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TO: Detroit City Council

FROM: David Whitaker, Director 
Legislative Policy Division

DATE: March 10, 2021

RE: Energy Benchmarking Ordinance

Council Member Benson directed the Legislative Policy Division (LPD) to provide a draft energy benchmarking ordinance derived from the ordinance recently adopted by the City of Columbus, Ohio. The requested draft ordinance is attached.

In addition to the Columbus ordinance (which includes its own set of technical definitions), Council Member Benson's office provided LPD with the attached 16-page Appendix A. Incorporating the even more detailed technical standards of that document, in the context of a rigorous and expert evaluation of the specialized subject matter of this proposed ordinance, are outside the scope of LPD's assignment to create the first draft for policy development. Council will presumably want input from agencies such as the Department of Sustainability, the Green Task Force, BSEED and OCFO, as well as the Mayor's office.

If Council desires further research and analysis of these issues, LPD will be happy to provide same.

S U M M A R Y

1
2 **AN ORDINANCE** to amend Chapter __ of the Detroit City Code, _____, by adding
3 Article __, titled *Energy Benchmarking*, which consists of Sections __-__-__ through __-__-
4 __, to establish an energy and water benchmarking, reporting, and transparency program
5 requirement for certain buildings within the City of Detroit’s jurisdiction.

6 **BY COUNCIL MEMBER SCOTT BENSON:**

7 **AN ORDINANCE** to amend Chapter __ of the Detroit City Code, _____, by adding
8 Article __, titled titled *Energy Benchmarking*, which consists of Sections __-__-__ through __-
9 __-__, to establish an energy and water benchmarking, reporting, and transparency program
10 requirement for certain buildings within the City of Detroit’s jurisdiction.

11 **Section __-__-__. Energy and Water Benchmarking.**

12 **BACKGROUND:** As our climate and city continue to change, Detroit can expect increased
13 temperatures and other climate pressures over the next several decades. The City of Detroit is
14 committed to taking steps of mitigation and adaption to our community’s changing climate, to
15 ensure a healthy and prosperous community for all our residents now and in the future. For many
16 years, the City of Detroit has been working to combat these changes by reducing municipal and
17 community-wide greenhouse gas emissions through environmental policies.

18 The purpose of this ordinance is to establish an energy and water benchmarking, reporting, and
19 transparency requirement for certain buildings within the City of Detroit’s jurisdiction. With this
20 ordinance, the City and local property owners can drive energy and water efficiency in our building
21 stock, save money for businesses and residents, and foster a cleaner and healthier environment.

22 **Section 1. (A) Purpose.** The purpose of this chapter is to establish an energy and water
23 benchmarking, reporting, and transparency requirement for certain buildings within the city. The
24 energy and water use of a Covered Property shall be benchmarked and submitted to the city in
25 accordance with this chapter.

26 **(B) Definitions.** The following words and phrases, whenever used in this chapter, shall be
27 construed as defined in this section unless context indicates otherwise. All other definitions of this
28 title shall apply.

- 29 1) “Aggregated Whole-Building Data” means energy or water data that has been summed for an
30 entire Property, which may include a single occupant or a group of separately metered Tenants.
- 31 2) “Benchmark” means to input and submit the total energy and water consumed for a Property
32 and other descriptive information for such Property, for the previous calendar year, as required by
33 the Benchmarking Tool. Total energy and water consumption shall not include separately metered
34 uses that are not integral to building operations, as determined by the Director.
- 35 3) “Benchmarking Report” means a subset of: a. Information input into the Benchmarking Tool;
36 and b. Benchmarking information generated by the Benchmarking Tool, as determined by the
37 Director.
- 38 4) “Benchmarking Tool” means the U.S. Environmental Protection Agency’s ENERGY
39 STAR®Portfolio Manager® tool, or any additional or alternative tool adopted by the Director,
40 used to track and assess the energy and water use of certain properties relative to similar properties.
- 41 5) “Condominium” means a Property that combines separate Ownership of individual units with
42 common Ownership of other elements such as common areas.
- 43 6) “Covered City Property” means a Property that: a. Exceeds 25,000 square feet in Gross Floor
44 Area; and b. Is owned by the City; or c. Such that the City regularly pays all or the majority of the
45 annual energy and/or water bills.
- 46 7) “Covered Non-City Property” means a Property, other than a Covered City Property, that
47 exceeds 50,000 square feet in Gross Floor Area.
- 48 8) “Covered Property” means any Covered City Property or Covered Non-City Property.
- 49 a. Single family, duplex, and triplex residential homes and related accessory structures, or any
50 other residential building with less than four units are not considered to be Covered Properties and
51 are not subject to the requirements of this chapter.
- 52 b. Properties owned by the State of Michigan or the Federal Government are expected to make
53 reasonable effort to comply with the requirements of this chapter.
- 54 9) “Data Quality Checker” means the function in ENERGY STAR Portfolio Manager that runs a
55 set of basic data checks on properties to help identify possible data entry errors and to see whether
56 a building differs from typical operational patterns.
- 57 10) “Data Transparency” means information generated by the Benchmarking Tool and descriptive
58 information about the physical Property and its operational characteristics, which is shared with
59 the public. The information, as defined by the ENERGY STAR Portfolio Manager glossary, shall
60 include, but is not limited to:
- 61 a. Descriptive information
- 62 i. Property address;
- 63 ii. Primary use;

- 64 iii. Gross Floor Area;
- 65 iv. Number of floors;
- 66 v. Number of years the Property has been ENERGY STAR Certified and the last approval date, if
67 applicable; and
- 68 vi. Individual or entity responsible for the Benchmarking Report.
- 69 b. Output information
- 70 i. Site and source energy use intensity;
- 71 ii. Weather normalized site and source energy use intensity;
- 72 iii. The ENERGY STAR Score, where available;
- 73 iv. Total annual greenhouse gas emissions;
- 74 v. Monthly energy use, by fuel type;
- 75 vi. Indoor water use and water use intensity (consumption per gross square foot);
- 76 vii. Outdoor water use (where available);
- 77 viii. Total water use;
- 78 ix. The ENERGY STAR Water Score, where available; and
- 79 x. General comments section, if needed, to explain the building’s ENERGY STAR Score and/or
80 operating characteristics.
- 81 c. Status of compliance or noncompliance with the requirements of the ordinance.
- 82 11) “Department” means the Department of _____.
- 83 12) “Director” means the Director of the Department of _____ or their designee.
- 84 13) “Energy” means electricity, natural gas, steam, or other product sold by a Utility to a customer
85 of a Property, or renewable on-site electricity generation, for purposes of providing heating,
86 cooling, lighting, water heating, or for powering or fueling other end-uses as recorded in the
87 Benchmarking Tool.
- 88 14) “ENERGY STAR Portfolio Manager” means the tool developed and maintained by the U.S.
89 Environmental Protection Agency to track and assess the relative energy performance of buildings.
- 90 15) “ENERGY STAR Score” means the 1-100 numeric rating generated by the ENERGY STAR
91 Portfolio Manager tool as a measurement of a building’s energy efficiency.
- 92 16) “Gross Floor Area” means the total Property area, measured between the outside surfaces of
93 the exterior walls of the building(s). This includes all areas inside the building(s) including but not
94 limited to lobbies, Tenant areas, common areas, meeting rooms, break rooms, atriums (count the

95 base level only), restrooms, elevator shafts, stairwells, mechanical equipment areas, basements,
96 and storage rooms.

97 17.) “Owner” means any of the following:

98 a. An individual or entity possessing title to a Property;

99 b. The board of the Owners’ association, in the case of a Condominium;

100 c. The master association, in the case of a Condominium where the powers of an Owners’
101 association are exercised by or delegated to a master association;

102 d. The board of directors, in the case of a cooperative apartment corporation; or

103 e. An agent authorized to act on behalf of any of the above.

104 18)“Property” means any of the following:

105 a. A single building;

106 b. One or more buildings held in the Condominium form of Ownership, and governed by a single
107 board of managers; or

108 c. A campus of two or more buildings which are owned and operated by the same party, have a
109 single shared primary function, and are:

110 i. Behind a common Utility meter or served by a common mechanical/electrical systems (such as
111 a chilled water loop) which would prevent the Owner from being able to easily determine the
112 energy use attributable to each of the individual buildings; or

113 ii. Used primarily for one of the following functions:

114 1. K-12 school

115 2. Hospital

116 3. Hotel

117 4. Multifamily housing

118 5. Senior care community

119 19) “Tenant” means a person or entity occupying or holding possession of a building, or part of a
120 building or premises pursuant to a rental or lease agreement.

121 20) “Utility” means an entity that distributes and/or sells natural gas, electric, water, or thermal
122 energy services for buildings.

123 **(C) Collecting and Entering Benchmarking Data.**

124 1) Each year the Owner of each Covered Property shall collect and enter all data needed to
125 Benchmark the entire Property for the previous calendar year into the Benchmarking Tool.

126 Aggregated Whole-Building Data for the Property’s energy and water use shall be compiled
127 using one or more of the following methods:

- 128 a. Obtaining Aggregated Whole-Building Data from a Utility;
- 129 b. Collecting data from all Tenants; or
- 130 c. Reading a master meter.

131 2) If the Owner of a Covered Property does not have access to Aggregated Whole-Building Data
132 (energy and water), such Property Owner shall request Aggregated Whole-Building Data from
133 each Utility company that provides energy or water service to the Property. If a Utility does not
134 provide Aggregated Whole-Building Data (energy or water), the Owner of a Covered Property
135 shall request energy and water data from Tenants. Owners may also request authorization from
136 Tenants for the Utility to share their data with the Owner.

137 3) Each nonresidential Tenant located in a Covered Property shall provide the Owner with all
138 information that is needed to comply with the requirements of this ordinance that cannot otherwise
139 be acquired by the Owner within 45 days of a request.

140 4) Nothing in this chapter shall be construed to permit a Property Owner to use Tenant energy
141 usage data for purposes other than compliance with Benchmarking Report requirements, nor shall
142 the reporting requirements of this chapter be construed to excuse Property Owners from
143 compliance with federal or state laws governing direct access to Tenant Utility data from the
144 responsible Utility.

145 **(D) Benchmarking Reporting.**

146 1) For every Covered Property subject to this chapter, the Owner shall submit a Benchmarking
147 Report in an electronic format via the Benchmarking Tool annually, by the date specified in this
148 chapter for the Benchmarking Schedule.

149 2) The information included in the Benchmarking Report shall include the data entered in the
150 Benchmarking Tool, as defined in this chapter, for the previous calendar year.

151 3) The Owner of each Covered Property shall ensure that data entered into the Benchmarking Tool
152 shall be based on the Aggregated Whole-Building Data (energy and water) for the calendar year
153 being reported.

154 4) Before submitting a Benchmarking Report, the Owner shall run all Data Quality Checker
155 functions available within the Benchmarking Tool and shall verify that all data has been accurately
156 entered into the Benchmarking Tool. In order for the Benchmarking Report to be considered in
157 compliance with this ordinance, the Owner shall correct all missing or incorrect information as
158 identified by the Data Quality Checker prior to submitting the Benchmarking Report to the
159 Director.

160 5) Where the current Owner becomes aware that any information reported as part of the current
161 year Benchmarking Report is inaccurate or incomplete, the Owner shall amend the information

162 reported within the Benchmarking Tool, and shall provide the Director with an updated
163 Benchmarking Report within 30 days of learning of the inaccuracy.

164 **(E) Benchmarking Schedule.**

165 1) The Owner of a Covered Property shall ensure that a Benchmarking Report is generated,
166 completed, and submitted to the Director annually for each Covered Property.

167 2) The initial Benchmarking Report for each Covered Property shall be filed in accordance with
168 the schedule in the following table. Subsequent Benchmarking Reports for each Covered Property
169 shall be due by June 1 of each year thereafter.

170 3) The Director shall make each Covered Property’s Data Transparency information available to
171 the public beginning the year after the Property is first required to submit a Benchmarking Report
172 in accordance with the schedule in the following table. Subsequent Data Transparency information
173 will be made public each year thereafter.

174 **(F) Benchmarking Exemptions.** A Covered Property that meets one or more of the following
175 conditions for the calendar year to be Benchmarked may apply for an exemption from
176 Benchmarking and Data Transparency requirements if:

177 a. The Property did not have a Certificate of Occupancy or temporary Certificate of Occupancy
178 for that full year; or

179 b. If the Property was issued a Demolition Permit during the prior calendar year; or

180 c. The Property had an average physical occupancy rate of less than 50 percent over that year; or

181 d. If Benchmarking or Data Transparency would disclose trade secrets as defined and protected
182 from such disclosure applicable law; or

183 e. Buildings primarily used for manufacturing or other industrial purposes for which
184 Benchmarking results would not meaningfully reflect building energy use characteristics due to
185 the intensive use of process energy. “Process energy” refers to energy used in the actual
186 manufacturing, production, or processing of a good, commodity, or other material.

187 **(G) Maintenance of Records.**

188 1) Each Owner shall maintain the data submitted to the Benchmarking Tool and supporting data,
189 including but not limited to, the energy and water bills and reports or forms received from Tenants
190 and/or Utilities pursuant to this chapter. Such records shall be preserved for a period of three years.
191 At the request of the Director, such records shall be made available for inspection by the Director.

192 2) The Department reserves the right to review records as it deems necessary to evaluate the
193 efficacy of this Ordinance. Records shall be provided to the Director upon request.

194 **(H) Violations and Enforcement.**

195 1) It shall be unlawful for any entity, person, Tenant, or Owner to fail to comply with the
196 requirements of this ordinance or misrepresent any material fact in a document required to be
197 prepared or shared by this ordinance.

198 2) If the Director determines that a Property Owner has failed to submit a Benchmarking Report
199 as required under this ordinance, or the Owner has submitted an incomplete Benchmarking Report
200 or false information within the Benchmarking Report, the Director may seek the following
201 remedies:

202 a. If the initial Benchmarking information or updated Benchmarking information is not reported
203 within 30 days of the date specified in this chapter as the Benchmarking Schedule, a written notice
204 of violation will be issued.

205 b. If initial Benchmarking information or updated Benchmarking information is not reported
206 within 60 days of the date the notice of violation is issued, the Property Owner shall be subject to
207 late fees and or penalties provided for by applicable law.

208 c. If the Director determines that a Property Owner has intentionally submitted false or incomplete
209 information, or has misrepresented the Benchmarking information, the Director may issue a notice
210 of violation and the Property Owner shall be subject to late fees and or penalties provided for by
211 applicable law.

212 d. All fees referenced in this chapter will be determined per the City of Detroit Charter and City
213 Code.

214 **(I) Rules.** The Director may adopt such rules and regulations as deemed necessary to carry out
215 the provisions of this chapter.

216 **SECTION 2.** This ordinance is hereby declared necessary to preserve the public peace, health,
217 safety, and welfare of the People of the City of Detroit.

218 **Section 3.** All ordinances, or parts of ordinances, that conflict with this ordinance are repealed.

219 **Section 4.** In the event this ordinance is passed by two-thirds (2/3) majority of City Council
220 Members serving, it shall be given immediate effect and become effective upon publication in
221 accordance with Section 4-118 of the 2012 Detroit City Charter. Where this ordinance is passed
222 by less than a two-thirds (2/3) majority of City Council Members serving, it shall become effective
223 on the thirtieth (30) day after enactment, or on the first business day thereafter, in accordance with
224 Section 4-118 of the 2012 Detroit City Charter.

225 **Approved as to form:**

226 _____

227 **Corporation Counsel**

228

Model Ordinance Language For A Policy To Improve The Performance Of Existing Buildings

Section A: DEFINITIONS.

The following words and phrases, whenever used in this Chapter, shall be construed as defined in this section unless context indicates otherwise.

- (1) “Aggregated, whole-building data” means energy or water data that has been summed for an entire property, which may include a single occupant or a group of separately metered tenants.
- (2) “Anonymized data” means data that does not reveal names, addresses or any other information that would identify an individual or business.
- (3) “Audit” means a systematic evaluation process to identify modifications and improvements of the base building systems, including but not limited to alterations of such systems and the installation of new equipment, insulation or other generally recognized energy and water efficiency technologies to optimize energy and water use performance of the building and achieve energy and water savings.
- (4) “Audit report” means the final document produced by the qualified auditor including but not limited to:
 - (a) The summary audit report;
 - (b) Functional performance testing reports;
 - (c) An assessment of how the major energy and water consuming equipment and systems used within tenant spaces impact the energy and water consumption of the base building systems based on a representative sample of spaces as determined by the Director; and
 - (d) Narratives, photographs and any additional explanatory information as required to describe the results of the audit.
- (5) “Base building systems” means the systems or subsystems of a building that use or distribute energy and/or water and/or impact energy and/or water consumption, including:
 - (a) The building envelope;
 - (b) The heating, ventilating, and air conditioning (HVAC) systems;
 - (c) Conveying systems;
 - (d) Electrical and lighting systems;
 - (e) On-site generation systems;
 - (f) Domestic hot water systems;
 - (g) Water distribution systems;
 - (h) Plumbing fixtures and other water-using equipment; and
 - (i) Landscape irrigation systems and water features, including fountains.

EXCEPTION: “base building systems” does not include:

1. Systems or subsystems owned by tenants, condominium unit owners or cooperative unit shareholders, or a system or subsystems for which such entities bear full maintenance responsibility, that are within such entities’ leased or owned space, and for which such entity pays all the energy bills according to usage and demand as measured by a meter or sub-meter.
 2. Systems or subsystems that operate industrial applications or processes.
- (6) “Baseline year” means, for any individual property, the latter of a) the first calendar year such property is required to benchmark or b) the calendar year containing the date five years prior to due date of the property’s next performance verification.

- (7) “Benchmark” means to input and submit the total energy and water consumed for a property for the previous calendar year and other descriptive information for such property as required by the benchmarking tool. Total energy and water consumption shall not include separately metered uses that are not integral to building operations, as determined by the Director.
- (8) “Benchmarking submission” means a subset of:
- (a) Information input into the benchmarking tool; and
 - (b) Benchmarking information generated by the benchmarking tool, as determined by the Director.
- (9) “Benchmarking tool” means the U.S. Environmental Protection Agency’s ENERGY STAR® Portfolio Manager, or any additional or alternative tool adopted by the Director, used to track and assess the energy and water use of certain properties relative to similar properties.
- (10) “Building management system” means a computer-based system that monitors and controls a building’s mechanical and electrical equipment, such as HVAC, lighting, power, water, fire, and security systems.
- (11) “Condominium” means a property that combines separate ownership of individual units with common ownership of other elements such as common areas.
- (12) “Continuous commissioning ®” means an ongoing process of comparing data obtained through the building management system with analytic models; identifying problematic sensors, controls and equipment; and resolving operating problems, optimizing energy use and identifying retrofits for existing buildings.
- (13) “Covered city property” means a property that:
- (a) Exceeds [20,000] gross square feet in total floor area; and
 - (b) Is owned, leased, or managed by the city such that the city regularly pays all or part of the annual energy and/or water bills.
- (14) “Covered non-city property” means a property, other than a covered city property, that exceeds [30,000] gross square feet in total floor area.
- (15) “Covered property” means any covered city property or covered non-city property.
- EXCEPTIONS:**
- The following properties are not considered to be covered properties, and are not subject to any of the requirements of this chapter:
- (a) Single family, duplex, triplex and fourplex residential homes and related accessory structures, or any other residential building with less than 5 units;
 - (b) Properties classified as industrial per designated Standard Industrial Classification (SIC) codes 20 through 39;
 - (c) Properties owned by government bodies not subject to the authority of this ordinance;
 - (d) Other building types not meeting the purpose of this Chapter, as determined by the Director.
- (16) “Current facility requirements” means the owner’s current energy and water related operational needs and requirements for a building, including temperature and humidity set points, operating hours, filtration, and any integrated requirements such as controls, warranty review, and service contract review.
- (17) “Department” means the [agency/department overseeing administration of the ordinance].
- (18) “Director” means the Director of the [agency/department overseeing administration of the ordinance].
- (19) “Energy” means electricity, natural gas, steam, or other product sold by a utility to a customer of a property, or renewable on-site electricity generation, for purposes of providing heating, cooling,

lighting, water heating, or for powering or fueling other end-uses as recorded in the benchmarking tool.

- (20)** “Energy audit” means that part of an audit that addresses the energy systems.
- (21)** “ENERGY STAR score” means the 1-100 numeric rating generated by the ENERGY STAR Portfolio Manager tool as a measurement of a building’s energy efficiency.
- (22)** “ENERGY STAR Portfolio Manager” means the tool developed and maintained by the U.S. Environmental Protection Agency to track and assess the relative energy performance of buildings.
- (23)** “Financial hardship” (of a property) means that a property:
- (a) Had arrears of property taxes or water or wastewater charges that resulted in the property's inclusion, within the prior two years, on the city’s annual tax lien sale list; or
 - (b) Has a court appointed receiver in control of the asset due to financial distress; or
 - (c) Is owned by a financial institution through default by the borrower; or
 - (d) Has been acquired by a deed in lieu of foreclosure; or
 - (e) Has a senior mortgage subject to a notice of default.
- (24)** “Gross floor area” means the total property area, measured between the outside surface of the exterior walls of the building(s). This includes all areas inside the building(s) including but not limited to lobbies, tenant areas, common areas, meeting rooms, break rooms, atriums (count the base level only), restrooms, elevator shafts, stairwells, mechanical equipment areas, basements, and storage rooms.
- (25)** “Net present value” means the value in today’s dollars of all future costs and benefits from an investment over a twenty-year time horizon or the lifetime of the equipment, whichever is shorter, analyzed with a 3% discount rate per United State Office of Management and Budget Circular A-4 guidance.
- (26)** “Owner” means any of the following:
- (a) An individual or entity possessing title to a property;
 - (b) The board of the owners’ association, in the case of a condominium;
 - (c) The master association, in the case of a condominium where the powers of an owners’ association are exercised by or delegated to a master association;
 - (d) The board of directors, in the case of a cooperative apartment corporation; or
 - (e) An agent authorized to act on behalf of any of the above.
- (27)** “Property” means any of the following:
- (a) A single building;
 - (b) One or more buildings held in the condominium form of ownership, and governed by a single board of managers; or
 - (c) A campus of two or more contiguous buildings which are owned and operated by the same party, have a single shared primary function, and are:
 1. Behind a common utility meter or served by a common mechanical/electrical systems (such as a chilled water loop) which would prevent the owner from being able to easily determine the energy use attributable to each of the individual buildings; or
 2. Used primarily for one of the following functions:
 - a. K-12 school
 - b. Hospital
 - c. Hotel
 - d. Multifamily housing
 - e. Senior care community

(28) “Qualified auditor” means an individual who is not on the staff of the property being audited and possesses qualifications to perform or directly supervise individuals performing energy and water audits, and to certify audit reports required by this ordinance. The qualified auditor must be an employee or contractor hired by the reporting entity, an employee of a utility, or a third-party service provider, who has two or more years of auditing experience and possesses one or more of the following certifications:

- (a) An accredited certification that has been designated a “Better Buildings Recognized Program” by the U.S. Department of Energy meeting the criteria set forth in the Better Buildings Workforce Guidelines (BBWG) for Building Energy Auditors or Building Energy Managers;
- (b) A Professional Engineer (PE) registered in the State of [insert state here];
- (c) Certified Facilities Manager (CFM), issued by the International Facility Management Association (IFMA);
- (d) System Maintenance Administrator (SMA) or System Maintenance Technician (SMT), issued by Building Owners and Managers Institute (BOMI) International;
- (e) For audits of multifamily residential buildings only, a Multifamily Building Analyst (MFBA), issued by the Building Performance Institute (BPI); or
- (f) Additional qualified certifications as the Director deems appropriate.

After the establishment of a DOE-recognized standard for a water auditor, the Director may adopt the qualifications of the DOE-recognized standard with modifications as the Director deems to be appropriate.

(29) “Qualified retuning professional” means an individual who is not on the staff of the property being retuned and possesses qualifications to perform or directly supervise individuals performing the retuning work required by this ordinance. The qualified retuning professional must be an employee or contractor hired by the reporting entity, an employee of a utility, or a third-party service provider, who has two or more years of commissioning or retuning experience and possesses one or more of the following certifications:

- (a) An accredited certification that has been designated a “Better Buildings Recognized Program” by the Department of Energy meeting the criteria set forth in the Better Buildings Workforce Guidelines (BBWG) for Building Commissioning Professionals;
- (b) A Professional Engineer (PE) registered in the State of [insert state name here];
- (c) Certified Building Commissioning Professional (CBCP) or Existing Building Commissioning Professional (EBCP), issued by the Association of Energy Engineers (AEE);
- (d) Commissioning Process Management Professional (CPMP), issued by American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE);
- (e) Accredited Commissioning Process Authority Professional (ACPAP) approved by the University of Wisconsin; or
- (f) Additional qualified certifications as the Director deems appropriate.

(30) “Retuning” means a systematic process for optimizing building performance through the assessment, identification and correction of deficiencies in existing base building systems, including but not limited to repairs of defects, cleaning, adjustments of valves, sensors, controls or programmed setpoints, and/or changes in operational practices.

(31) “Retuning report” means the report produced by the retuning professional and provided to the building owner, including but not limited to:

- (a) Summary retuning report;
- (b) Energy end use breakdown;
- (c) Water end use breakdown;
- (d) Functional performance testing reports; and
- (e) Operational training conducted.

- (32)** “Shared benchmarking information” means information generated by the benchmarking tool and descriptive information about the physical property and its operational characteristics, which is shared with the public. The information, as defined by the ENERGY STAR Portfolio Manager glossary, shall include, but need not be limited to:
- (a) Descriptive information
 1. Property address
 2. Primary use;
 3. Gross floor area;
 4. Number of floors;
 5. Number of years the property has been ENERGY STAR® Certified and the last approval date, if applicable; and
 6. Individual or entity responsible for the benchmarking submission.
 - (b) Output information
 1. Site and source energy use intensity;
 2. Weather normalized site and source energy use intensity;
 3. The ENERGY STAR score, where available;
 4. Total annual greenhouse gas emissions;
 5. Monthly energy use, by fuel type;
 6. Indoor water use and water use intensity (consumption per gross square foot);
 7. Outdoor water use (where available);
 8. Total water use;
 9. The ENERGY STAR Water Score, where available; and
 10. General comments section, if needed, to explain the building’s ENERGY STAR scores.
 - (c) Compliance or noncompliance status.
- (33)** “Simple payback” means the number of years for the projected annual energy or water savings to equal the amount invested in the energy or water conservation measure, as determined by dividing the investment by the annual energy or water savings.
- (34)** “Space” means an area within a building enclosed by floor to ceiling walls, partitions, windows and doors.
- (35)** “Summary audit report” means the abbreviated report certified by the qualified auditor in a form determined by the Director that includes at a minimum:
- (a) Information on the qualified auditor and his/her team;
 - (b) The date the audit was completed;
 - (c) Property address;
 - (d) Building ID number, as referenced in the benchmarking submission;
 - (e) Property age;
 - (f) Gross floor area;
 - (g) Number of buildings on the property;
 - (h) Year of major renovations or remodels;
 - (i) Information on the geometry of the buildings on the property;
 - (j) Base building systems and equipment inventory;
 - (k) All reasonable conservation measures, including capital improvements, that would, if implemented, reduce energy and/or water use and/or the cost of operating the property;
 - (l) For each measure, the associated annual energy (by fuel type) or water savings, the cost to implement, the net present value, and the simple payback, calculated by a method determined by the Director;
 - (m) A list of recommended measures, chosen from the complete list of measures, that would, if implemented, reduce energy and/or water use and/or the cost of operating the property, the

- savings predicted from that package of measures, and the estimated costs to implement those measures;
- (n) The building's benchmarking submission for the previous calendar year;
 - (o) A report of energy usage by system and predicted energy savings by system after implementation of the recommended measures;
 - (p) A report of water usage by system and predicted water savings by system after implementation of the recommended measures;
 - (q) Acknowledgement that an American Society of Heating Refrigerating and Air-Conditioning Engineers (ASHRAE) Level II Audit in conformance with ASHRAE Standard 211 (latest edition at the time the audit is initiated) was conducted; and
 - (r) Acknowledgement of any water audit standard utilized.
- (36)** "Summary retuning report" means the abbreviated report certified by the qualified retuning professional in a form determined by the Director that shall include at a minimum:
- (a) Retuning team information;
 - (b) The date the retuning was completed;
 - (c) Property information (such as building address, building age, gross floor area as defined by ENERGY STAR Portfolio Manager's glossary, number of buildings on the property, etc.);
 - (d) Building staff information;
 - (e) Review and verification of the building's benchmarking submission for each of the previous [five] calendar years;
 - (f) Inventory of base building systems;
 - (g) List of repairs or adjustments completed during investigation; and
 - (h) Master list of adjustments, repairs, or deficiencies corrected, including for each, the name of the retuning measure, a brief description of the measure, corrections recommended or completed, the date corrected, the benefits attained, estimated annual savings (energy/water use and cost), the estimated implementation cost, the net present value, and the simple payback.
- (37)** "System" or "subsystem" means a building assembly made up of various components that serve a specific function including but not limited to exterior walls, windows, doors, roofs, ceilings, floors, lighting, piping, ductwork, insulation, HVAC system equipment or components, electrical appliances and plumbing appliances.
- (38)** "Tenant" means a person or entity occupying or holding possession of a building, part of a building or premises pursuant to a rental or lease agreement;
- (39)** "Utility" means an entity that distributes and/or sells natural gas, electric, water, or thermal energy services for buildings.
- (40)** "Water audit" means that part of an audit that addresses the water systems.

Section B: COLLECTING AND ENTERING BENCHMARKING DATA.

- (1)** Each year the owner of each covered property shall collect and enter all data needed to benchmark the entire property for the previous calendar year into the benchmarking tool, in a manner that conforms to latest guidance provided by the U.S. Environmental Protection Agency for use of the tool. Aggregated whole-building data for the property's energy and water use shall be compiled using one or more of the following methods:
- (a) Obtaining aggregated whole-building data from a utility.
 - (b) Collecting data from all tenants.
 - (c) Reading a master meter.
- (2)** If the owner of a covered property does not have access to aggregated whole-building energy and water data, such property owner shall request aggregated whole-building data from each utility that

provides energy or water service to the property. When a utility does not provide aggregated whole-building energy or water data, the owner of a covered property shall request energy and water data from tenants as per the provisions in the remainder of this section.

- (3) Each nonresidential tenant located in a covered property shall, within 30 days of a request by the owner and in a form to be determined by the Director, provide all information that cannot otherwise be acquired by the owner and that is needed by the owner to comply with the requirements of this ordinance.
- (4) When the owner of a covered property receives notice that a nonresidential tenant intends to vacate a space within such property, and the utilities do not provide aggregated whole-building energy and water data, the owner shall request information relating to such tenant's energy and water use for any period of occupancy relevant to the owner's obligation to benchmark. Such tenant shall report such information to the owner of the covered property within 30 days of a request by the owner.
- (5) Nothing in this Chapter shall be construed to permit a property owner to use tenant energy usage data for purposes other than compliance with benchmarking report requirements, nor shall the reporting requirements of this Chapter be construed to excuse property owners from compliance with federal or state laws governing direct access to tenant utility data from the responsible utility.
- (6) When a covered property changes ownership, the previous owner shall provide the new owner with all information needed to benchmark for the period during which the previous owner was in possession of the property.

Section C: BENCHMARKING REPORTING.

- (1) For every covered property subject to this chapter, the owner shall annually submit to the Director an energy and water benchmarking report in an electronic format as established by the Director, by the date specified in Section D: Benchmarking Schedule.
- (2) The information included in the annual energy and water benchmarking report shall include, at a minimum, the shared benchmarking information, as defined in Section A (32), for the previous calendar year.
- (3) The owner of each covered property shall enter data into the benchmarking tool such that the energy and water benchmarking report shall be based on an assessment of the aggregated total energy and water consumed by the whole property for the entire calendar year being reported.
- (4) Before submitting a benchmarking report the owner shall run all automated data quality checker functions available within the benchmarking tool and shall verify that all data has been accurately entered into the tool. In order for the benchmarking report to be considered in compliance with this ordinance, the owner shall correct all missing or incorrect information as identified by the data quality checker prior to submitting the benchmarking report to the Director.
- (5) Where the current owner learns that any information reported as part of the benchmarking submission is inaccurate or incomplete, the owner shall amend the information reported within the benchmarking tool, and shall provide the Director with an updated benchmarking submission within 30 days of learning of the inaccuracy.
- (6) [Utilities providing energy or water service to a covered property shall maintain aggregated whole-building data for each property for at least the most recent 24 months in an electronic format capable of being uploaded to the benchmarking tool.]

Section D: BENCHMARKING SCHEDULE.

- (1) The owner of a covered property shall ensure that for each such property a benchmarking report is generated, completed, and submitted to the Director annually.

- (2) The initial benchmarking reports for each covered property shall be filed in accordance with the schedule in the following table. Subsequent benchmarking reports for each covered property shall be due by [May 1] of each year thereafter.

Sector	Property	Initial Reporting Date
Non-Residential	Covered city properties ≥ [50k] sq. ft.	[May 1, 2019]
	Covered city properties ≥ [20k] sq. ft.	[May 1, 2020]
	Covered non-city properties ≥ [50k] sq. ft.	[May 1, 2020]
	Covered non-city properties ≥ [30k] sq. ft.	[May 1, 2021]
Residential	Covered city properties ≥ [50k] sq. ft.	[May 1, 2020]
	Covered city properties ≥ [20k] sq. ft.	[May 1, 2021]
	Covered non-city properties ≥ [50k] sq. ft.	[May 1, 2021]
	Covered non-city properties ≥ [30k] sq. ft.	[May 1, 2022]

- (3) The Director shall annually make available on a publicly accessible website the shared benchmarking information, as defined in Section A (32), for the previous calendar year for each covered property.
- (4) The shared benchmarking information for each covered property shall first be made available to the public beginning the year after each such property is first required to submit a benchmarking report.
- (5) The Director will determine if any benchmarking shared summary data shall be excluded from publishing because it is not in the public interest.

Section E: BENCHMARKING EXEMPTIONS AND TIME EXTENSIONS.

- (1) Benchmarking is not required for a covered city property for the current reporting year if the owner submits documentation to the Director, in such form and with such certifications as required by the Director, establishing that the property met one or more of the following conditions for the calendar year to be benchmarked:
- The property did not have a Certificate of Occupation or temporary Certificate of Occupation for that full year;
 - A demolition permit for the entire building was issued during that year, provided that demolition work commenced and legal occupancy was no longer possible prior to end of that year;
 - The property did not receive energy or water utility services for at least 30 days during that year;
 - The property had an average physical occupancy rate of less than [50 percent] over that year; or
 - Due to special circumstances unique to the property, strict compliance with provisions of this ordinance would not be in the public interest.
- (2) Benchmarking is not required for a covered non-city property for the current reporting year if an owner submits documentation to the Director, in such form and with such certifications as required by the Director, establishing that the property has met one or more of the following conditions:
- It meets any of the exemptions defined for a covered city property;
 - Due to special circumstances unique to the applicant's facility and not based on a condition caused by actions of the applicant, strict compliance with provisions of this ordinance would cause undue hardship;

- (c) The property is under financial hardship; or
- (d) More than [50%] of gross floor area is used for residential purposes and:
 - 1. More than [four] meters are associated with the property; and
 - 2. The owner is not able to obtain aggregated whole-building data; and
 - 3. The serving electric utility does not provide access to aggregated whole-building data. Once such services are available from the utility, as determined by the Director, such properties will no longer be exempt from benchmarking requirements, and shall file initial benchmarking reports in the first required reporting year following such data availability.
- (3) Any owner requesting an exemption from benchmarking shall, by March 1 in the year for which the exemption is being requested, submit to the Director any documentation reasonably necessary to substantiate the request or otherwise assist the Director in the exemption determination. Any exemption granted will be limited to the benchmarking submission for which the request was made and does not extend to past or future submittals.
- (4) An owner may apply for a time extension to complete and submit a benchmarking report if, despite such owner's good faith efforts, they are unable to complete the required actions prior to the scheduled due date due to the failure of either a utility provider or a tenant (or both) to provide the owner with information needed to complete this report. The owner requesting an extension shall submit to the Director any documentation reasonably necessary to substantiate the request or otherwise assist the Director in the determination. For each property, the Director may grant no more than two such extensions per year of no more than [30] days each.

Section N: NOTIFICATION BY THE CITY.

- (1) By December 1 of each year prior to a year in which benchmarking submissions are due, the Director may publicly post a list of all covered properties that must provide a benchmarking submission to the Director during the following year.
- (2) Between January 1 and March 1 of each year, for at least the first three years during which an owner is required to provide a benchmarking submission, the Director shall attempt to notify those owners of their obligation to benchmark via direct mail, electronically via email, or through a public posting on a web site.
- (3) The Director shall attempt to notify owners of their obligation to complete and submit performance verification documentation no less than two years prior to the calendar year in which a covered property's report is due, in the calendar year prior to the calendar year in which such report is due, and again in the calendar year in which such report is due. Such notification may occur via direct mail, electronically via email, or through a public posting on a web site.
- (4) Failure of the Director to notify any owner shall not affect the obligation of such owner to complete and submit their benchmarking reports and performance verification.

Section O: SHARING OF DATA.

- (1) The Director may provide non-anonymized data from benchmarking, audit or retuning submissions to any utility serving a covered property or to any federal, state, county or city-managed energy efficiency or management program, provided that the data will be used only for purposes of offering programs, services, and incentives related to energy and water efficiency and management, and provided that the Director has first obtained the covered property owner's written or electronic permission to share the data with the utility or energy efficiency and/or management program. Where the property owner's permission can be granted electronically through acceptance of a

default option, the city shall provide a clearly delineated option for owners of covered properties to choose to opt out of granting this permission.

- (2) The Director may disclose any audit or retuning data, or data from benchmarking submissions, to a third party for academic or other non-commercial research purposes provided that such data is anonymized.

Section P: ANNUAL REPORT AND ANALYSIS

- (1) Beginning no later than [December 1, 2021] and every year thereafter, the Director shall make available on a publicly accessible website an annual report on the benchmarking of all covered properties. The report shall include a summary of energy and water consumption statistics, and an assessment of compliance rates, accuracy and issues affecting accuracy, changes across the portfolio over time, and trends observed.
- (2) Beginning in [2026] and every three years thereafter, the Director shall make available on a publicly accessible website a report on the performance targets achieved and prescriptive path actions completed for all covered properties, including but not limited to compliance rates, trends observed, correlations of benchmarking scores and audit recommendations, correlations of benchmarking scores and retuning measures completed, the impact of audits and retuning on EUIs, WUIs and ENERGY STAR Scores, and recommendations on how the uptake of energy and water conservation measures could be increased or the implementation of the policy provisions could be improved.
- (3) Nothing in this ordinance shall prevent the Director from including all such information in a combined annual energy and water efficiency report covering the progress of all of the city's energy efficiency ordinances and programs.

Section Q: MAINTENANCE OF RECORDS.

- (1) Owners shall maintain records as the Director determines is necessary for carrying out the purposes of this ordinance, including but not limited to the energy and water bills and reports or forms received from tenants and/or utilities. Such records shall be preserved for a period of five years. At the request of the Director, such records shall be made available for inspection and audit by the Director.
- (2) Owners shall maintain a copy of each audit and retuning report on site for a minimum of five years from the required submission date. At the request of the Director, such reports shall be made available for inspection.
- (3) A copy of the latest up-to-date equipment manuals shall be maintained at every covered property at all times. At the request of the Director, such manuals shall be made available for inspection and audit by the Director.
- (4) When a covered property is sold, the records shall be given to the new property owner and the online Portfolio Manager benchmarking records shall be transferred to the new owner.
- (5) The Department reserves the right to spot check records as it deems necessary to evaluate the efficacy of this Ordinance. Records shall be provided to the Director upon request.

Section R: SUBMITTAL FEES

The owner shall pay to the Department the following fees for each property:

- (1) **Annual Benchmarking Disclosure Report Compliance Fee.** The Department shall charge property owners a fee in the amount of [\$50] for each annual benchmarking report submitted to the Department.

- (2) **Performance Verification Submission Compliance Fee (every [five] years).** The Department shall charge property owners a fee in the amount of [\$150] for each submission of performance verification documentation to the Department.

Section S: VIOLATIONS AND ENFORCEMENT.

- (1) It shall be unlawful for any entity or person to fail to comply with the requirements of this ordinance or misrepresent any material fact in a document required to be prepared or shared by this ordinance.
- (2) If the Director determines that a property owner has failed to report benchmarking information as required under this ordinance, or the owner has submitted incomplete or false benchmarking information, the Director may seek the following remedies:
- (a) A written warning may be issued for the violation; and
 - (b) If initial benchmarking information or updated benchmarking information is not reported within 30 days of the date the written warning is issued, the Director may issue a notice of violation with a penalty of up to \$500.
 - (c) If initial benchmarking information or updated benchmarking information is not reported within 90 days of the date the notice of violation is issued the Director may then and every three months thereafter assess additional penalties of \$500 for noncompliance.
 - (d) If the Director determines that a property owner has intentionally submitted false or incomplete information, or has misrepresented the benchmarking information, the Director may issue a notice of violation with a penalty of up to \$1,000. Each year of non-compliance shall constitute a separate offense punishable upon conviction by a penalty of \$1,000.
 - (e) If the owner of a covered property subject to this Chapter has been previously been found to be in noncompliance under this Chapter within the past two years, all subsequent violations by that property owner for failing to submit a benchmarking report may be subject to a \$500 fine in addition to any other penalty imposed under this Chapter.
- (3) If the Director determines that a property owner has failed to provide performance verification documentation as required under this ordinance, or the owner has submitted an incomplete or false report, the Director may seek the following remedies:
- (a) A written warning may be issued for the violation; and
 - (b) If the performance verification documentation is not submitted within 180 days of the date the written warning is issued, the Director may issue a notice of violation and assess a fine. The Director may assess an additional fine if the documentation is not submitted within 360 days of the date the written warning is issued.
 - (c) The maximum amount of the fines that may be assessed shall be dependent on the size of the covered property, as per the following schedule:
 - 1. For properties greater than or equal to 20,000 and less than 50,000 square feet:
 - a. 180 days after the written warning is issued — \$1,500;
 - b. 360 days after the written warning is issued — \$4,000.
 - 2. For properties greater than or equal to 50,000 and less than 100,000 square feet:
 - a. 180 days after the written warning is issued — \$2,000;
 - b. 360 days after the written warning is issued — \$8,000.
 - 3. For properties greater than or equal to 100,000 and less than 200,000 square feet:
 - a. 180 days after the written warning is issued — \$2,500;
 - b. 360 days after the written warning is issued — \$10,000.
 - 4. For properties greater than or equal to 200,000 square feet:
 - a. 180 days after the written warning is issued — \$5,000;

- b. 360 days after the written warning is issued — \$20,000.
- (d) If the Director determines that a property owner has intentionally submitted false information or data, or misrepresented the results of an audit or retuning report or other performance verification documentation, the Director may, in addition to any other remedy authorized by law, seek the following remedies:
 1. Assess a \$5,000 fine for the first violation; and
 2. Assess a \$10,000 fine for the second and any subsequent violations.

SECTION T: ADDITIONAL NON-COMPLIANCE PROCEDURES, VIOLATIONS, AND ENFORCEMENT.

- (1) It shall be unlawful for any entity or person to fail to comply with the requirements of this ordinance or misrepresent any material fact in a document required to be prepared or shared by this ordinance.
- (2) Nothing in this Chapter shall obligate the Department or the Director to issue a warning notice of violation or a notice of violation before initiating a civil enforcement action.
- (3) The city will not reissue a [certificate of occupancy, Building Structural and/or Building Electrical recertification] to properties that have failed to comply with the benchmarking or performance verification requirements of this ordinance until such time that the required reports are submitted with all required components.
- (4) Necessary Trust Funds or accounts shall be established by the Department to deposit monies received under this Chapter,
 - (a) Monies collected for report submittals (compliance purposes) under this Chapter shall be allocated to improve the energy and water efficiency of public and private sector properties within [the city], with [50%] allowed to be used to support city government administration of this Chapter and related educational activities, as well as energy and water improvements to local government facilities and [50%] allowed to be used to support educational activities as well as energy and water improvements to non-city facilities.
 - (b) A portion of the monies collected due to noncompliance under this Chapter shall be allocated to improve the energy and water efficiency of covered properties designated as affordable housing or as B or C class buildings within [the city].
 - (c) The Director shall recommend a five-year plan to the [Mayor and City Council] regarding how these funds should be allocated.

Section U: RULES.

The Director shall promulgate such rules as deemed necessary to carry out the provisions of this ordinance.

Section V: SEVERABILITY.

If any provision, section, subsection, sentence, clause, phrase or other portion of this ordinance is for any reason found or declared to be unconstitutional or otherwise invalid, in whole or in part, by any court of competent jurisdiction, such portion shall be deemed severable, and such unconstitutionality or invalidity shall not affect the validity of the remaining provisions or portions of this ordinance, which remaining portions shall continue in full force and effect and can be implemented without the invalid provisions and, to this end, the provisions of this ordinance are declared to be severable. The [City Council] hereby declares that it would have adopted each and every provision and portion thereof not



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declared invalid or unconstitutional, without regard to whether any portion of the ordinance would subsequently be declared invalid or unconstitutional.

Section W: TIMING.

This ordinance shall become effective ten (10) days after the date of enactment unless vetoed by the Mayor, and if vetoed, shall become effective only upon an override by this Board.

Appendix A: Sample Retuning Measures

Retuning requires a qualified retuning professional to both investigate and take necessary actions to correct deficiencies in a building's maintenance procedures and operating parameters, and to improve performance through maintenance, cleaning, and repair. Currently there is no industry standard for retuning; it is defined as a process. However, a process is not something a city can easily enforce.

As there is no widely accepted standard defining the systems and components that should be corrected as part of retuning, we recommend that the list of actions be developed in coordination with a local advisory group of industry experts, and documented as part of the rulemaking. This allows the requirements to be more reflective of the needs of systems most prevalent in the local building stock, and also allows the requirements to be modified over time through rulemaking as conditions and expectations change.

Sections 5.4.2 and 5.4.3 of ASHRAE's draft Standard 211 – Standard for Commercial Building Energy Audits – provide an initial listing of those items that should be considered as part of retuning. The following list can also serve as an inventory of the items that should be evaluated and corrected to achieve efficient operations. Cities should be aware that this list was originally created by New York City for the local retuning requirement, and might not cover appropriate measures for different climates.

1. Operating protocols, calibration, and sequencing:
 - 1.1. HVAC temperature and humidity set points and setbacks are appropriate and operating schedules reflect major space occupancy patterns and the current facility requirements.
 - 1.2. HVAC sensors are properly calibrated.
 - 1.3. HVAC controls are functioning and control sequences are appropriate for the current facility requirements.
 - 1.4. Loads are distributed equally across equipment when appropriate (i.e. fans, boilers, pumps, etc. that run in parallel).
 - 1.5. Ventilation rates are appropriate for the current facility requirements.
 - 1.6. System automatic reset functions are functioning appropriately, if applicable.
 - 1.7. Adjustments have been made to compensate for oversized or undersized equipment so that it is functioning as efficiently as possible.
 - 1.8. Simultaneous heating and cooling does not occur unless intended.
 - 1.9. HVAC system economizer controls are properly functioning, if applicable.
 - 1.10. The HVAC distribution systems, both air and water side, are verified as appropriately balanced, with the exception of tenant-owned systems.
 - 1.11. Light levels are appropriate to the task.
 - 1.12. Lighting sensors and controls are functioning properly according to occupancy, schedule, and/or available daylight, where applicable.
 - 1.13. Domestic hot water systems have been checked to ensure proper temperature settings.
 - 1.14. Water pumps are functioning as designed.
 - 1.15. System water leaks have been identified and repaired (booster pumps, backflow preventers, trap primes, strainers, and makeup water).
 - 1.16. Fixture water leaks have been identified and repaired (tanks, bowls, flush valves, urinals, showerheads, faucets, laundry systems, and drinking fountains).

- 1.17. Hot and cold-water supply valves (located in toilets, urinals, sinks, laundry machines, drinking fountains, etc.) have been inspected for leaks and repaired as needed.
- 1.18. Equipment water leaks have been identified and repaired (kitchen, lab, and medical equipment).
- 1.19. Outside water spigots and hose bibs have been inspected for leaks and repaired as needed.
- 1.20. Exterior water leaks have been identified and repaired (irrigation system, pools, fountains, and spas).
- 1.21. Steam quenching temperature is set no lower than allowed per local law.
- 1.22. Cooling tower cycles of concentration are set to minimize amount of blow down from the condenser water system.
- 1.23. Water treatment conductivity controller is functioning as designed.
- 1.24. Domestic water make-up supply to HVAC systems is functioning as designed.
- 1.25. Protocols are in place for monitoring for leaks in open-loop and closed-loop heating and cooling systems.
- 1.26. There is no improper use of domestic water to supplement cooling functions.
- 1.27. Outlet temperature of single pass-cooling systems is functioning as designed.
- 1.28. Domestic water make-up supply to recycled water systems is functioning as designed.
- 1.29. Plumbing fixtures are performing per nameplate specifications and are operating at approved American Society of Mechanical Engineers (ASME) rating.
- 1.30. System water pressure is within approved pressure range.
- 1.31. Automatic fixtures and flush valves sensors are properly calibrated.
- 1.32. Flow restrictors are functioning properly (faucets and showerheads).
- 1.33. Self-closing hose nozzles are installed and functioning properly (interior and exterior).
- 1.34. Irrigation controls, timers and rain sensors are functioning properly and in accordance with local regulation.
- 1.35. Swimming pool, fountain, and spa timers and controls are properly set, temperature setpoint is optimized to limit evaporation, and recirculation systems and makeup water are functioning as-designed.
- 1.36. Kitchen hood wash down cycle is functioning as-designed.
- 1.37. All equipment schedules are optimized for actual daily, weekly, holiday, and seasonal schedules
- 1.38. Setpoints for all zones and equipment are optimized and reset and lock-outs for equipment are implemented.
- 1.39. All equipment controls are optimized for efficient energy and water operations.
2. Cleaning and repair:
 - 2.1. HVAC equipment (vents, ducts, coils, valves, soot bin, etc.) is clean.
 - 2.2. Filters are clean and protocols are in place to replace.
 - 2.3. Light fixtures are clean.

- 2.4. Motors, fans, and pumps, including components such as belts, pulleys, and bearings, are in good operating condition.
- 2.5. Steam traps have been replaced as required to maintain efficient operation, if applicable.
- 2.6. Manual overrides on existing equipment have been remediated.
- 2.7. Boilers have been tuned for optimal efficiency, if applicable.
- 2.8. Exposed hot and chilled water and steam pipes of three inches or greater in diameter with associated control valves are insulated in accordance with the standards of the current International Energy Conservation Code.
- 2.9. In all easily accessible locations, sealants and weather stripping are installed where appropriate and are in good condition.
- 2.10. Exhaust ventilation systems do not have leakage gaps at the connection to the intake registers or at the connections to the roof exhaust vents.
- 2.11. Swimming pool and spa covers are in good repair, and protocol is in place to replace.
- 2.12. Swimming pool and spa filters are in good repair and protocol is in place to replace.
3. Training and documentation:
 - 3.1. Permits for all HVAC, electrical and plumbing equipment are in order.
 - 3.2. Critical operations and maintenance staff have received appropriate training, which may include labor/management training, on all major equipment and systems and general energy and water conservation techniques.
 - 3.3. Operational and maintenance record keeping procedures (log books, computer maintenance records, etc.) have been implemented.
 - 3.4. The following documentation is on site and accessible to the operators: the operations and maintenance manuals, if such manuals are still available from the manufacturer, the maintenance contracts, and the most recent retuning report.
 - 3.5. Ensure that staff has been trained in water efficiency protocols.
 - 3.6. Ensure that protocol is in place to monitor all existing utility meters.
 - 3.7. Ensure that protocol is in place to read, monitor, and document all existing sub-meters, and a replacement protocol is in place.