



LEED 2009 for Existing Buildings: Operations & Maintenance

MR CREDIT 4: SUSTAINABLE PURCHASING REDUCED MERCURY IN LAMPS

Project #

All fields and uploads are required unless otherwise noted.

THRESHOLD ATTEMPTED

Points Attempted: 1

ALL OPTIONS

Refer to the project's Environmentally Preferable Purchasing Policy from MR Prerequisite 1, as this document establishes the goals and practices that lead to achievement of this credit.

Performance period start: Apr 1, 2012

Performance period end: Jul 31, 2012

During the performance period, the project team implemented a lighting purchasing plan that specifies maximum levels of mercury permitted in mercury-containing lamps (plus high-efficiency mercury-free counterparts) purchased for the building and associated grounds. The plan meets the following requirements:

- ☒ The plan specifies a target of 90 picograms per lumen-hour or less for the overall average of mercury content in such lamps.
- ☒ The plan includes lamps for both indoor and outdoor fixtures, as well as both hard-wired (built-in) and portable fixtures.
- ☒ The plan requires that at least 90% of all such lamps purchased for the project building and associated grounds (as measured by the number of lamps) comply with the overall average mercury content target.

The rated technical specifications for all lamp data entered in Tables MRc4-1 and MRc4-2 below conform to the following industry standard criteria:

- ☒ Life of bulb: 3 hours on/20 minutes off for fluorescent bulbs; 11 hours on for HID lamps.
- ☒ Light output of bulb: fluorescent bulbs measured with an instant-start ballast having a ballast factor of 1.0 (exception: T-5 bulbs are measured using program-start ballasts), as measured at 40% of bulb life.
- ☒ Mercury content of bulb: if the manufacturer or supplier documentation shows a range in milligrams, the project team used the highest value in the range.

- ☒ The number of mercury-containing lamps (or high-efficiency mercury-free counterparts) entered in the table below and in the associated purchasing plan includes all screw-based, integral compact fluorescent lamps presently installed in the project building and associated grounds, except those that comply with the voluntary guidelines for maximum mercury content, published by the National Electrical Manufacturers Association (NEMA), as described on the NEMA web site (www.nema.org/gov/ehs/committees/lamps).

Total number of mercury-containing lamps (plus high-efficiency mercury-free counterparts) presently installed in the project building and on the associated grounds:

3,675 lamps

Table MRc4-1. Lamp Purchasing Plan

Fill out the table below using the data in the purchasing plan. Include at least 90% of the lamps claimed above.

Bulb General Type	Bulb Specific Description or Code	Quantity of Specific Bulb Type	Mercury Content per Bulb ¹ (mg)	Total Mercury Content per Bulb Type (mg)	Mean Light Output per Bulb (lumens)	Rated Life per Bulb (hrs)	Total Lumen Hours per Bulb Type	Picograms/Lumen-Hour per Bulb Type
Regular fluorescent ▾	Philips 4 ft. 2	3,485	1.7	5,924.5	2,950	36,000	370,107,000	16.01
Regular fluorescent ▾	Philips F25T	28	1.7	47.6	2,050	20,000	1,148,000,00	41.46
CFL - Other ▾	Philips PL-T	106	4.4	466.4	3,300	20,000	6,996,000,00	66.67
CFL - Other ▾	Philips 32W	2	3	6	2,535	20,000	101,400,000	59.17
CFL - Other ▾	Philips 26W	8	1.4	11.2	1,800	10,000	144,000,000	77.78
CFL - Other ▾	Philips PL-C	46	1.4	64.4	1,545	10,000	710,700,000	90.61
HID ▾	Philips C15	16	3.4	54.4	14,400	24,000	5,529,600,00	9.84
CFL-integral screw-in ▾	Philips 20w	23	2.64	60.72	1,200	15,000	414,000,000	146.67
Totals				6,635.22			385,150,700	508.21
Percentage of total installed lamps (%) (must be at least 90%)								101.06
Building average (picograms/lumen-hr) (must be less than or equal to 90)								17.23

Notes:

¹ Successfully completing the picogram per lumen hour calculations requires information about the mercury content in milligrams per bulb for each type of mercury-containing bulb in the building. This information should be obtained from MSDSs or other public literature from the manufacturer, or by directly contacting the manufacturer/vendor and requesting a written statement reporting mercury content values. Mercury values generated by TCLP (Toxicity Characteristic Leaching Procedure) tests are measured in mg per liter of test solution, and do not reflect total mercury content or mercury concentration in the bulb, and therefore are not appropriate for use in the LEED-EB: O&M calculations. These values cannot be converted to total mercury content through calculations. Only the following ranges of values for mercury content are valid in the table above: less than 0.001 mg, or between 0.5 mg and 300 mg.

Select one of the following:

- ☐ Compact fluorescent lamps were excluded in the table above because of NEMA compliance.
- ☒ No compact fluorescent lamps were excluded.

Select one of the following:

- ☐ Mercury-free lamps were included in the table above.
- ☒ Mercury-free lamps were not included in the table above.

Table MRc4-2. Performance Period Lamp Purchasing

Fill out the table below with lamp purchases made during the performance period.

Bulb General Type	Bulb Specific Description or Code	Quantity of Specific Bulb Type	Mercury Content per Bulb ¹ (mg)	Total Mercury Content per Bulb Type (mg)	Mean Light Output Per Bulb (lumens)	Rated Life Per Bulb (hrs)	Total Lumen Hours per Bulb Type	Picograms/ Lumen-Hour per Bulb Type
Regular fluorescent ▼	Philips 4 ft. 3" T8	75	1.7	127.5	2,710	24,000	4,878,000,00	26.14
HID ▼	Philips C150H	4	3.4	13.6	14,400	24,000	1,382,400,00	9.84
CFL - Other ▼	Philips 26W U	6	1.4	8.4	1,800	10,000	108,000,000	77.78
CFL-integral screw-in ▼	Philips 20w U	6	2.64	15.84	1,200	15,000	108,000,000	146.67
Totals				165.34			6,476,400,00	260.43
Building average (picograms/lumen-hr) (must be less than or equal to 90)								25.53

+	-
+	-
+	-
+	-

Notes:

¹ Successfully completing the picogram per lumen hour calculations requires information about the mercury content in milligrams per bulb for each type of mercury-containing bulb in the building. This information should be obtained from MSDSs or other public literature from the manufacturer, or by directly contacting the manufacturer/vendor and requesting a written statement reporting mercury content values. Mercury values generated by TCLP (Toxicity Characteristic Leaching Procedure) tests are measured in mg per liter of test solution, and do not reflect total mercury content or mercury concentration in the bulb, and therefore are not appropriate for use in the LEED-EB: O&M calculations. These values cannot be converted to total mercury content through calculations. Only the following ranges of values for mercury content are valid in table above: less than 0.001 mg, or between 0.5 mg and 300 mg.

The lamp purchases listed above include:

- ☒ All mercury-containing lamps (or high-efficiency mercury-free counterparts) listed in the purchasing plan that were purchased for the project building and associated grounds during the performance period.
- ☒ All screw-based, integral compact fluorescent lamps purchased during the performance period, except those that comply with the voluntary guidelines for maximum mercury content published by the National Electrical Manufacturers Association (NEMA), as described on the NEMA website.

Upload MRc4-3. Provide cut sheets or similar supporting documentation from product manufacturers or suppliers that verify either of the following:

Upload

Files: 1

1. Rated picogram/lumen-hour.
2. Rated mercury content, lumen output, and lamp life.

- ☒ The uploaded documentation covers at least 20% of the number of lamps listed in Table MRc4-2. Performance Period Lamp Purchasing above. Documentation is also provided for lamps that individually have a mercury performance of 90 picograms/lumen-hour or less (e.g., If 100 lamps are reported in the table, manufacturer documentation must be provided representing at least 20 of those lamps which individually perform at 90 picograms/lumen-hour or less).

TENANT INFORMATION

Select one of the following:

- ☐ The project building is a single management/control building, pursuing no tenant-related exemptions and needs no tenant-related special calculations.
- ☒ The project building is a multi-tenant building.

The content highlighted in yellow above is linked to MRc1-9, EQc1.2, & IEQc3.2-3.4.

MULTI-TENANT BUILDING

Select one of the following:

- ☒ **Whole Building:** The entries in Table MRc4-1 Lamp Purchasing Plan and MRc4-2 Performance Period Lamp Purchasing are based on the actual bulb data for the entire project building and the associated grounds over the performance period. All tenants provided actual totals to the project team.
- ☐ **Exempted Floor Area:** Because of the occupancy/management composition of the project building, the project team is exempting up to 10% of the floor area for this credit. The above declarations pertaining to bulb data are based on actual data collected for the remaining spaces and associated grounds over the performance period. For these spaces, all tenants have provided actual data to the project team.

ADDITIONAL DETAILS

- ☐ Special circumstances preclude documentation of credit compliance with the submittal requirements outlined in this form.
- ☐ The project team is using an alternative compliance approach in lieu of standard submittal paths and/or documentation.

SUMMARY

MR Credit 4: Sustainable Purchasing - Reduced Mercury in Lamps Points Documented:

0

Check Compliance

MR Credit 4: Sustainable Purchasing - Reduced Mercury in Lamps Exemplary Performance Points Documented:

N

- ☒ The project team reserves one point in the Innovation in Operations credit category for exemplary performance in MR Credit 4.