



Guidance Document

CBPS 037

Published Date: 5/29/2025

Subject: Energy Management Plan and
Operations and Maintenance Guidance

Intended Audience: Building owner, Authorized
Representative, and General Public

Purpose: This document can be used to assist building owners in developing and implementing the energy management plan and operations and maintenance program.

Reference: [Clean Buildings Performance Standard](#)

Tier 1 Compliance Dates

June 1, 2026

- Greater than 220,000 sq. ft.

June 1, 2027

- Greater than 90,000 sq. ft. but less than 220,001 sq. ft.

June 1, 2028

- Greater than 50,000 sq. ft. but less than 90,001 sq. ft.

Tier 2 Compliance Date

July 1, 2027

- Greater than 20,000 sq. ft. but less than 50,001 sq. ft.
- Includes all multifamily greater than 20,000 sq. ft.

Background

The energy management plan (EMP) is a living document that outlines an organization's goals for their building's energy performance, tracks actual energy use of the building, reports historical energy use intensity (EUI) metrics compared to the building's energy use intensity target (EUI_t) and incorporates operations and maintenance (O&M) protocols to ensure the building is operating as efficiently as possible. As a living document, this report will change with the building. Goals may need to be adjusted; energy use fluctuates and priorities in energy management and capital planning may shift in time. Updates to an organization's EMP must account for these changes year to year.

At its core, the EMP should include steps the organization takes, or plans to take, to improve energy efficiency and indoor environmental quality, including:



Tracking Energy Use: Collect energy meter data and track the building's EUI using ENERGY STAR Portfolio Manager. Tracking energy use over time will establish a baseline understanding of a building's energy performance, compare the building's performance to its CBPS target and inform decision-making regarding energy use and potential investment in energy efficiency improvements.



Documenting Energy Audits & EEMs (as applicable): If the organization has commissioned an energy audit of their building, the results of the audit should be incorporated into the EMP, along with a strategy to implement energy efficiency measures (EEMs) and track, to date, what measures have been implemented in order to bring the building into compliance with the Clean Buildings Performance Standard (CBPS).



Developing and Implementing O&M Considerations: O&M requirements are intended to standardize energy related operation and maintenance practices for buildings complying with the CBPS. A successful O&M program should set responsibilities for individuals operating and maintaining building systems, inventory a building's energy-using equipment, list inspection and preventive maintenance requirements for each inventoried system or equipment and inform capital management planning for equipment that is nearing the end of its useful life. Additionally, the EMP should identify a training plan for O&M staff, focused on how to operate the building systems to optimize efficiency without compromising indoor environmental quality or system function.



Identifying Communication Responsibilities: The EMP also includes requirements for communication with occupants of the building. The EMP should be a public facing report, provided to or made available to building occupants and stakeholders on an annual basis. The EMP should include examples of communication efforts made to educate occupants about the benefits of energy-efficient building operation and steps they can take to ensure the efficient operation of systems they have access to, such as operable windows, HVAC thermostats and lighting controls.

How to Use

This document should serve as a guide for users developing their EMP and O&M program. The first section outlines specific roles and responsibilities and how they relate to energy management and operations and maintenance. The second portion of this document provides a reference to each EMP (Section 5) and O&M program (Section 6 & Normative Annex L) requirement from the standard with a description of the requirement's intent and expectation for meeting compliance.

EMP and O&M Compliance Requirements

4.2.1 Operations and Maintenance. The **building manager** shall comply with the operations and maintenance (O&M) requirements of Section 6.

4.2.1.1 For Tier 1 covered buildings, the **qualified person** determining compliance shall state in writing on Form A that the operating and maintenance requirements of Section 6 have been met.

4.2.1.2 For Tier 2 covered buildings, the **qualified energy manager** submitting compliance documents shall state in writing on Form A that the operating and maintenance requirements of Section 6 have been met.

4.2.1.3 For *grouped buildings*, the **qualified person** determining compliance shall state in writing on Form J, that the operating and maintenance requirements of Section 6 have been met:

4.2.2 Energy Management Plan. The **building manager** shall comply with the energy management plan (EMP) requirements of Section 5.

4.2.2.1 For Tier 1 covered buildings, the **qualified person** determining compliance shall state in writing on Form A that the EMP described in Section 5 has been developed and is being maintained as of the date on Form A.

4.2.1.2 For Tier 2 covered buildings, the **qualified energy manager** submitting compliance documents shall state in writing on Form A that the EMP described in Section 5 has been developed and is being maintained as of the date on Form A.

4.2.2.3 For *grouped buildings*, the **qualified person** determining compliance shall state in writing on Form J, that the EMP described in Section 5 has been developed and is being maintained as of the date on Form J.



EMP AND O&M ROLES AND RESPONSIBILITIES

Energy Manager

The person designated by the building owner to develop, implement and maintain the energy management plan.

Building Manager

The person responsible for maintaining the building, its envelope, and its energy-using systems. The building manager may also be the person responsible for expending funds on capital improvements to the building.

Qualified Person

Responsible for reviewing the EMP and O&M program prior to submitting a building's compliance application. They must state in writing on Form A (Form J for grouped compliance) that the EMP and O&M requirements have been met as of the date on the compliance submission.

Qualified Energy Manager

(Tier 2 Buildings only) Responsible for reviewing the EMP and O&M program prior to submitting a building's compliance application. They must state in writing on Form A that the EMP and O&M requirements have been met as of the date on the compliance submission.

O&M Staff

Maintain building systems to ensure optimal performance.
Implement the preventive maintenance tasks outlined in the O&M program.

Building Owner

Review the energy management plan and sign the document annually.

5.1 Establish the Energy Management Plan	Intent/Expectations
5.1 An Energy Management Plan has been established and maintained in accordance with the standard.	Buildings subject to the standard, must develop and implement an EMP that includes provisions for capital management of aging assets and an O&M program to help maintain the building and its systems. The EMP has interrelated requirements that are connected to other aspects of the CBPS. Detailed requirements for the EMP are described in Section 5 of the standard (outlined here) with specific compliance requirements outlined in Section 4.2.2 (outlined above). In addition to the basic requirements outlined within Section 5, the EMP should set goals for energy efficiency and develop strategies for an organization to achieve those goals through active energy management and capital project planning. Energy efficiency goals should tie into performance objectives within the building's O&M program.
5.1.1 The <i>building owner</i> has designated an <i>energy manager (EM)</i> to develop and <i>maintain an energy management plan</i> for the <i>building</i>.	Energy Manager (EM) The individual, identified by the building owner, who is responsible for ensuring that energy use in the building is minimized without compromising the indoor environmental quality (building indoor air quality, thermal comfort, visual acuity and comfort, sound quality). The EM may be the building owner, a tenant, an employee of the owner or tenant, or a contractor retained by the owner or tenant. Some of their responsibilities: • Develop, implement and maintain the EMP • Verify compliance with the EUI • Ensure tenant improvements do not increase net energy use inconsistent with space type • Create, maintain and report ENERGY STAR Portfolio Manager (ESPM) benchmarking data • Conduct technical, policy-related planning related to energy efficiency • Purchase energy for spaces under their control • Handle public relations matters related to energy • Implement results of energy audits and EEMs • Evaluate energy efficiency of proposed new construction, facility expansion, remodeling, or new equipment purchases • Review building O&M procedures for optimal energy management • Adhere to energy codes and standards • Report regularly to management and other stakeholders • Develop and implement an energy efficiency plan according to section 9.1 • Sign Form A when submitting CBPS compliance application
5.1.2.1 If applicable, energy accounting has been submitted in accordance with Section 5.2	Track energy use for the building with ESPM in accordance with Section 5.2 of the CBPS. The designated Energy Manager is responsible for monitoring the building's energy use and working with the building's utility(ies) to ensure meter data is regularly provided and accurate.  Benchmarking resources: Commerce's Benchmarking Guidance: CBPS Benchmarking guidance document ESPM's webpage: https://www.energystar.gov/buildings/benchmark

5.1 Establish the Energy Management Plan	Intent/Expectations
5.1.2.2 WNEUI and EUI from the initial year of compliance for building.	This section of the EMP should provide a snapshot of the building's annual energy use metrics, summarizing annual performance over time.
5.1.2.3 Documented annual updates of net energy use, WNEUI and EUI.	Tables and/or graphs can be a great way to illustrate energy use year to year compared to the building's EUI.
5.1.2.4 Documented annual comparison of the net WNEUI and EUI to the energy target.	 Metrics must include: • annual updates of the building's net energy use • annual updates of the site EUI and WNEUI including the initial compliance year • If applicable, the building's EUI as calculated on Form B of the CBPS compliance application or, for Tier 2 buildings without targets, the National Median site EUI for the property as reported in ESPM Some exceptions may apply: • Non-target buildings as defined within the standard, do not need to document an EUI. • Buildings complying through the investment criteria w/o a measurable EUI do not need to provide WNEUI/EUI metrics, though it may still be valuable to track energy use using the building's current metering configuration.
5.1.2.5 Documentation of original, current and changes in the number of occupants, weekly operating hours, or time of day schedule for occupancy, production rates and energy using equipment that would have caused a change in the measured WNEUI and EUI.	Changes in building occupancy, weekly operating hours or time of day scheduling can impact a building's energy use. The EMP must track any changes to these numbers, monitor the impact of those changes and note if they affected the building's measured WNEUI and EUI. Document baseline occupancy numbers and time of day schedules that correlate directly with the annual EUI metrics tracking in Sections 5.1.2.2 through 5.1.2.5 and adjust as changes occur year to year.  Be sure that the building's current weekly operating hours align directly with the average weekly operating hours selected for the building on Form B.
5.1.2.6: If applicable, recommended <i>energy efficiency measures</i> (EEMs) were identified in the energy audit report(s) for this <i>building</i> .	The standard does not require energy audits for every building, but when an energy audit is performed, the EMP must include a copy of the energy audit report and documentation of the recommended energy efficiency measures (EEMs). The standard does not dictate format for this documentation. The audit report with recommended EEMs may be an appendix of the document, or the EMP itself may list recommended EEMs and summarize the results of the energy audit. Additionally, when energy audits are required through conditional compliance or the investment criteria the results of the audit shall be documented and reported to Commerce using Form D (Z6.4.1). Form D can be used to document identified EEMs within in the EMP.
5.1.2.7: If applicable, EEMs were implemented to ensure compliance with the standard. Include a list of EEMs that have been implemented and	If applicable, the EMP must include a list of all EEMs implemented to ensure the building's compliance with the standard, along with the dates of EEM implementation. The O&M program must be updated accordingly to account for each of the newly implemented EEMs.

5.1 Establish the Energy Management Plan	Intent/Expectations
dates of implementation, including the following: 1. An operations and maintenance (O&M) program as defined in Section 6 for the EEMs 2. An implementation plan for EEMs, including EEM commissioning 3. Staff training plan for EEMs 4. Ongoing commissioning plans for the EEMs	 These O&M updates must include: • An implementation plan that includes commissioning of the new system(s) or equipment • Updated staff training plan to ensure proper operation and management of the new EEMs • Ongoing EEM commissioning plans for the new EEMs.
5.1.2.8: Method developed to inform occupants about the benefits of efficient energy use and to instruct them in the use and adjustment of operable windows, HVAC system controls, and lighting system components and controls. This shall include materials (electronic or printed) as appropriate.	Building occupants can play an important role in energy management, as their habits can directly affect the operation of building systems. In buildings with occupant-controlled lighting, thermostats or operable windows, it's important that the Energy Manager (EM) inform and educate occupants about the benefits of using these systems and other plug load equipment efficiently.  The EMP requires that the EM document these efforts, providing a narrative as to how they inform their building's occupants about the benefits of efficient energy use, with clear instructions for using and adjusting operable windows, HVAC system controls (thermostats) and lighting system components and controls. Include in the EMP, examples of informational materials provided to occupants. For example, the EM might post informational or instructional materials by operable light switches or thermostats or post information in communal break rooms/cafeterias. Alternatively, a memo or guide might be distributed annually to the building occupants in electronic or printed form.
5.1.2.9: Training plan developed for the O&M personnel to operate the building systems to achieve established indoor environmental targets with optimum energy efficiency.	Staff that operate and maintain building systems are critical to ensuring efficient building operation. Technology and building systems are ever changing, and because of this, it's important for staff to stay up to date with the latest preventive maintenance strategies and operating procedures for their particular building(s). The O&M program must include an energy-related training plan focusing on how to operate building systems to optimize energy efficiency while still maintaining indoor environmental quality and system functionality. The training plan must be developed specifically for staff responsible for building operations and maintenance, which includes but is not limited to the building operator and maintenance personnel. While the training plan is the responsibility of the Energy Manager, training may be provided in-house by other qualified personnel, through equipment and systems manufacturers, building efficiency training and/or certification programs, or other relevant training resources. Evaluate training opportunities annually and document and incorporate training strategies into the EMP documentation.

5.1 Establish the Energy Management Plan	Intent/Expectations
5.1.2.10: Capital management plan identifies equipment for replacement with energy efficient and ENERGY STAR rated equipment in case of failure.	A capital management plan is a mechanism for building owners to better understand their building's future operational needs and help with planning and budgeting for the eventual replacement of equipment. Capital management planning can help with facility management, financial planning, risk management and improved building efficiency. capital management plan: a financial plan to set aside capital to replace or upgrade <i>building</i> systems at the end of their <i>useful life</i> and/or to improve performance and energy efficiency. The plans can assist owners in forecasting their asset management, to help with replacement scheduling to avoid emergency situations and to better predict upcoming capital investment needs to allow for appropriate fund acquisition. A good capital management plan will outline immediate building needs and identify necessary capital investments which can be scheduled for later, as time and funding allows. The standard requires that replacement equipment identified in your capital management plan be ENERGY STAR certified, <u>where applicable</u>, and conform to the most stringent of federal and local building codes and standards. The capital management plan is directly tied to the implementation of the Operations and Maintenance program. A well-developed O&M program will identify building systems that may be underperforming or nearing the end of their useful life. For example, a routine maintenance inspection may identify unacceptable <i>condition indicators</i> for a piece of equipment or system, the issue gets logged and triggers a repair or workorder request to remedy the findings. If that equipment continues to perform poorly or is determined to be nearing its end of useful life, the organization can then move the equipment into their capital management plan and start planning and budgeting for more substantial repairs or full replacement of the asset.  For building owners submitting CBPS conditional compliance applications, it's important to note that any Energy Efficiency Measures (EEMs) targeted for delayed implementation, should be included in the EMP's Capital Management Plan with a scheduled date of replacement.
5.1.2.11: A contact list of suppliers and manufacturer's local representatives of energy efficient equipment, <i>qualified energy auditor</i>, the <i>energy manager</i>, and the <i>building owner</i>.	The EMP document must contain a list of readily accessible contacts for qualified personnel including the energy manager, the building owner or their representative, the qualified person or qualified energy auditors who have current expertise at hand when information is needed specific to ensuring energy efficiency in the building. Additionally, the contact list should include equipment suppliers and local suppliers of energy efficient equipment relevant to the building. This list should include individual names, company name/affiliation, and a means of contact – i.e. phone number, email address, etc.
5.1.2.12: Current lighting schedule and the calculated lighting power density, along with the potential savings from	Upgrading a building's lighting can be a cost-effective EEM that should be considered when looking to improve building energy efficiency. If a building's lighting has not been

5.1 Establish the Energy Management Plan	Intent/Expectations
any potential EEMs. A lighting schedule is not required for buildings that meet their EUI or have implemented a lighting upgrade through a utility program within the previous five years.	upgraded in the last five years or the building is not meeting its EUI, a lighting schedule is required to be included in the EMP. This requirement expands on a basic lighting inventory to include a schedule with calculated lighting power density and an evaluation of potential savings associated with lighting upgrades. Lighting schedules consider lamp wattage, operating schedule, quantity and control strategies. Most utility providers will provide incentives, tools and technical assistance for lighting EEMs. A lighting schedule template is available from the Smart Buildings Center: Lighting-Survey-Table_Published-V02-2.xlsm (live.com)
5.1.2.13: Current lighting satisfaction survey and lighting checklist as described in Appendix D of <i>Performance Measurement Protocols for Commercial Buildings</i> or as approved by the AHJ. A lighting satisfaction survey is not required for buildings that meet their EUI or have implemented a lighting upgrade through a utility program within the previous five years.	A lighting satisfaction survey can be useful in identifying opportunities for improved occupant comfort and more energy efficient lighting strategies. If a building's lighting has not been upgraded in the last five years or the building is not meeting its EUI, a lighting satisfaction survey is required to be included in the EMP. A lighting satisfaction survey template can be obtained from the Smart Buildings Center: Lighting-Survey-Table_Published-V02-2.xlsm (live.com)
5.1.2.14: Operations and maintenance (O&M) program developed in accordance with Section 6 and implemented as specified in Normative Annex L.	The O&M program is an element of the EMP. Please refer to Section 6, Normative Annex L and Informative Annex D for program requirements and development details. More detailed guidance specific to the O&M program can be found later in this document.
5.1.3: The <i>Energy Manager</i> has provided access to the energy management plan for <i>building</i> occupants and other stakeholders on an annual basis.	The Energy Manager must provide access to the EMP for building occupants and other stakeholders annually. For example, a memo or guide might be distributed annually to the building occupants in electronic or printed form, with the EMP linked or attached, or the document may be made available on an organization's website or SharePoint site.
5.1.4: The <i>building owner</i> has reviewed and signed the energy management plan annually.	Develop a process for the building owner or their authorized representative to review and sign an updated EMP annually and provide documentation of the building owner signature within the EMP.
5.2: The <i>building's net energy use</i> is monitored and recorded in accordance with Section 5.2.	Section 5.2 outlines the net energy use concept for compliance with the CBPS. Be sure your building is utilizing ENERGY STAR Portfolio Manager to track the building's net energy use in accordance with section 5.2. CBPS Energy use and EUI reporting are accomplished through Form C in the Clean Buildings portal, and annual updates are highlighted within the EMP document as required in Sections 5.1.2.2-5.1.2.4.

5.1 Establish the Energy Management Plan	Intent/Expectations
5.3: As applicable, the <i>energy manager</i> has fulfilled their roles as outlined in Section 5.3.	Section 5.3 outlines the energy manager’s role and responsibilities. Note: The Building Owner themselves may fulfill this role.

Operations and Maintenance Program

The O&M program requirements were designed to standardize energy-related O&M practices for buildings seeking compliance with the CBPS. The goal of these requirements is to ensure the energy efficient operation of building systems and components throughout their service lives.

Like the EMP, the O&M program documentation will change with the building and its systems. Changes in equipment or building operations will require updates to maintenance tasks and frequencies and must be reflected in the O&M document. In many instances, building owners already have some form of O&M procedures or preventive maintenance practices in place. In these cases, existing plans/procedures can be reviewed and or updated to meet the requirements outlined in the CBPS.

6.0 Operations and Maintenance Requirements

Intent/Expectations

6.1 Scope. Section 6 applies to the *building* envelope, *building* systems, and *building* equipment that directly or indirectly consume energy.

The O&M program must cover systems that impact energy efficiency in the building. This includes, but is not limited to:

- The building envelope
- Domestic hot water
- Heating, ventilation, and air conditioning (HVAC)
- Refrigeration
- Lighting
- Controls
- Electric Power Distribution and on-site power generation

6.2: A formal operations and maintenance (O&M) program has been established and implemented in order that the building energy-using systems achieve their intended energy efficiency throughout their service life. This program documents the O&M objectives, establishes the criteria for evaluation, and commits the building operator and maintenance personnel to basic goals of performance (such as minimizing equipment failures, ensuring ongoing efficient operation, and performing identified maintenance requirements).

The O&M program is designed to commit maintenance staff and building operators to basic goals of performance by establishing consistent protocols for managing and maintaining building systems. The O&M program requires a thorough building inventory of energy using equipment and implementation of preventive maintenance protocols and performance objectives.



For the initial compliance cycle, Tier 1 buildings must implement the O&M program 12 months prior to the building's scheduled compliance date.

Tier 2 buildings must implement their O&M program by the building's scheduled compliance date.

6.3 Operation and Maintenance Implementation:

Intent/Expectations

The operations and maintenance (O&M) program has been implemented in accordance with Normative Annex L of the Clean Building Performance Standard (CBPS).

Ensure that the developed O&M program has been implemented in accordance with Normative Annex L and covers guidelines and considerations outlined in Section 6.

6.4 Operations and Maintenance Tasks:

Intent/Expectations

Operations and Maintenance Program

6.4.1 Maintenance for all equipment, components and systems has been established in accordance with applicable manufacturers' requirements and also includes tasks that minimize failures and maintain energy consumption efficiency, such as those found in Informative Annex D for the following building systems where applicable:

- Building envelope
- Domestic hot water
- Heating, ventilation, and air conditioning
- Refrigeration
- Lighting
- Controls
- Electric Power Distribution and on-site power generation

Your building's O&M program must be developed and implemented for all major energy using systems and equipment in the building. Ensure that maintenance tasks developed for the building's equipment, components, and systems are established in accordance with applicable manufacturers' requirements and designed to minimize equipment, component, and system failures and maintain optimal energy efficiency.

Wherever possible, incorporate best practices such as those outlined in Informative Annex D of the CBPS or ANSI/ASHRAE/ACCA Standard 180.

6.4.2 Safe and reasonable access is provided to all equipment covered by the O&M program for inspection, maintenance, and repairs.

It's important that building maintenance staff have safe and reasonable access to the equipment on site in order to maintain it as needed.



Include a charging statement in the O&M program document, noting the expectation that safe and reasonable access to enable inspection, maintenance, and repairs for all equipment is provided at all times.

6.4.3 O&M requirements are reevaluated when *building* use changes or renovations/alterations are made that affect the facility's operations.

When a building undergoes alterations, renovations or use changes, it can have an impact on the performance objectives and system function/design of a building. It's important to account for these changes in the O&M plan. As mentioned earlier, this is a living document that changes with the building and its use(s).



Establish and include this reevaluation process in your O&M program documentation. Make sure that the outlined process considers any updates to building operation, staff training, maintenance tasks and frequencies, or changes to supplier contact information, etc.

6.5 Tenant Improvements:

Intent/Expectations

The *energy manager (EM)* has implemented a formal process to ensure that any tenant improvements involving a change in space use or the relocation of partitions (including partial height partitions) do not change the annual *net energy* use except to the extent that the annual *net energy* use change (increase or decrease) is

Similarly to 6.4.3, when buildings change, energy use is often affected. The Energy Manager needs to have a process in place to monitor and ensure that any tenant improvements involving space use changes, do not increase the net energy use of the building unless it's consistent with a change in the building activity type and EUI.

This process may include the addition of formal language in tenant lease agreements, prohibiting tenant improvements that increase energy use unless justified by a change of use (building activity type). Different building activity types have different energy use intensity targets (EUI). If the space use changes, it may be necessary to recalculate the EUI for the building. For example, in Climate Zone 4C, if a building that was once used as an administrative office, changes and is now used as a veterinary office, the

Operations and Maintenance Program	
consistent with any change in the <i>building's energy target</i> .	EUI would increase from 63 to 90. In this case, the increase in energy use would be justified because of the change in the primary use of the space.
6.6 Equipment and Component Replacement:	Intent/Expectations
6.6.1 When HVAC, domestic water heating, refrigeration equipment and appliances are replaced, the replacement equipment meets the most stringent energy efficiency requirements in the federal equipment standards, <i>state equipment standards</i> , and the <i>applicable building code</i> .	This requirement ties into the building's capital management plan which is outlined within the EMP. Refer to Section 5.1.2.10: Capital management plan identifying equipment for replacement with energy efficient and ENERGY STAR rated equipment in case of failure. Not all equipment will have ENERGY STAR rated options, but they must be considered where applicable, and at a minimum, meet the most stringent efficiency requirements in federal, state and local building codes.
6.6.2.1 When lighting equipment is replaced, the replacement equipment meets the most stringent energy efficiency requirements in the federal equipment standards, <i>state equipment standards</i> , and in the <i>applicable building code</i> . Implementation of more efficient equipment is evaluated and included as specified for the <i>capital management plan</i> , Section 5.1.2.10.	This requirement ties into the building's capital management plan which is outlined within the EMP. Refer to Section 5.1.2.10: Capital management plan identifying equipment for replacement with energy efficient and ENERGY STAR rated equipment in case of failure where feasible.
6.6.2.2 Replacement lighting equipment does not increase the existing installed lighting power demand unless it meets the exception to 6.6.2.2*. *Exception to 6.6.2.2: The existing installed lighting power may proportionally increase when the current light levels are below those recommended in the Illuminating Engineering Society (IES) Lighting Handbook 4 or latest edition of the Washington State Energy Code (WSEC).	In most cases, upgrading a building's lighting will prove to be more efficient, using less energy than the existing lighting. However, in some instances where indoor lighting is inadequate, an increase in the lighting power demand may be justified. If this is the case for your building, provide documentation with a lighting power allowance calculation within the EMP document.  See Section C405.4 Interior lighting power requirements from the Washington State Energy Code (WSEC) 2021 version in the link provided, for specific allowance guidelines and calculations.
L2: Operations and Maintenance Program:	Intent/Expectations

Operations and Maintenance Program

L2.1 Inventory of Items to be Inspected and Maintained: Components of *building* systems that impact the *building's* performance have been inventoried and used to establish unacceptable system condition indicators, inspection frequencies, and maintenance tasks. The following sections provide more detail for developing this inventory and establishing your maintenance plan.

The first step in creating your O&M program is knowing what equipment exists in the building. Develop an inventory of your building's equipment. Specifically, systems that impact the energy efficiency of the building.



For each piece of inventoried equipment, the energy manager and building operations staff will need to:

1. Establish a preventive maintenance schedule (how often does maintenance need to be performed? Weekly, monthly, quarterly, annually, etc.)
2. Develop a preventive maintenance task list.
3. Establish condition indicators of unacceptable performance.

The following sections provide more detail for developing this inventory and establishing your maintenance plan.

L2.2 Maintenance Plan Development: The maintenance plan was written and developed specifically to meet the size, design, scope, and complexity of the systems serving our facility. The plan describes required tasks, identifies the parties responsible for performing these tasks, specifies the authorizing party, documents completion of required tasks, and subsequently monitors the results. The plan includes all of the following information:

The O&M plan must be specific to your building. A template may help with initial development and prevent maintenance tasks, but the O&M program will be unique to each building's system and equipment, with its own set of objectives and performance goals.

Commercial buildings may already have O&M protocols or plans in place. Review these existing protocols and see what may need to be modified to align with the requirements of this standard. A narrative description of the maintenance plan is helpful to provide context for CBPS compliance review and as a general procedural outline for new hires or other building staff in an organization. This requirement and its components are outlined within the following subsections:

L2.2.1 Performance Objectives. Performance objectives identified for this facility incorporate thermal and visual comfort, energy efficiency, and indoor environmental quality metrics. Performance objectives are based on design intent and operational criteria specific to particular systems. The source of the performance objectives has been documented.

Every building is unique in how it functions. Performance objectives should be established by the Energy Manager and O&M staff and documented in the O&M program based on the building's design intent and operational criteria.

These performance objectives should consider energy performance, thermal and visual comfort as well as indoor environmental quality metrics. Is the building comfortable? Is it operating as intended/designed? Are there special considerations for the property's use such as unique ventilation requirements or high energy uses – i.e. laboratories or data centers?



Document these specific performance objectives within the O&M program document or the EMP.

L2.2.2 Condition Indicators: Indicators of unacceptable system and equipment conditions have been established. These indicators are measurements or observations of conditions that could lead to failure or performance degradation.

Use this requirement as an opportunity to establish consistency between O&M staff performing preventive maintenance assessments. Create protocols with defined parameters (these may include measurements or observations) for which to rate the condition of a specific component or system.

Preventive maintenance checklists must include these parameters to indicate current system condition.

Operations and Maintenance Program

	 Within the O&M program document or EMP, provide a narrative explaining how condition indicators are used to modify maintenance and inspection frequencies and how they help to inform equipment repair/replacement needs feeding into the organization's capital management plan.
L2.2.3 Inspection and Maintenance Tasks: Inspection and maintenance tasks for inventoried equipment, systems, and controls have been established. Inspections include the physical assessment of system components and may include measurement of operating parameters and data provided by sensors or a <i>building</i> management system (BMS). Maintenance tasks include adjustment, service, or replacement of inventoried equipment and systems. Control systems settings, including but not limited to set points, schedules, and sequence of operations, are inspected and <i>maintained</i>.	The O&M program should provide standardized inspection and maintenance task checklists by building system/component. An example of preventive maintenance tasks by system can be found in Informative Annex D of the CBPS.  Provide a narrative within the O&M plan document that describes how these tasks are utilized by the building's O&M staff: For example, system inspections or preventive maintenance work may be tracked in a Computerized Maintenance Management System (CMMS). Describe how the tasks are documented (CMMS, work order system, excel workbook, paper binder) when completing scheduled preventive maintenance or work order request, and how the results of those tasks are saved and tracked for future reference. It may also be helpful to create and document standard operating procedures within the plan or within the maintenance checklists for reference. For example, if equipment is poorly performing what steps do the maintenance or operations staff take to elevate an issue for repair or replacement? How are building management systems monitored, maintained and adjusted?
L2.2.4 Inspection and Maintenance Task Frequencies: Frequency of inspection and maintenance tasks for inventoried equipment, systems, and controls have been established. If unacceptable condition indicators or unacceptable performance is found during two (2) consecutive inspections, the owner or owner's designated representative investigates and analyzes possible causes.	Identify preventive maintenance and system inspection schedules by inventoried component. Some systems may need more frequent maintenance – task frequencies may change based on performance condition indicators. Develop protocols for maintenance staff to adjust the frequencies of inspections or preventive maintenance based on evaluated system performance or need.
L2.2.5 Documentation: A minimum inspection and maintenance documentation package has been created and consists of the following items: 1. Listings of <i>building</i> systems and system components with associated performance criteria pertinent to the facility. 2. Inspection and maintenance tasks and the method of tracking (automated or manual). 3. Identification of <i>building</i> systems or components operating beyond their <i>useful life</i>.	This section specifies the documentation requirements of Sections L2.1 and L2.2. It outlines the documentation that must be included in the O&M program report submitted with your building's CBPS compliance application.  Summarize the inspection and maintenance protocols established for the building, outline performance objectives for the building and its systems, and ensure that the O&M program document includes: 1. An inventory of building systems. This could be in the form of an attached excel workbook, or if the building utilizes a CMMS, the document may contain screen shots of the building's asset inventory. 2. Inspection and maintenance tasks for inventoried energy using systems/equipment: This must also include the frequency of inspection and maintenance tasks for each inventoried asset.

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4. Sufficient record detail and verification (written or electronic) to demonstrate implementation of the maintenance plan.
5. The inspection and maintenance document directory shall be readily accessible, well organized and clearly identified. Emergency information shall be immediately available and shall include emergency staff and/or agency notification procedures.

3. The inventory list must identify any equipment operating beyond its useful life* (equipment nearing or at end of its useful life should inform capital management planning. The organization should have energy efficient replacements identified, with plans for budgeting and eventual replacement of the asset in place).
4. Example of completed preventive maintenance task logs demonstrating that the O&M program has been implemented. Include in your O&M program documentation, examples of completed preventive maintenance task checklists that align with the preventive maintenance tasks created under L2.2.3.
 - a. Tier 1 buildings: For initial compliance application, provide documents demonstrating implementation of O&M program for at least one year prior to the compliance deadline.
5. Describe the system used for inventory and preventive maintenance tracking, where the inventory is located and how it's accessible to O&M, energy management staff and stakeholders. Note where the location of emergency information and provide emergency staff and/or agency notification procedures.

* It is recommended that the inventory list indicates remaining useful life of systems and equipment.

L2.3 Maintenance Plan Authorization and Execution:

Intent/Expectations

Inspection and maintenance tasks are performed on an established frequency or upon a documented observance of unacceptable condition. Whether authorized by written or verbal instructions, execution of the task is documented and archived for future reference.

Inspection/maintenance task frequencies have been established in the O&M program, this requirement is ensuring that the O&M tasks and inspection checklists are being used and documented as outlined in the organization's O&M process.

L2.4 Revision of the Maintenance Program:

Intent/Expectations

The O&M program is reviewed, and revisions considered, in any of the following situations:

1. Modifications to the *building* that impact *building* system performance objectives have occurred.
2. The *building* function or its use has changed in a way that

The EMP and O&M program are both living documents that need to adapt to a building as it changes. Systems and components change, building occupancy and operating schedules change, and the O&M program must adapt to changes over time.

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impacts *building* system performance objectives.

- 3. *Building* system component changes have occurred.
- 4. One or more systems are found to be incapable of achieving their performance objectives.
- 5. Upon documented recommendation from the maintenance provider.