

**DOCKETED**

<b>Docket Number:</b>	16-BSTD-07
<b>Project Title:</b>	Local Ordinance Applications - 2016 Standards
<b>TN #:</b>	228417
<b>Document Title:</b>	City of Davis Ordinance 2554
<b>Description:</b>	This is the complete text of Ordinance 2554, an ordinance of the City Council of the city of Davis, California, amending Davis Municipal Code Sections 8.01.060 and 8.01.090 regarding requirements for energy efficiency and installation of solar photovoltaic systems in residential and nonresidential buildings.
<b>Filer:</b>	Peter Strait
<b>Organization:</b>	City of Davis
<b>Submitter Role:</b>	Commission Staff
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<b>Docketed Date:</b>	5/30/2019

## **ORDINANCE NO. 2554**

### **AN ORDINANCE AMENDING SECTIONS 8.01.060 RELATED TO ELECTRICAL REQUIREMENTS AND 8.01.090 RELATED TO GREEN BUILDING AND ADDING SECTION 8.01.094 RELATED TO ENERGY EFFICIENCY STANDARDS FOR NONRESIDENTIAL AND HIGH-RISE MULTIFAMILY BUILDINGS UNDER THE GREEN BUILDING CODE**

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF DAVIS DOES HEREBY ORDAIN AS FOLLOWS:

SECTION 1. Subsection (c) of Section 8.01.060 of the Davis Municipal Code is hereby amended to read in full as follows:

1. In new single family residential construction a 120-volt receptacle shall be installed under the sink of the most remote sink, measured from the water heater, to accommodate the future installation of an on-demand hot water recirculation pump.

Exception: Where compact hot water design credit is achieved, the receptacle for a future recirculation pump is not required.

2. In bathroom or kitchen remodels and additions that include the most remote sink, measured from the water heater, a 120-volt receptacle shall be installed under the sink to accommodate the future installation of an on-demand hot water recirculation pump.

Exception: If it is determined that the installation of the 120 volt receptacle is not practical because the existing wiring is not easily accessible the receptacle is not required.

SECTION 2. Subsection (e) of Section 8.01.090 of the Davis Municipal Code is hereby amended to read in full as follows:

1. Chapter 4 Section 4.106.4.1 of the California Green Building Standards Code is hereby amended to add a sentence to the end of the paragraph to read as follows :

Single Family Residential developments are required to pre-install 8 Gauge wiring to support Level 2 electric vehicle charging.

SECTION 3. Section 8.01.090 of the Davis Municipal Code is hereby added to read in full as follows:

8.01.094 Energy Efficiency “Reach” Green Building Code Requirements for Nonresidential and High-Rise Residential Buildings

In addition to all requirements of the Green Building Code applicable to new nonresidential and high-rise multifamily dwellings, the following shall apply:

1. **New Nonresidential Buildings.** New nonresidential buildings shall comply with the Tier 1 (10% compliance margin) requirement for energy efficiency by employing energy efficiency measures. In addition, a PV system sized to offset a portion of the total building energy use based on TDV energy is required. The PV sizing shall be consistent with the methodology included in the cost effectiveness study provided by TRC. The PV sizing calculations were developed such that PV size would be the lessor of approximately 80% offset of the building's modelled annual electric load or 15 DC watts per sq. ft. of solar zone<sup>1</sup>.
2. **New High-rise Multifamily Dwellings.** New high-rise multifamily dwellings shall comply with the Tier 1 (10% compliance margin) requirement for energy efficiency by employing energy efficiency measures. In addition, a PV system sized to offset a portion of the total building energy use based on TDV energy is required. The PV sizing calculations were developed such that PV size would be the lessor of approximately 80% offset of the building's modelled annual electric load or 15 DC watts per sq. ft. of solar zone<sup>1</sup>.
3. **New nonresidential and high-rise multifamily buildings** shall incorporate EV charging stations as determined by tables 1 and 2. Each EV charging station installed shall be credited toward the California Green Building Standards Code requirement for charging spaces.

<sup>1</sup>2016 Nonresidential Compliance Manual section 9.3.1: solar zone must have a total area of no less than 15% of the total roof area.

TABLE 1 - Non-Residential EV Charging Station Standards

<b>Non-Residential Land Use Category</b>	<b>Required Parking Spaces</b>	<b>EV Chargers</b>	<b>Land use (From City Parking Code; City Code Section 40.25.090)</b>
Retail	0-10	0	1. Automobile or machinery sales and service garages 2. Banks, post offices, business and professional offices 3. Furniture and appliance stores, household equipment or furniture repair shop 4. Laundrettes 5. Restaurants, beer parlors, nightclubs, and cardrooms 6. Retail stores, shops, etc. 7. Rooming and lodging houses 8. Shopping center, neighborhood 9. Shopping center, community 10. Land uses where up to 50% of spaces serving employees.
	11-51	1	
	52-102	2	
	Every additional 50	+1	
Non-Retail	0-10	0	1. Group care homes



	11-26	1	2. Hospitals 3. Hotels and motor hotels, motels 4. Manufacturing plants, research or testing laboratories and bottling plants 5. Medical or dental clinics 6. Rest home, sanatorium, convalescent home or hospital 7. Wholesale establishments, warehouses 8. Land uses where more than 50% of spaces serving employees.
	27-42	2	
	Every additional 15	+1	
Destination	0-10	0	1. Bowling alleys 2. Churches, schools, day care centers and nursery schools 3. Dance halls and assembly halls without fixed seats, exhibition halls except assembly rooms in conjunction with auditorium 4. Funeral home, mortuaries 5. Sports arenas auditoriums, theaters, assembly halls
	11-36	1	
	37-62	2	
	Every additional 25	+1	

## Notes:

- 1) All other non-modified Tier 1 standards for non-residential EV charging apply.
- 2) All required charging is Level 2 with the exception of non-retail (Workplace) charging which can be satisfied by 50% level 1 chargers with 50% payment-ready level 2 chargers due to longer dwell times. Note: calculations for total number of chargers shall be rounded up and rounding shall favor Level 2 chargers.
- 3) The first two chargers placed at non-retail (Workplace) locations must be payment ready Level 2 with subsequent chargers optionally Level 1.
- 4) 50% of required non-retail (Workplace) chargers to be installed prior to issuance of Certificate of Occupancy if approved prior to January 1, 2020. Remaining required chargers do not have to be installed at time of construction but must be pre-wired and have adequate electrical panel capacity for each future charger. After January 1, 2020, all required chargers must be fully installed.
- 5) Chargers should be placed to serve multiple parking spaces – see design recommendations in Section 5 of the City of Davis EV Charging Plan.
- 6) EV charging parking spaces shall be included in the required number of parking spaces per Article 40.25 of the City of Davis Zoning Ordinance. If space is available in a parking lot, additional EV charging spaces may be installed beyond the minimum number required subject to review and approval by the Department of Community Development and Sustainability.
- 7) Conversion of existing parking spaces for EV charging purposes shall be reviewed and approved by the Director of Community Development & Sustainability to assure a balance between full-size parking spaces, compact parking spaces and parking spaces for persons with disabilities.

TABLE - 2 Residential Standards

Development Type	Tier 1 Modifications	Notes
Single Family (1-3 units)	1. Single Family Residential development required to pre-install 8 Gauge wiring plus reserve room in electrical panel necessary to support Level 2 electric vehicle charging.	1. Addresses key barrier for adding Level 2 Home EV charger.
Multi-family (4 or more units)	1. Multi-family Residential development projects are required to provide: (1) Level 1 charging at 5% of all required parking spaces with a minimum of 2 parking spaces served, (2) Level 2 charging at 1% of all required parking spaces where more than 20 parking spaces are required with a minimum of 1 parking space served, (3) conduit adequate for Level 2 charging to serve or reasonably be extended in the future to 25% of all parking spaces, and (3) room in panel(s) and capacity to serve 20% of all parking spaces with Level 1 charging and 5% of all parking spaces with Level 2 charging. Notes: (1) properly located, a single charger can serve multiple parking spaces; (2) Reasonable future extension of conduit would not include the removal or trenching of hardscaped surfaces or areas where mature trees would be expected to establish (e.g. pavement, tree wells, etc.)	1. Addresses key barrier for EV use in residential rental settings.

## Notes:

- 1) All other non-modified Tier 1 standards for residential EV charging apply.
  - 2) Chargers in Multi-family residential settings should be placed to serve multiple parking spaces – see design recommendations in Section 5 of the City of Davis EV Charging Plan.
  - 3) Level 1 in the context above is defined as a 20A 120V circuit and Level 2 is defined a 40A 208V/240V circuit
  - 4) Level 1 is defined as a 120V hardwired EVSE not a household outlet.
  - 5) Monitoring equipment to properly charge tenants is encouraged at multi-family locations
4. The most current version of the International Code Council (ICC) G4 Commissioning Process Application (Cx Guidelines) shall be adopted by reference. Compliance with the guidelines shall be required for nonresidential and high-rise residential projects. The application shall be consistent with the application specified in the current



version of the California Green Building Standards Code and the California Energy Code.

### SECTION 3. Express Findings

As required by Health and Safety Code sections 17958.7, 18941.5(c) and 18942, the City Council of the City of Davis hereby expressly finds that the above amendment to the California Building Standards Code is necessary for the protection of the public health, safety and welfare, due to the local climatic, geological or topographical conditions. The amendment is justified by all of the following conditions.

#### Express Finding #1: Climatic

The effects of climate change are increasingly self-evident, and costly. Hurricanes wildfires and other natural disasters take many lives and cost billions of dollars. Across the globe, higher temperatures are contributing to record heat waves and droughts, rising sea levels, more intense storms, wildfires, and floods. Even if humanity were to immediately stop releasing CO<sub>2</sub>, the climate would continue to change because the greenhouse gases that we have already released into the atmosphere could take years to dissipate. Climate change is the fundamental design problem of our time. The threat climate change poses is existential, and buildings are large contributors.

In Davis climate is one of the greatest impacts to fire behavior and other major emergency events because it cannot be controlled. The drying out of wood shakes and wild land fuels in the summer months allows for easy ignition. The combustible weeds on vacant urban lots coupled with windy conditions are a recipe for disaster. The Sacramento region has extreme variations in weather patterns. Summers are arid and warm; winters are cool to freezing, but void of significant snowfall. Fall and spring can bring any combination of weather pattern together. The doubling of average rainfall called an "El Nino" event has occurred from time to time and does cause the grass to mature and grow in excess of six feet high before it dries out. Ten (10) square feet of this type of fuel is equivalent to the explosive force of one gallon of gasoline. Average yearly rainfall for the City is approximately 17.87 inches. This rainfall normally occurs from October to April. Low-level fog (tulle-fog) is present throughout the winter months, which brings visibility to almost zero feet. The fog delays emergency responders. The fog can also cause freezing and slick roadways. During the summer months there is generally no measurable precipitation. Temperatures for this dry period range from 70 to 112 degrees F and are frequently accompanied by light to gusty Delta winds. The relative humidity during the summer month's range from 2 to 30 mm HG, which is classified as arid. The severe hot climate for several summer months makes it essential to provide for future solar power, paddle fans, electric vehicles and drip irrigation.

#### Express Finding #2: Geological

The City of Davis is subject to ground tremors from seismic events as the City is located in Design Category C, which relates to a high risk of earthquakes. Gas appliance located in attics or garages must be adequately braced and protected from damage from moving objects. Large portions of the City of Davis have very poor soil conditions. The soil is often expansive in nature and very acidic which leads to pre-mature deterioration of plumbing piping installed in the

ground. Potable water is predominately pumped from City wells and has a higher than usual content of minerals contributing to extremely hard water. Additionally, the very low elevations are subject to a very high water table. Prior experience with lightly-loaded footing and foundations and concrete slabs on grade revealed structural cracks resulting in differential settlement in addition to moisture migrating from the soil to occupied, habitable areas of buildings.

Express Finding #3: Topographical

The City features include open space, drainage canals, freeways and railroad tracks. Traffic has to be channeled around several of these topographical features and limitations which creates traffic congestion and delays in emergency response. These features are located between the Fire Stations located within the City of Davis. Heavy traffic congestion on the City streets already acts as a barrier to timely response for fire and emergency vehicles. In the event of an accident or other emergency at one of the key points of intersection between a road and freeway, sections of the City could be isolated or response times could be sufficiently slowed so as to increase the risk of injury or damage. The topography of the downtown area together with traffic congestion makes it necessary reduce or eliminate overhead power lines to allow large fire trucks easy access to this area.

SECTION 4. The City Clerk is hereby directed to file a copy of this ordinance with the California Building Standards Commission of the State of California.

SECTION 5. This ordinance shall take effect and be in full force thirty (30) days from and after the date of its final passage and adoption.

SECTION 6. The City Clerk shall certify to the adoption of this ordinance and shall cause a summary thereof to be published at least five (5) days prior to the meeting at which the proposed ordinance is to be adopted and shall post a certified copy of the proposed ordinance, and within fifteen (15) days of its adoption, shall cause a summary of it to be published, including the vote for and against the same, and shall post a certified copy of the adopted ordinance, in accordance with California Government Code Section 36933.

INTRODUCED on the 9th day of April, 2019, and PASSED AND ADOPTED by the City Council of the City of Davis on this 23rd day of April, 2019, by the following vote:

AYES: Arnold, Carson, Frerichs, Partida, Lee

NOES: None

Brett Lee  
Mayor

ATTEST:

Zoe S. Mirabile, CMC  
City Clerk