall not contain inks, dyes, pigments, adhesives, stabilizers, or any other additives to which any lead, cadmium, mercury or hexavalent chromium is intentionally added or contain incidental concentrations of lead, cadmium, mercury or hexavalent chromium which together are greater than 100 parts per million by weight (0.01%). New York State encourages affected entities to adopt the following:

- The use of bulk packaging.
- The use of reusable packaging.
- The use of innovative packaging that reduces the weight of packaging, reduces packaging waste, or utilizes packaging that is a component of the product.
- That all packaging remain the property of the supplier and not become the property of the affected state entity under any circumstance or condition. The vendor shall certify that the packaging material will be reused, recycled, or composted, and managed in compliance with applicable local, state, and federal laws.
- Packaging that maximizes recycled content and/or meets or exceeds the minimum post-consumer content level for packaging in the U.S. Environmental Protection Agency Comprehensive Procurement Guidelines.
- Packaging that is recyclable or compostable.

Hand Cleaners, Hand Soaps, Hand Sanitizers and Personal Care Products

Covered Products:

This specification covers non-antimicrobial hand cleaners and hand soaps (both foams and lotions), hair shampoos and body washes, as well as hand sanitizers (liquids, gels and wipes) and related dispensers. are designed to be used with water to remove both organic and inorganic soil from skin. Hand wipes and sanitizers are not addressed in this product specification.

Definitions

~~**EcoLogo** - is a North American Type I environmental leadership standard setting and third-party certification program as defined by ISO 14024. It has a standard (CCD-104) for Hand Cleaners/Hand Soaps and certifies products meeting those standards. For additional information on this program as well as standards for other products, visit the EcoLogo website at <http://www.ecologo.org/en/>.~~

Green Seal - is a non-profit, independent, third party standard setting and certification organization that follows the Guiding Principles and Procedures for Type I Environmental Labeling adopted by the International Organization for Standardization (ISO 14024). Green Seal has developed environmental standards and certifies products for more than 40 major product categories. It has a standard for Hand Cleaners/Hand Soaps (GS-41). Learn more about Green Seal's environmental standards at <http://www.greenseal.org/certification/environmental.cfm>

UL EcoLogo - is an independent, third party standard setting and certification program that follows the Guiding Principles and Procedures for Type I Environmental Labeling adopted by the International Organization for Standardization (ISO 14024). Since its establishment in 1988, EcoLogo has been recognized or referenced in more than 350 specifications and standards. It has standards for hand cleaners, personal care products and instant hand antiseptic products.

Specifications:

Non-Antimicrobial Hand Cleaners, Soaps, and Body and Hair Shampoos

All hand cleaners, hand soaps and body and hair shampoos must meet the following criteria:

1. Contain NO antimicrobial agents, and
2. Hold at least one of the following certifications:

~~Hand Cleaner/Hand Soap products shall be certified by the following standard, which was developed jointly:-~~

- ~~• Green Seal /GS-41 (2013)/EcoLogo/CCD-104 Hand Cleaners for Industrial and Institutional Use.~~
- ~~• UL EcoLogo 2845 (2013), Personal Care Products.~~
- ~~• UL EcoLogo 2784 (2011), Standard for Sustainability for Hand Cleaners.~~

~~Matching dispensers must be offered free of charge, and battery free dispenser options are encouraged.~~

~~**Antimicrobial Hand Sanitizers 8 oz. or greater (including liquid, gel and foam formulations)**~~

~~All antimicrobial hand sanitizers, including liquid, gel and foam formulations, 8 oz. or greater, must hold the following certification:~~

- ~~• UL EcoLogo 2783 (2011), Instant Hand Antiseptic Products,~~

~~**Antimicrobial Hand Sanitizing Wipes and Bottles < 8 oz.**~~

~~All antimicrobial hand sanitizing wipes and bottles less than 8oz. must contain ethyl alcohol or isopropanol active ingredients only.~~

~~An Alternative Self-Attestation is offered for companies that do not have Green Seal or EcoLogo certification for a specific product in the cleaning categories mentioned above, but can prove they meet one of these standards. In such cases, manufacturers must: Complete and sign and send an affidavit to: New York State Office of General Services, Attn: Environmental Services Unit, Corning Tower, 39th Floor, Empire State Plaza, Albany, NY 12242. This affidavit shall attest that the manufacturer's product meets or exceeds the existing GreenSeal/ EcoLogo criteria, and the manufacturer has the necessary data to support this claim. A sample affidavit may be found at: https://greencleaning.ny.gov/PublicCommentDocs/AppendixI_092409.pdf~~

- ~~• Hand Soaps/Hand Cleaners meeting Green Seal/EcoLogo criteria will be added to the OGS Approved Green Cleaning Products List under the self-attestation category.~~

~~All hand cleaners **and** hand soaps listed on the "approved green cleaning products" list at www.greencleaning.ny.gov meet the GreenSeal/UL EcoLogo criteria, ~~or have provided the requisite self-attestation to OGS.~~~~

Packaging:

Packaging shall comply with Environmental Conservation Law section 37-0205. Packaging shall not contain inks, dyes, pigments, adhesives, stabilizers, or any other additives to which any lead, cadmium, mercury or hexavalent chromium is intentionally added or contain incidental concentrations of lead, cadmium, mercury or hexavalent chromium which together are greater than 100 parts per million by weight (0.01%). New York State encourages affected entities to adopt the following:

- The use of bulk packaging.
- The use of reusable packaging.
- The use of innovative packaging that reduces the weight of packaging, reduces packaging waste, or utilizes packaging that is a component of the product.
- That all packaging remain the property of the supplier and not become the property of the affected state entity under any circumstance or condition. The vendor shall certify that the packaging material will be reused, recycled, or composted, and managed in compliance with applicable local, state, and federal laws.
- Packaging that maximizes recycled content and/or meets or exceeds the minimum post-consumer content level for packaging in the U.S. Environmental Protection Agency Comprehensive Procurement Guidelines.
- Packaging that is recyclable or compostable.

~~In accordance with Environmental Conservation Law section 37-0205, packaging shall not contain inks, dyes, pigments, adhesives, stabilizers, or any other additives to which any lead, cadmium, mercury or hexavalent chromium has been included as an element during manufacture or distribution in such a way that the sum of the concentrations levels of such lead, cadmium, mercury or hexavalent chromium exceed the following concentration level: 100 parts per million by weight (0.01%).~~

~~All bidders are encouraged to offer packaging which minimizes or eliminates the use of disposable containers; is made from recycled content; contains a minimum of 25% by weight of post consumer materials; and/or meets or exceeds the minimum post consumer content level for packaging in the U.S. Environmental Protection Agency Comprehensive Procurement Guidelines.~~

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Disinfectants and Sanitizers

Covered Products:

This specification covers concentrated and ready-to-use antimicrobial mold and mildew remediation products and other types of disinfectants as well as food-contact and non-food-contact surface sanitizers. It does not cover hand sanitizers, non-antimicrobial or antimicrobial hand soaps, and laundry sanitizers.

Background:

During development of the multi-state contract for *Environmentally Preferable Cleaning Products, Programs, Equipment and Supplies*, awarded in March 2015, the sourcing team, led by the Massachusetts Operational Services Division, researched and compiled criteria for surface disinfectants and sanitizers in consultation with the Massachusetts Toxics Reduction Task Force and the Responsible Purchasing Network. These criteria represent a lesser impact to public health and the environment, while ensuring efficacy and high performance. Notably, these products are devoid of chemicals that are known to cause asthma, cancer, and skin sensitization, except for food-contact surface sanitizers, which may contain peroxyacetic acid, an asthmagen.

Definitions:

International Agency for Research on Cancer (IARC) – is the specialized cancer agency of the World Health Organization dedicated to promoting international collaboration in cancer research.

National Toxicology Program – is an interagency program, housed within the U.S. Department of Health and Human Services, whose mission is to evaluate agents of public health concern by developing and applying tools of modern toxicology and molecular biology. It maintains an objective, science-based approach in dealing with critical issues in toxicology.

Standard Setting and Certification Programs:

Association of Occupational and Environmental Clinics (AOEC) – is a non-profit organization committed to improving the practice of occupational and environmental health through information sharing and collaborative research.

Green Seal - is a non-profit, independent, third party standard setting and certification organization that follows the Guiding Principles and Procedures for Type I Environmental Labeling adopted by the International Organization for Standardization (ISO 14024). Green Seal has developed environmental standards and certifies products for more than 40 major product categories.

UL EcoLogo - is an independent, third party standard setting and certification program that follows the Guiding Principles and Procedures for North American Type I Environmental Labeling adopted by the International Organization for Standardization (ISO 14024). Since its establishment in 1988, EcoLogo has been recognized or referenced in more than 350 specifications and standards.

Guidance:

It is recommended that affected entities prioritize green cleaning first, and only use disinfectants when necessary in cleaning procedures. For more information on best practices for green cleaning and the use of disinfectants and sanitizers, see the New York State green cleaning website at <https://greencleaning.ny.gov/bestPractice.aspx>.

Specifications:

Affected entities are encouraged to purchase disinfectants and sanitizers that meet the following specifications.

For Disinfectants (including Antimicrobial Mold & Mildew Cleaners) and Non-Food Contact Surface Sanitizers:

Products meeting the following required criteria will meet the specification:

- Must be registered by the U.S. Environmental Protection Agency (EPA) pursuant to the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) as a hard surface disinfectant or non-food-contact surface sanitizer. Antimicrobial mold and mildew cleaners must be EPA-registered as a fungicide against *Aspergillus niger* or as a mildewstat.
- Products may not contain known, suspected, reasonably anticipated, or probable human carcinogens per the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the State of California.
- Products may not contain reproductive toxins per the State of California.
- Products may not contain asthmagens per the Association of Occupational and Environmental Clinics (AOEC) (listed with a G, Rs, Rrs or Rr designation).
- Products may not contain nonyl phenol ethoxylates or other alkyl phenol ethoxylates (APEs).
- Prohibited “Active Ingredients”:
 - Chlorine Bleach (Sodium hypochlorite)
 - Hydrogen chloride (HCl)

- Phenols (e.g., Ortho-phenylphenol)
 - Pine oil
 - Quaternary ammonium chloride compounds (e.g., Benzalkonium chloride, ADBACs, DDACs)
 - Silver
 - Thyme oil
- Acceptable “Active Ingredients”: The following “Active Ingredients” have been approved by the Massachusetts Toxics Reduction Task Force:
 - Hydrogen peroxide (including Accelerated Hydrogen Peroxide)
 - Citric Acid
 - Lactic acid
 - Caprylic acid
- All concentrated surface, disinfectants and sanitizers, must be designed and packaged as a Closed Loop Dilution-Control System, that meets the following requirements:
 - No open containers are allowed. The container must have "spill-resistant packaging" that requires coupling to a specially designed device in order to dispense the product.
 - The container may not be able to be "practically accessed" during routine use. The packaging must not allow for access or exposure to the concentrated product after opening a cap or lid, or before or while connecting to the dispensing system.
 - The container must contain a backflow prevention system that meets the current American Society of Sanitary Engineering (ASSE) 1055 standard.
 - EXCEPTION: Unless it is in a portion controlled package.

Desirable Criteria:

Third-party verification by Green Seal or UL EcoLogo is encouraged but not required.

Food-Contact Surface Sanitizers:

Products meeting the following required criteria will meet the specification:

- Must be EPA (FIFRA) Registered as a Food-Contact Surface Sanitizer.
- Prohibited “Active Ingredients” include:
 - Chlorine Bleach (Sodium hypochlorite)
 - Hydrogen chloride (HCL)
 - Quaternary ammonium chloride compounds (e.g., Benzalkonium chloride, ADBACs, DDACs)
 - Silver
 - Thyme oil

- Acceptable “Active Ingredients” include:
 - Hydrogen Peroxide
 - Peroxyacetic acid
 - Lactic Acid
 - Citric Acid
 - Caprylic Acid

Desirable Criteria:

Third-party verification by Green Seal or UL EcoLogo is encouraged but not required.

Training:

All vendors that offer disinfectants and sanitizers should ensure sales staff are trained to provide responsible advice for their use. Vendor training should promote pre-cleaning with a non-disinfecting certified “green” cleaner and promote limited targeted use of disinfectants and sanitizers to reduce toxic chemical exposures and lower costs. Training should specify that hard surface disinfectants are not for use on soft surfaces such as upholstery and carpet, unless they are registered for such applications. Training should clearly identify the surfaces that need to be disinfected (such as touch points) as well as those that do not, and should reiterate the clean, then sanitize model.

Packaging:

Packaging shall comply with Environmental Conservation Law section 37-0205. Packaging shall not contain inks, dyes, pigments, adhesives, stabilizers, or any other additives to which any lead, cadmium, mercury or hexavalent chromium is intentionally added or contain incidental concentrations of lead, cadmium, mercury or hexavalent chromium which together are greater than 100 parts per million by weight (0.01%). New York State encourages affected entities to adopt the following:

- The use of bulk packaging.
- The use of reusable packaging.
- The use of innovative packaging that reduces the weight of packaging, reduces packaging waste, or utilizes packaging that is a component of the product.
- That all packaging remain the property of the supplier and not become the property of the affected state entity under any circumstance or condition. The vendor shall certify that the packaging material will be reused, recycled, or composted, and managed in compliance with applicable local, state, and federal laws.
- Packaging that maximizes recycled content and/or meets or exceeds the minimum post-consumer content level for packaging in the U.S. Environmental Protection Agency Comprehensive Procurement Guidelines.
- Packaging that is recyclable or compostable.

Furniture Specification

Covered Products:

For the purposes of this category, furniture includes but is not limited to conference furniture (includes seating and tables), dormitory furniture, general purpose tables, high density filing, household furniture, library furniture, office furniture (includes bookcases, casegoods, lounge, seating, and tables), school furniture (includes cafeteria tables), specialty seating, systems furniture and other similar items that conform to the specifications.

Goal:

To set minimum environmental goals for the purchase of furniture while considering surplus furniture, refurbished furniture, varied materials and recycling.

Background:

Furniture can impact the environment and create health concerns for building occupants due to emissions from glues, stains and finishes; and chemicals added to products. Also, excess packaging can introduce environmental impacts and furniture may vary in the amount of recycled content incorporated into the product. Some companies have recognized this and have changed to eco-friendly manufacturing processes and materials. New York State should use its purchasing power to support and foster further development of this activity.

Definitions:

Post-consumer Recycled Content - is defined as waste material 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.

Pre-consumer Recycled Content - is defined as material 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.

Flame Retardant Chemicals - Any chemical or chemical compound for which a functional use is to resist or inhibit the spread of fire. Flame retardant chemicals include, but are not limited to, halogenated, phosphorous-based, nitrogen-based, and nanoscale flame retardants, and any chemical or chemical compound for which "flame retardant" appears on the substance Safety Data Sheet (SDS) pursuant to Section 1910.1200(g) of Title 29 of the Code of Federal Regulations.

Halogenated Flame Retardant Chemical (also known as organohalogen flame retardant) - Any chemical or chemical compound containing chlorine or bromine bonded to carbon for which a functional use is to resist or inhibit the spread of fire. This includes any chemical or chemical compound containing chlorine or bromine bonded to carbon for which "flame retardant" appears on the substance Safety Data Sheet (SDS) pursuant to Section 1910.1200(g) of Title 29 of the Code of Federal Regulations.

Standard Setting and Certification Programs:

The Cradle to Cradle Certified Products Standard - is a multi-attribute eco-label that evaluates a wide range of products across five categories of human and environmental health. The standard includes material health, material reutilization, renewable energy and carbon management, and water stewardship. For more information visit the Cradle to Cradle Products Innovation Institute at <http://www.c2ccertified.org/> .

Forest Stewardship Council (FSC) - has developed a set of Principles and Criteria for forest management that is applicable to all FSC-certified forests throughout the world. There are 10 Principles and 57 Criteria that address legal issues, indigenous rights, labor rights, multiple benefits, and environmental impacts surrounding forest management. For more information visit the FSC website at: www.fscus.org.

Greenguard Certification - Greenguard Certification is part of UL Environment, a business unit of UL (Underwriters Laboratories). Greenguard Certification helps manufacturers create--and helps buyers identify--interior products and materials that have low chemical emissions, improving the quality of the air in which the products are used. For more information visit the Greenguard Certification website at www.greenguard.org.

BIFMA's Level Certification Program- This certification is based on the ANSI/BIFMA e3-2012 standard, co-developed by a multi-stakeholder group of manufacturers, government representatives, nonprofits, architects and others, and coordinated by BIFMA, the furniture industry trade association. The Level certification indicates that a product and its manufacturer meet the criteria of the e3 standard and have been certified by an independent third party. For more information visit the Level website at <http://levelcertified.org/> .

National Fire Protection Association (NFPA) - is an international nonprofit established to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training, and education. For more information visit the NFPA website at www.nfpa.org.

SCS Indoor Advantage and Indoor Advantage Gold - This is a certification program run by Scientific Certification Systems (SCS). It addresses the chemical emissions of furniture that affect indoor air quality. Certification to this standard means that the product meets the requirements of the BIFMA X7.1 VOC emissions standard, using the M7.1 testing protocol. For more information visit the SCS Indoor Advantage website at <https://www.scsglobalservices.com/indoor-air-quality-certification> .

Sustainable Forestry Initiative (SFI) - is a chain-of-custody certification that tracks fiber content from certified lands and responsible fiber sourcing through production and manufacturing to the end product. To be certified, companies must be audited to SFI Requirements. Through SFI chain-of-custody certification, a company can identify how much certified, responsible sourcing and/or recycled content is in a product. Chain-of-custody is verified by an independent third-party certification audit. For more information visit the SFI website at: www.sfiprogram.org.

Technical Bulletin 117-2013 – The intent of this California standard is to produce upholstered furniture which is safer from the hazards associated with smoldering ignition. This standard provides

methods for smolder resistance of cover fabrics, barrier materials, resilient filling materials, and decking materials for use in upholstered furniture. For more information visit California's Department of Consumer Affairs website at <http://www.bearhfti.ca.gov/industry/bulletin.shtml> .

Technical Bulletin 133 - This California flammability test procedure is designed to test seating furniture for use in occupancies that are identified as or considered to be public occupancies. For more information visit California's Department of Consumer Affairs website at <http://www.bearhfti.ca.gov/industry/bulletin.shtml> .

Specifications:

Surplus Furniture:

Affected entities are encouraged to consider surplus property before purchasing furniture from other sources. NY State Finance Law Article 11 § 167 regarding surplus property requires NYS Office of General Services to redistribute furniture that it receives as surplus, before utilizing take-back, recycling, or other options for disposition of any units that are still in operable condition. This standard requires donation of usable equipment to other state agencies, education institutions and municipalities, prior to declaration of equipment as surplus or waste. Guidelines for registering for and handling surplus property can be found at: <http://www.ogs.ny.gov/BU/SS/State/SA.asp>.

Refurbished Furniture:

Entities are encouraged to consider refurbished furniture to the maximum extent practicable without jeopardizing the performance or intended end use of the product. Refurbished or remanufactured furniture is required to be restored to original performance standards and functions, meeting the requirements of this specification to the extent possible.

New Furniture:

If it is determined that new furniture needs to be purchased, the following requirements shall be met.

Materials

Furniture can be made of many materials including wood, plastic, plastic composite, aluminum and steel. Per the criteria outlined below, affected entities shall purchase furniture products that are either High Recycled Content, Sustainably Sourced, or Low Emitting.

- High Recycled Content – To be meet High Recycled Content, contractors shall certify in writing the minimum percentage, if not the exact percentage, of total recycled content, as well as the amount of post-consumer and pre-consumer recycled content present in the product. Furniture shall:
 - contain at least 20% post-consumer recycled or remanufactured content by weight OR
 - contain at least 40% total recycled content by weight OR
 - be BIFMA Level Certified at level 1, 2 or 3, with Scorecard provided that shows at least one point for Credit 5.7, Recycled Content.

- Sustainably Sourced – To be considered sustainably sourced the furniture product must be at least 30% wood by weight. All wood shall meet the following criteria. Wood-based materials shall be originally sourced from forestlands participating in an acceptable system or program which certifies sustainable forest management, as determined by the Commissioner of the Department of Environmental Conservation, or his/her designee. Acceptable systems or programs must include the following.
 - adherence to management practices which conserve biological diversity, maintain productive capacity of forest ecosystems, maintain forest ecosystem health and vitality, conserve and maintain soil and water resources, and maintain forest contribution to global carbon cycles;
 - independent third party auditing that monitors, measures and reports compliance with system or program principles and guidelines; and
 - documentation verifying that the wood-based products used have been obtained from lands enrolled under or participating in an acceptable certification system or program. Examples of approved certification organizations are FSC and SFI.

- Low Emitting - Many adhesives, paints and finishes used in, and on, furniture release volatile organic compounds (VOCs), which can be hazardous to human health. To promote healthy indoor air quality, Low Emitting furniture shall be:
 - GREENGUARD or GREENGUARD Gold Certified OR
 - SCS Indoor Advantage or Indoor Advantage Gold Certified OR
 - Cradle to Cradle (C2C) Gold or Platinum Certified (or achieve Gold or Platinum status under the C2C Material Health category) OR
 - BIFMA Level Certified at level 1, 2 or 3, with Scorecard provided that shows at least one point for Credit 7.6, Low Emitting Furniture.

Disassembly and Recyclable Materials – Purchasers are encouraged to request information on the disassembly and the amount of material in the furniture that can be recycled.

Chemical Content

All new furniture shall not contain:

- Polyvinyl chloride (PVC)
- Phthalates
- Lead
- polybrominated diphenyl ethers (PBDEs)
- Stain resistant treatments that contain fluorinated compounds
- Formaldehyde in excess of 50 parts per billion (ppb)
- Added antimicrobial finishes

Entities may also request specific chemical information and may make a comparison between manufacturers based on the amounts of the following chemicals of concern that are in the products: 1,2-Dichloroethane, 2,2 bis(Bromoethyl) 1,3 propanediol, 4-Bromophenyl phenyl ether, Acenaphthene, Acenaphthylene, Acetaldehyde, Benzo (g,h,i) perylene, Carbon tetrachloride, Chloroprene, Di(2-ethylhexyl) phthalate (DEHP), Ethylene dichloride (1,2 Dichloroethane),

Fluorene, Formaldehyde gas, PBDEs (Octa, penta and deca), Pentachlorobenzene, PFOS and PFOA, Phenanthrene, Polybrominated biphenyls (PBBs), Polycyclic aromatic hydrocarbons (PAHs), Propylene oxide, Pyrene, Silica, Crystalline (respirable size), Toluene Diisocyanate and Tris (2,3 Dibromopropyl) phosphate.

Flame Retardants

All textiles shall meet the flammability requirements of NFPA 260 latest update when tested in accordance with the methods of that standard.

Purchasers shall consult with applicable fire codes and agency policies to determine whether the furniture purchase needs to comply with California Technical Bulletin 117-2013 (TB 117-2013) or California Technical Bulletin 133 (TB 133).

To the extent that applicable fire codes and agency policies allow, agencies shall purchase furniture that complies with TB 117-2013. For furniture compliant with TB 117-2013, furniture shall be free of intentionally added flame retardant chemicals, excluding electrical components. Purchasers are encouraged to avoid products with electrical components that contain intentionally added halogenated flame retardant chemicals.

Furniture complying with TB 133 shall only be purchased when specifically required by applicable fire codes or agency policy. For furniture compliant with TB 133, purchasers are encouraged to avoid products with intentionally added halogenated flame retardant chemicals. Also, when purchasing furniture compliant with TB 133 it is encouraged to have the manufacturer identify which components of the furniture contain added flame retardant chemicals and which added flame retardant chemicals are used.

New York Environmental Conservation Law §37-0111 recognizes that brominated flame retardants constitute substances hazardous to the environment, and prohibits any person to manufacture, process or distribute in commerce a product, or a flame-retardant part of a product, containing more than one-tenth of one per centum of pentabrominated diphenyl ether (pentaPBDE) or octabrominated diphenyl ether (octaPBDE), by mass. These flame retardants shall not be present in furniture in concentrations greater than those specified in New York Environmental Conservation Law §37-0111.

Packaging:

Packaging shall comply with Environmental Conservation Law section 37-0205. Packaging shall not contain inks, dyes, pigments, adhesives, stabilizers, or any other additives to which any lead, cadmium, mercury or hexavalent chromium is intentionally added or contain incidental concentrations of lead, cadmium, mercury or hexavalent chromium which together are greater than 100 parts per million by weight (0.01%).

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