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Docket Number:	16-BSTD-07
Project Title:	Local Ordinance Applications - 2016 Standards
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Document Title:	Carlsbad Ordinance CS348 Full Text
Description:	This is the complete text of Ordinance CS-348, an ordinance of the City Council of the city of Carlsbad, California, amending Carlsbad Municipal Code Chapter 18.30 regarding requirements for water heating systems in new residential buildings.
Filer:	Peter Strait
Organization:	City of Carlsbad
Submitter Role:	Commission Staff
Submission Date:	4/22/2019 1:29:15 PM
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Exhibit 2

ORDINANCE NO. CS-348

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF CARLSBAD, CALIFORNIA, AMENDING CARLSBAD MUNICIPAL CODE CHAPTER 18.30 REGARDING REQUIREMENTS FOR WATER HEATING SYSTEMS IN NEW RESIDENTIAL BUILDINGS.
PROJECT NAME: CLIMATE ACTION PLAN ORDINANCES
PROJECT NUMBER: MCA 17-0002 (PUB17Y-0013)

WHEREAS, on September 22, 2015, the City Council of the City of Carlsbad approved Resolution No. 2015-244, approving the Climate Action Plan (CAP) which aims to reduce communitywide greenhouse gas emissions (GHG); and

WHEREAS, in connection with approval of the CAP, the City Council certified a program environmental impact report (EIR 13-02) in compliance with the California Environmental Quality Act (CEQA), which evaluated the potential environmental effects of CAP implementation, including adoption and enforcement of various ordinances and programs intended to reduce GHG; and

WHEREAS, this ordinance fulfills a CAP requirement to address alternative water heating systems for new residential buildings (CAP measure J-2); and

WHEREAS, the City Planner has determined that: 1) adoption of this ordinance is a subsequent activity of the CAP for which program EIR 13-02 was prepared; 2) a notice for the activity has been given, which includes statements that this activity is within the scope of the program approved earlier, and that program EIR 13-02 adequately describes the activity for the purposes of CEQA Section 15168(c)(2) and (e); 3) the project has no new significant environmental effect not analyzed as significant in the prior EIR 13-02; and 4) none of the circumstances requiring a subsequent or a supplemental EIR under CEQA Guidelines Sections 15162 or 15163 exist; and WHEREAS, CAP actions to reduce GHG require adoption of ordinances addressing alternative water heating systems for new residential buildings; and

WHEREAS, California Health and Safety Code section 17958 requires that cities adopt building regulations that are substantially the same as those adopted by the California Building Standards Commission and contained in the California Building Standards; and

WHEREAS, the California Energy Code is a part of the California Building Standards which implements minimum energy efficiency standards in buildings through mandatory requirements, prescriptive standards, and performances standards; and,

WHEREAS. California Health and Safety Code Sections 17958.5, 17958.7 and 18941.5 provide that the City may make changes or modifications to the building standards contained in the California Building Standards, including the California Energy Code, based upon express findings that such changes or modifications are reasonably necessary because of local climatic, geological or topographical conditions; and

WHEREAS, California Green Building Standards Code Section 101.7.1 provides that local climatic, geological or topographical conditions include environmental conditions established by a city, county, or city and county; and

WHEREAS, the City Council of the City of Carlsbad finds that each of the amendments, additions and deletions to the California Energy Code contained in this ordinance are reasonably necessary because of local climatic, geological or topographical conditions described in Attachment A to this ordinance; and

WHEREAS, Public Resources Code Section 25402.1(h)2 and Section 10-106 of the Building Energy Efficiency Standards (Standards) establish a process which allows local adoption of energy standards that are more stringent than the statewide Standards, provided that such local standards are cost effective and the California Energy Commission finds that the standards will require buildings to be designed to consume no more energy than permitted by the California Energy Code; and

WHEREAS, the City of Carlsbad has performed cost effectiveness analyses as required by the California Energy Commission for the local amendments to the California Energy Code contained in this ordinance; and

WHEREAS, based upon these analyses, the City Council of the City of Carlsbad finds that the local amendments to the California Energy Code contained in this ordinance are cost effective and will require buildings to be designed to consume no more energy than permitted by the California Energy Code.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Carlsbad, California, ordains as follows that:

1. The above recitations are true and correct.

2. Chapter 18.30 List of Sections is amended to add a reference to a new section as follows:

18.30.170 California Energy Code Subchapters 7 and 8 amended – Residential water heating requirements.

3. Section 18.30.170 is added to read as follows:

18.30.170 California Energy Code Subchapters 7 and 8 amended – Residential water heating requirements.

A. Section 150.0(n) of the California Energy Code is amended to read as follows:

SECTION 150.0
MANDATORY FEATURES AND DEVICES

(n) **Water Heating System.**

1. Systems using gas or propane water heaters to serve individual dwelling units shall include the following components:

   A. A dedicated 125 volt, 20 amp electrical receptacle that is connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit within 3 feet from the water heater and accessible to the water heater with no obstructions. In addition, all of the following:

      i. Both ends of the unused conductor shall be labeled with the word "spare" and be electrically isolated; and

      ii. A reserved single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit in A above and labeled with the words "Future 240V Use"; and

   B. A Category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed; and

   C. A condensate drain that is no more than 2 inches higher than the base of the installed water heater, and allows natural draining without pump assistance, and

   D. A gas supply line with a capacity of at least 200,000 Btu/hr.

2. Water heating recirculation loops serving multiple dwelling units shall meet the requirements of Section 110.3(c)5.

3. Solar water-heating systems and collectors shall be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the Executive Director.

4. Instantaneous water heaters with an input rating greater than 6.8 kBTU/hr (2kW) shall meet the requirements of Section 110.3(c)7.

5. Any newly constructed residential building shall derive its service water heating from a system that provides at least 60 percent of the energy needed for service water heating from on-site solar energy or recovered energy. Solar energy includes solar photovoltaics and solar-water heating systems.

   EXCEPTION to Section 150.0(n)5: Buildings for which the Building Official has determined that service water heating from on-site solar energy or recovered energy is economically or physically infeasible. Applicant is responsible for demonstrating requirement infeasibility when applying for an exemption

B. Section 150.1(c)8 of the California Energy Code is amended to read as follows:

SECTION 150.1
PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES FOR LOW-RISE RESIDENTIAL BUILDINGS

8. **Domestic Water-Heating Systems.** Water-heating systems shall meet the requirements of either A, B, or C. For recirculation distribution systems serving individual dwelling units, only Demand Recirculation Systems with manual on/off control as specified in the Reference Appendix RA4.4.9 shall be used:

   A. For systems serving individual dwelling units, the water heating system shall meet the requirement of either i, ii, or iii:

      i. A single heat pump water heater. The storage tank shall be located in the garage or conditioned space. In addition, one of the following:

         a. A compact hot water distribution system as specified in the Reference Appendix RA4.4.6 and a drain water heat recovery system that is field verified as specified in the Reference Appendix RA3.6.9; or

         b. A photovoltaic system capacity of 0.3 kWdc larger than the requirement specified in Section 150.1(c)14.

      ii. A single heat pump water heater that meets the requirements of NEEA Advanced Water Heater Specification Tier 3 or higher. The storage tank shall be located in the garage or conditioned space.

      iii. A solar water-heating system meeting the installation criteria specified in Reference Residential Appendix RA4 and either a minimum solar savings fraction of 0.60 or a minimum 40 square feet of collectors.

   B. For systems serving multiple dwelling units, a central water-heating

system that includes the following components shall be installed:

i. Gas or propane water heating system; and

ii. A recirculation system that meets the requirements of Sections 110.3(c)2 and 110.3(c)5, includes two or more separate recirculation loops serving separate dwelling units, and is capable of automatically controlling the recirculation pump operation based on measurement of hot water demand and hot water return temperature; and

EXCEPTION to Section 150.1(c)8Bii: Buildings with eight or fewer dwelling units may use a single recirculation loop.

iii. A solar water-heating system meeting the installation criteria specified in Reference Residential Appendix RA4 and with a minimum solar savings fraction of either a or b below:

a. A minimum solar savings fraction of 0.60 or a minimum of 40 square feet of collectors; or

b. A minimum solar savings fraction of 0.40. In addition, a drain water heat recovery system that is field verified as specified in the Reference Appendix RA3.6.9.

C. A water-heating system serving multiple dwelling units determined by the Executive Director to use no more energy than the one specified in subsection B above.

EFFECTIVE DATE: This ordinance shall be effective upon approval by the California Energy Commission and no earlier than the effective date of the 2019 California Energy Code, which is January 1, 2020; and the City Clerk shall certify the adoption of this ordinance and cause the full text of the ordinance or a summary of the ordinance prepared by the City Attorney to be published at least once in a newspaper of general circulation in the City of Carlsbad within fifteen days after its adoption.

INTRODUCED AND FIRST READ at a Regular Meeting of the Carlsbad City Council on the 26th day of February 2019, and thereafter

PASSED, APPROVED AND ADOPTED at a Regular Meeting of the City Council of the City of Carlsbad on the 12th day of March 2019, by the following vote, to wit:

AYES: Hall, Blackburn, Bhat-Patel, Schumacher, Hamilton.

NOES: None.

ABSENT: None.

APPROVED AS TO FORM AND LEGALITY:

CELIA A. BREWER, City Attorney

MATT HALL, Mayor

BARBARA ENGLESON, City Clerk

for

(SEAL)

FINDINGS FOR LOCAL AMENDMENTS TO 2019 CALIFORNIA ENERGY CODE

California Health and Safety Code Section 17958 provides that the city may make changes to the provisions in the uniform codes that are published in the California Building Standards Code. Health and Safety Code Sections 17958.5, 17958.7 and 18941.5 require that for each proposed local change to those provisions in the uniform codes and published in the California Building Standards Code which regulate buildings used for human habitation, the city council must make findings supporting its determination that each such local change is reasonably necessary because of local climatic, geological, or topographical conditions. Furthermore, California Green Building Standards Code Section 101.7.1 provides that local climatic, geological or topographical conditions include environmental conditions established by a city, county, or city and county.

California Energy Code				
Section	**Title**	**Add**	**Amend**	**Justification**
150.0(n)*	Mandatory features and devices – water heating systems		✓	C, T, E
150.1(c)8*	Performance and prescriptive compliance approaches for low-rise residential buildings – domestic water heating systems		✓	C, T, E
*Amends 2019 California Energy Code				

Key to Justification for Amendments to Title 24 of the California Code of Regulations

C This amendment is justified on the basis of a local **climatic** condition. Carlsbad has many brush-covered hillsides and protected natural open space areas adjacent to developed areas. Though relatively moderate compared to inland portions of the region, the seasonal climatic conditions during the late summer and fall in Carlsbad are characterized by frequent Santa Ana weather patterns. Santa Ana conditions are dry, hot, strong and gusty winds that produce extreme dryness and some of the highest winds in San Diego County, have fanned the region's most catastrophic wildfires and can impact public health in the populated coastal zone by the extreme heat and occasional smoke.[1]

Carlsbad has experienced larger increases in annual temperature than other parts of the state. Compared to the first six decades of the 20th century, annual temperatures have increased by more than 1°F in many parts of the state, with some areas (including the San Diego region) exceeding 2°F.[2] This heating is expected to continue well into the future, with estimates

[1] Kalansky, Julie, Dan Cayan, Kate Barba, Laura Walsh, Kimberly Brouwer, Dani Boudreau. (University of California, San Diego). 2018. ***San Diego Summary Report.*** California's Fourth Climate Change Assessment, p.27.

[2] Bedsworth, Louise, Dan Cayan, Guido Franco, Leah Fisher, Sonya Ziaja. (California Governor's Office of Planning and Research, Scripps Institution of Oceanography, California Energy Commission, California Public Utilities Commission). 2018. ***Statewide Summary Report.*** California's Fourth Climate Change Assessment, p. 22.

ranging between 4-6°F and 7-9°F by the end of the century.[3]

T This amendment is justified on the basis of a local **topographical** condition. Carlsbad has six and a half miles of beaches, three lagoons, several creeks and other low-lying areas prone to flooding. The San Diego Multi-jurisdictional Hazard Mitigation Plan ranks coastal storm, erosion and flooding among the top five hazards for Carlsbad, with potential property loss exposure approaching $200 million dollars.[4] There is broad scientific consensus that the earth will continue to warm and that sea levels will rise as a result of thermal expansion of the oceans and increased contributions from melting glaciers. By the end of the century, sea level could rise by 1.7 to 6.6 feet, inundating beaches and impacting miles of roads and public accesses, the state campgrounds, hundreds of properties, and more than 1,000 acres of environmentally sensitive lands in Carlsbad.[5]

E This amendment is justified on the basis of local **environmental** conditions. Sustainability is a core value of the Community Vision, and an intrinsic part of the Carlsbad General Plan. Energy efficiency enhances the public health and welfare by promoting the environmental and economic health of the city through incorporating green practices into the design, construction, maintenance and operation of new and existing buildings. Installation of renewable energy systems to provide a building's energy and water heating needs enhances the public health and welfare by reducing air pollution and greenhouse gas (GHG) emissions that come from fossil fuel combustion.

The amendments to the Energy Code are reasonably necessary to achieve the following goals of the General Plan Sustainability Element and Carlsbad Climate Action Plan:

- Promote energy efficiency and conservation in the community;
- Pursue the use of sustainable energy sources;
- Reduce the community's greenhouse gas emissions and foster green development patterns;
- Maintain a long-term balance among environmental, social and economic concerns, to ensure a vibrant, healthy and prosperous community.

The above-listed conditions within the city pose local hazards for which amendments to the California Energy Code are required. Human activities that release heat-trapping greenhouse gases into the atmosphere (such as through fossil fuel combustion) are the primary driver of climate change.[6] Failure to address and significantly reduce GHG emissions could result in increased extreme heat events, dry weather conditions and risk of wildfire. Rises in sea level, including in the city's lagoons, could put at risk Carlsbad homes and businesses, public facilities, public roads (especially Carlsbad Boulevard) and accessways.

According to the Carlsbad Climate Action Plan, community-wide GHG emissions need to be reduced 49 percent by 2035 to help achieve statewide reduction targets necessary to reduce impacts from

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[3] ***San Diego Summary Report,*** p. 19.

[4] 2017 San Diego Multi-jurisdictional Hazard Mitigation Plan, Table 5.3-1.

[5] City of Carlsbad. December 2017. Sea Level Rise Vulnerability Assessment, Table 7, p. 44.

[6] U.S. Global Research Program. Fourth National Climate Change Assessment, https://www.globalchange.gov/climate-change. Accessed on 12/28/18.

climate change. Residential land uses account for 25 percent of the community's GHG emissions, while commercial and industrial uses are responsible for about 32 percent. Implementation of alternative water heating systems in new and existing residential buildings will significantly reduce emissions from these uses.

STATE OF CALIFORNIA)
COUNTY OF SAN DIEGO) ss.

I, Sherry Freisinger, Deputy City Clerk of the City of Carlsbad, County of San Diego, State of California, hereby certify that I have compared the foregoing copy with the original ORDINANCE NO. CS-348, AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF CARLSBAD, CALIFORNIA, AMENDING CARLSBAD MUNICIPAL CODE CHAPTER 18.30 REGARDING REQUIREMENTS FOR WATER HEATING SYSTEMS IN NEW RESIDENTIAL BUILDINGS, PROJECT NO. MCA 17-0002 (PUB17Y-0013), on file in the Office of the City Clerk of the City of Carlsbad; that the same contains a full, true and correct transcript therefrom and of the whole thereof.

Witness my hand and the seal of said City of Carlsbad, this 13TH day of March 2019.

SHERRY FREISINGER
Deputy City Clerk

(SEAL)

CITY OF CARLSBAD CALIFORNIA