Excerpt from OSE Director's Rule 2016-01
"Implementation of Building Tune-Ups Requirement"

Full Rule at: http://www.seattle.gov/Documents/Departments/OSE/OSE_DIRECTORS_RULE_2016-01.pdf

11.*TUNE-UP ASSESSMENT & CORRECTIVE ACTIONS*

This section specifies the actions required by Section 10.B – Building Tune-Up Assessment and Section 10.C – Tune-Up Corrective Actions. All Building Tune-Up assessments and verifications must be conducted by, or under direct supervision of, a Tune-Up Specialist as defined in Section 12 of this Rule. The Tune-Up Assessment outlines a Tune-Up Specialist's review of energy and water use data and conditions of building systems, indicates what Corrective Actions may be needed, and whether a corrective action is required or voluntary. Tables 1 and 2 in this section distinguish between required and voluntary Corrective Actions.

Required Corrective Actions identified in the Building Tune-Up Assessment should be based on Tune-Up Specialist's opinion as to whether the operational elements listed in Section 10 of this Rule are functioning in a way that is efficient and appropriate for the uses and occupancy of the building. If the Tune-Up Specialist finds that an element is not functioning in an efficient manner that supports the building use and occupant needs, he or she shall recommend a Corrective Action, which may include an operational adjustment that can be made without new equipment, or a maintenance action that is commonly considered standard or normal maintenance of existing systems.

Assessments that include multiple pieces of repetitive, identical equipment (e.g. fan coils, plumbing fixtures, lighting sensors on the same schedules) may be limited to the assessment of a representative sample. The sample shall cover at least 12% of each identical piece of equipment, but no fewer than 10 of each in buildings 50,000 – 99,999 SF and no fewer than 20 in buildings 100,000 SF or larger.

A Building Tune-Up, including both the Tune-Up Assessment and Corrective Actions, shall include the actions identified below:

A. Building Information and Utility Data

i. Identify and document building characteristics including the following:
   a. Space use types (e.g. office, retail, or data center), and gross square footage.
   b. Occupancy rate for the building.
   c. Primary HVAC system type, age and general condition for each space use.
   d. Primary lighting system type for each space use.
   e. If applicable, other systems or equipment that account for notable energy use (e.g. heated swimming pool).
   f. Presence of any electric vehicle charging infrastructure, and number of parking spaces served by vehicle charging equipment.

ii. Review ENERGY STAR Portfolio Manager account information. Verify that all building meters are included in the account and that gross floor area is accurately recorded for the building and for each space use. Plot and evaluate monthly energy usage to identify anomalies and to identify seasonal patterns that indicate heating and cooling loads.

iii. Review and evaluate water billing data for either the previous two calendar years or the most recent 24-month period, at a minimum, to identify indications of potential water leaks. Plot monthly water usage to determine if water use over time has varied significantly without explanation.

B. Operating Protocols, Calibration, Sequencing:

Table 1: Operating Protocols, Calibration, and Sequencing Elements of a Building Tune-Up

	Form ID#	Assessment Elements	Follow-Up Actions per Assessment Findings	
			Corrective Actions – Operational Adjustments (Required)	Recommendations (Voluntary)
1. Heating, Ventilation, and Air Conditioning				
a	G1	Review HVAC equipment schedules (Including daily, weekly, seasonal, day/night, occupied/unoccupied hours).	Set schedules to optimize operations for actual building occupancy patterns.	
b	G2	Review HVAC set points (including space temperatures, supply air temperatures, CO2, boiler temperatures, chilled water temperatures, economizer changeover temperatures, and building pressure).	Set or adjust to optimize function and energy efficiency of operations as appropriate to support the building use and occupant needs.	
c	G3	Review reset schedules (including supply air temperature, supply air pressure, boiler and chiller water temperature, lockouts with outside air temp, loop differential pressure).	Establish or adjust as appropriate.	
d	G4	Review optimal stop/start capabilities.	Implement optimal start/stop capabilities as appropriate to support the building use and occupant needs.	
e	G5	Verify that HVAC sensors are functioning, calibrated, and in appropriate locations. Identify where sensors should be repaired, adjusted, calibrated, and/or moved.	Adjust or recommend repairs as appropriate.	
f	G6	Verify HVAC controls are functioning as intended.	Adjust control sequences as appropriate for current facility requirements.	

	Form ID#	Assessment Elements	Follow-Up Actions per Assessment Findings	
			Corrective Actions – Operational Adjustments (Required)	Recommendations (Voluntary)
g	G7	Review HVAC controls for unintended or inappropriate instances of simultaneous heating and cooling.	Adjust HVAC controls to reduce or eliminate any unintended or inappropriate simultaneous heating and cooling.	
h	G8	Note any indications of significant air-balancing issues (e.g. wind-tunnel effect). Note any entry doors that are standing open or difficult to open or close due to air pressure imbalances.		Recommend rebalancing of HVAC air and water systems where significant efficiency or comfort improvements can be achieved.
i	G9	Identify any indications of excessive ventilation rates that may be greater than ASHRAE 62.1 standards and are not appropriate for the current facility requirements (e.g. no outside air supply or 100% outside air supply)		Recommend an analysis of ventilation system.
j	G10	Identify zones that are dominating multi-zone system operations. For example, corner zones or zones recently converted to server rooms.		Recommend solutions to isolate these Zones.
2. Lighting				
a	H1	Identify any areas where lighting levels appear to be significantly higher than necessary for the space use and occupant needs.		Recommend areas which could benefit from dimming or de-lamping and/or where the lighting power density can be improved.
b	H2	Verify lighting sensors are working and are located as necessary for the current functioning of the building.	Identify areas which could benefit from occupancy or daylight sensors.	

c	H3	Review lighting controls schedules and sequences.	Set or adjust as appropriate to match actual building use patterns.	
3. Domestic Hot Water				
a	I1	Review domestic hot water temperature set points.	Adjust set points to improve efficiency, as appropriate for building use and occupant needs.	
b	I2	Review circulation pump controls.	Set or adjust, as appropriate, according to ANSI/ASHRAE/ACCA Standard 180-2012 Table 5-21.	
4. Water Usage				
a	J4	In irrigated areas 500 square feet or more, verify irrigation schedule are in place, and review schedules.		Identify opportunities for schedule improvements to improve efficiency and recommend appropriate action (e.g. one schedule over many landscape Zones).
b	J5	Verify irrigation rain sensors are calibrated, functioning properly, and located appropriately to collect relevant moisture data to trigger the system operating system.	Adjust, calibrate, or repair as appropriate.	
c	J1, J2	Verify cooling tower conductivity meter used to control blow down is calibrated and functioning properly.	Adjust as appropriate.	Recommend repair.
d	J6	Review water feature schedules.	Set to shut-down during night-time or unoccupied periods where appropriate.	

C. Maintenance, Cleaning, and Repair

Table 2: Maintenance, Cleaning, and Repair Elements of a Building Tune-Up

	Form ID#	Assessment Elements	Follow-Up Actions per Assessment Findings	
			Corrective Actions – Operational Adjustments (Required)	Recommendations (Voluntary)
1. Heating, Ventilation, and Air Conditioning				
a	G11	Verify HVAC equipment is clean and adequately maintained according to ANSI/ASHRAE/ACCA Standard 180-2012 Table 5-2, 5-15 (such as grilles, coils, and ducts).	Clean where adversely impacting system performance.	
b	G12, G13	Check filters and strainers for undue build-up or restricted air or water flow.	Clean or replace filters and strainers where appropriate and where they are adversely impacting system performance.	Recommend maintenance protocols. Refer to ANSI/ASHRAE/ACCA Standard 180-2012 Table 5-2, 5-22.
c	G14, G15	Verify that equipment observed during the assessment is in good working condition (such as motors, fans, pumps, belts, pulleys, bearings, and steam traps). Refer to ANSI/ASHRAE/ACCA Standard 180-2012 Table 5-2, 5-22 for standards.	Repair as appropriate if doing so is generally a standard or regular maintenance action.	Recommend repairs or replacement if scope of work is more than standard maintenance.
d	G16	If ducts and pipes are visible and accessible, verify that HVAC duct and pipe insulation is in place.		Recommend installation or repair.
e	G17	Check valves and dampers for appropriate function.	Adjust according to ANSI/ASHRAE/ACCA Standard 180-2012 Table 5-9, 5-12 if not opening and closing fully.	
f	G18	Identify equipment approaching the end of its service life, per ASHRAE Service Life Database.		Recommend replacement plan and schedule.
2. Lighting				
a	H4	Identify inefficient lighting equipment (such as incandescent, T12, or metal halide lighting).		Recommend replacement.

3. Water Usage				
a	J7, J8	Check irrigation system for leaks, overspray, broken heads, foliage blocking, plugged nozzles, excess pressure, or other operational problems.	Adjust and repair as appropriate for standard or regular maintenance actions.	Recommend repair if scope of work is more than standard maintenance.
b	J9, J10	Check plumbing fixtures for leaks.	Repair as appropriate for standard or regular maintenance actions.	Recommend repair if scope of work is more than standard maintenance.
c	J11	Check hands free sensor-activated plumbing fixtures for proper operation.		Recommend repairs if scope of work is more than standard maintenance.
d	J12	Check water flow fixtures.		Recommend low flow fixture or aerator replacements.
e	J3	Evaluate cooling towers for water leaks and excess water consumption.	Repair as appropriate for standard or regular maintenance actions.	Recommend repairs if scope of work is more than standard maintenance.
4. Envelope				
a	K1	Check for roof penetrations and damage to siding that allows the entry of air or water or gaps in building envelope (such as areas requiring weather-stripping, dampers, top of elevator shaft, broken windows, and/or doors propped open).		Recommend repairs if scope of work is more than standard maintenance.
b	K2	Identify duct leaks (such as disconnects and/or holes).		Recommend repairs if scope of work is more than standard maintenance.
c	K3	Identify any uninsulated attic areas or areas where attic insulation has been disturbed.		Recommend improvements if scope of work is more than standard maintenance.