COMMUNITY DEVELOPMENT
Building and Safety

Print Form

STANDARD NOTES RESIDENTIAL CONSTRUCTION
2019 CALIFORNIA GREEN BUILDING STANDARDS (3.0)

[Effective January 1, 2020]
Applies to new residential buildings, and additions and alterations that increase the conditioned area, volume or size. For additions and alterations, requirements only apply to and/or within the area of the addition or alteration.

INSTRUCTIONS: Designer to place an "X" preceding each applicable section or indicate "N/A" if not applicable. All blank spaces are to be completed for all applicable sections.

ELECTRIC VEHICLE (EV) CHARGING

This section applies to new construction only. CALIFORNIA GREEN BUILDING STANDARDS CODE (CGBSC) 4.106.4

_____ This project is exempt per CGBSC Section 4.106.4 exception 1. See sheet _____ for documentation from Southern California Edison verifying necessary alterations to the utility infrastructure would exceed $400/unit.

_____ **New one and two family dwellings and townhouses with attached private garages**, provide the following for each dwelling unit:

- Nominal 1-inch diameter conduit to accommodate a future dedicated 208/240-volt branch circuit originating at the main service or subpanel, and terminating in a listed cabinet, box or other enclosure in close proximity to the proposed EV charger within the attached garage.
- Service panel or subpanel sized to accommodate original design load plus an added dedicated 40 amp branch circuit for the future charging station.
- Service panel of subpanel shall have space reserved for the 40 amp branch circuit. Reserved space shall be labeled: "EV CAPABLE".

_____ **New Multifamily Dwellings**, where parking is available, 10 percent of the total number of parking spaces on a building site, provided for all type of parking facilities, shall be **Electric Vehicle Space (EVS)**. Calculations for the required number shall be rounded up to the nearest whole number.

A total of _____ EVS are provided as shown on _____ plan sheet(s).

- **At least one** EVS shall be in a **common use area** available for use by all residents. See plan sheet: _____.
- All EVSs shall be a minimum of 18 feet long and 9 feet wide.
- One in every 25 spaces, and **at least one**, i.e. common use area EVS if only one is provided, shall have an 8 foot wide minimum aisle or a 5 foot wide aisle if the space itself is increased to 12 feet wide. Surface slope of the aisle and the EVS served shall not exceed 1 unit vertical to in 48 units horizontal. See plan sheet:_____.

Common use area EVS shall be served by:

- Nominal 1-inch diameter conduit to accommodate future dedicated 208/240-volt branch circuits originating at the main service or subpanel, and terminating in a listed cabinet, box or other enclosure in close proximity to the proposed EV charger.
- Service panel or subpanel sized to accommodate original design load plus the added dedicated 40 amp branch circuits for the future EVS.
- Service panel of subpanel shall have space reserved for the 40 amp branch circuit. Reserved space in the panel or subpanel shall be labeled: "EV CAPABLE".
  See the following plan sheet(s) for details: _____ .

All other EVS shall be served by:

- Electrical panel service capacity and electrical system, including any on-site distribution transformer(s) of sufficient capacity to accommodate simultaneous charging at all EVS.
- Designated service panel(s) of subpanel(s) shall have spaces reserved for each 40 amp branch circuit. Reserved spaces in each panel or subpanel shall be labeled: "EV CAPABLE".
- Those portions of conduit and related components that cannot be reasonably surface mounted post construction shall be installed at time of original construction. Installations shall accommodate, for each EVCS, a dedicated 208/240-volt branch circuit originating at the main service or subpanel, and terminating in a listed cabinet, box or other enclosure in close proximity to the proposed EV charger.
  See the following plan sheet(s) for details:_____.

☐ **New hotels and motels**, shall provide EVS capable of supporting future installation of EV Supply Equipment (EVSE) in accordance with the following table:

TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED EVSs
0-9	0
10-25	1
26-50	2
51-75	4
76-100	5
101-150	7
151-200	10
201 and over	6 percent of total

A total of _____ EV are provided as shown on _____ plan sheet(s).

- All EVSs shall be a minimum of 18 feet long and 9 feet wide.
- All EVSE (when installed) shall comply with the accessibility provisions of California Building Code, Chapter 11B.

When a single EVS is required:

- Nominal 1-inch diameter conduit to accommodate future dedicated 208/240-volt branch circuits originating at the main service or subpanel, and terminating in a listed cabinet, box or other enclosure in close proximity to the proposed EV charger.
- Service panel or subpanel sized to accommodate the original design load plus an added dedicated 40 amp branch circuit for the future charging station.
- Service panel of subpanel shall have space reserved for the 40 amp branch circuit. Reserved space shall be labeled: "EV CAPABLE".

All other EVS shall be served by:

- Electrical panel service capacity and electrical system, including any on-site distribution transformer(s) of sufficient capacity to accommodate simultaneous charging at all EVS.
- Designated service panel(s) of subpanel(s) shall have spaces reserved for each 40 amp branch circuit. Reserved spaces in each panel or subpanel shall be labeled: "EV CAPABLE".
- Those portions of conduit and related components that cannot be reasonably surface mounted post construction shall be installed at time of original construction. Installations shall accommodate, for each EVCS, a dedicated 208/240-volt branch circuit originating at the main service or subpanel, and terminating in a listed cabinet, box or other enclosure in close proximity to the proposed EV charger.
  See the following plan sheet(s) for details:_____.

WATER EFFICIENCY AND CONSERVATION

(CGBSC 4.303)

INDOOR WATER USE

Plumbing fixtures and fittings shall comply with the following table:

FIXTURE FLOW RATES	
FIXTURE TYPES	**MAXIMUM FLOW RATE**
SHOWERHEADS	1.8 gpm @ 80 psi (see note 1)
PRIVATE LAVATORY FAUCETS	1.2 gpm @ 60 psi
LAVATORY FAUCETS IN COMMON AREAS	0.5 gpm @ 60 psi
METERING FAUCETS	0.25 gallons per cycle
KITCHEN FAUCETS	1.8 gpm @60 psi (see note 2)
WATER CLOSETS	1.28 gallons per flush (see note 3)

NOTES:

(1) When a shower is served by more than one showerhead, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 2.0 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at one time.

(2) Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi. Additionally, where complying faucets are unavailable, aerators or other means may be used to achieve reduction.

(3) The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.

OUTDOOR WATER USE - MWELO (CGBSC 4.304)

_____ ☐ This project is subject to MWELO requirements. See plan sheet _____ for completed City of Irvine Model Water Efficiency Landscape Ordinance work sheet, Form 40-81.

_____ ☐ This project is exempt because no landscaping is included or because the aggregated landscaped areas within the project boundaries does not exceed 500 square feet. [Note where the project consists of multiple individual properties, each property shall be considered separately when determining "aggregated landscaped area".

MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING (CGBSC 4.408)

Recycling of materials shall conform to the Construction and Demolition Materials Recycling Requirements of the City of Irvine Municipal Code (IMC) Sections 6-7-901 through 6-7-912.

BUILDING MAINTENANCE AND OPERATION

An operation and maintenance manual shall be provided to the building occupant or owner. The manual shall remain with the building throughout the life cycle of the home and shall contain but is not limited to the following items (CGBSC 4.410).

1. Operation and maintenance instructions for the following:
    a. Equipment and appliances, including water-saving devices and systems, HVAC systems, water-heating systems and other major appliances and equipment.
    b. Roof and yard drainage, including gutters and downspouts.

c. Space conditioning systems, including condensers and air filters.
d. Landscape irrigation systems.
e. Water reuse systems.

2. Information from local utility, water and waste recovery providers on methods to further reduce resource consumption, including recycle programs and locations.
3. Public transportation and/or carpool options available in the area.
4. Educational material on the positive impacts of an interior relative humidity between 30-60 percent and what methods an occupant may use to maintain the relative humidity level in that range.
5. Information about water conserving landscape and irrigation design and controllers which conserve water.
6. Instructions for maintaining gutters and downspouts and importance of diverting water at least 5 feet away from foundation.
7. Information on required routine maintenance measures, including but not limited to, caulking, painting, grading around building, etc.
8. Information about state solar energy and incentive programs available.
9. A copy of all CGBSC special inspection verifications required through the course of construction.

RECYCLING BY OCCUPANTS (Applies to projects having 5 or more multifamily dwelling units per common building site)

_____ ☐ Readily accessible area(s) are designated, as shown on plan sheet(s) _____ for depositing, storage and collection of non-hazardous materials for recycling including paper, corrugated cardboard, glass, plastic, organic waste, and metal.

ENVIRONMENTAL QUALITY

FIREPLACES

Wood burning devices including fireplaces are not permitted under Southern California Air Quality Management District (SCAQMD) Rule 445. Any installed gas fireplace shall be a direct-vent sealed-combustion type. (CGBSC 4.503.1)

MECHANICAL EQUIPMENT AND DUCT PROTECTION

To reduce the amount of water, dust, and debris collected in mechanical equipment and ducts, all duct openings and other related air distribution equipment component openings shall be covered from the time of delivery at the jobsite through the construction until final start up. (CGBSC 4.504.1)

FINISH MATERIAL POLLUTANT CONTROL

- **Adhesives, sealants and caulks** shall meet the applicable standards of CGBSC 4.504.2.1 and tables 4.504.1 and 4.504.2 for VOC limits and content prohibitions.
- **Paints and coatings** shall meet the applicable standards of CGBSC 4.504.2.2 and table 4.504.3 for VOC limits.
- **Aerosol paints and coatings** shall meet the applicable standards of CGBSC 4.504.2.3**.**
- **Carpet systems** shall meet the applicable standards of CGBSC 4.504.3 including CGBSC 4.504.31 for **carpet cushions** and CGBSC 4.504.3 **carpet adhesives**.
- **Resilient flooring** shall meet the applicable standards of CGBSC 4.504.4**.**
- **Composite wood products** shall meet the applicable standards of CGBSC 4.504.5 and table 4.504.5.

INTERIOR MOISTURE CONTROL

- **Water damaged** building materials shall not be installed.
- **Moisture content of wood** used in wall and floor framing shall be verified not to exceed 19 percent prior to approval to cover (CGBSC 4.505.3).Verification testing shall be performed using a probe-type or contact-type meter at three random locations between 2 and 4 feet from the grade stamped end of the piece being checked.
- **Insulation** products shall be dry when covered. Wet-applied insulation products shall meet the manufacturer's recommendations prior to enclosure.

AIR QUALITY AND EXHAUST (CGBSC 4.506)

Mechanical exhaust fans which exhaust directly from a room containing a bathtub, shower or tub/shower combination shall be provided and shall:

- Terminate outside the building, for duct sizing based on fan capacity and length see Prescriptive Duct Sizing Requirements.
- Be ENERGY STAR compliant.
- Be controlled by a humidity control, and unless functioning as a component of a whole house fan system, be capable of adjustment between a relative humidity range of less than or equal to 50 to 80 percent.
- See below for supplemental requirements.

ADDITIONAL AIR QUALITY REQUIREMENTS

2019 CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS (CBEES) (Not applicable to hotels or motels)

Specific indoor air quality standards required by the California Building Energy Standards, section 150.0(o), and reference document American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) 62.2 apply as follows:

- Bathroom exhaust fan shall be provided having a minimum capacity of **50 cfm**, a sound rating of **3 sones** or less unless designed for continuous operation and installed to operate without occupant intervention. In which case, the minimum capacity must be **20 cfm** and a sound rating of **1 sone** or less.
- Kitchen exhaust fan shall be provided having a minimum capacity of **100 cfm** and a sound rating of **3 sones** or less unless designed for continuous operation and installed to operate without occupant intervention. In which case the minimum capacity must be **5** air changes per hour based on the kitchen volume and a sound rating of **1 sone** or less.
- Whole Building Ventilation shall be provided. Fan capacity shall meet the Required Mechanical Ventilation Rate per CBEES section 150(o)1.iii. Fans intended for continuous operation shall have a sound rating not exceeding **1 sone.**

NOTES:

(1) **Prior to passing rough mechanical inspection, the contractor shall complete and provide to the inspector for acceptance the first three pages of the CF-6R-MECH-05 form to verify fan sizing requirements are met and to discuss proposed switching and control strategies.**

(2) A remote-mounted inline fan, or exterior-mounted exhaust fan, with a minimum of 4 feet of duct between the fan and the interior intake or supply grille does not require a sound rating.

(3) Fan ducts shall comply with Prescriptive Duct Sizing Requirements.

(4) Kitchen or bathroom exhaust fans intended for local exhaust only and designed for continuous operation shall operate automatically without occupant intervention. Such fans shall also be provided with readily accessible and identified override control.

(5) All fan listings must meet or exceed design specifications including air volume capacity at 0.25 inches of w.c., sound rating and continuous operation as applicable.

(6) Whole Building Ventilation fans designed for continuous operation may operate automatically without occupant intervention, in which case such fans shall also be provided with readily accessible and identified override controls. As an alternate such fan may be switch controlled provided the switch is labeled using Arial 12 point font as follows:

> **To maintain minimum levels of outside air ventilation required for good health, the fan control should be on at all times when the building is occupied, unless there is severe outdoor air contamination**.

- Minimum efficiency MERV 13 filter(s) shall be provided such that all recirculated and mechanically supplied outdoor air is filtered before passing through thermal conditioning components.

FAN SUMMARY

FAN LOCATION	CONTINUOUS/INTERMITTENT	SOUND RATING (sones)	REQUIRED AIR FLOW (CFM)
Kitchen			
Bathroom 1			
Bathroom 2			
Bathroom 3			
Other:			

- Applies when atmospherically vented combustion appliances or solid fuel-burning appliances are located inside the pressure boundary. Based on the calculation below per ASHRAE 62.2 section 6.4.

  There _____ atmospherically vented combustion appliances or solid fuel-burning appliances located inside the pressure boundary. *(If so, complete the following.)*

  {(Total net flow of the two largest fans) x (100)}/ Floor Area =

  {(_____ + _____) x 100} / _____ = _____

  Insert Fan 1 *Insert Fan 2* *Insert Total Floor Area* *Insert Calculated Value*

  Design outdoor air flow is:

  ☐ not required (if calculated value does not exceed 15)

  ☐ required (if calculated value exceeds 15). See sheet _____ for design details.

PRESCRIPTIVE DUCT SIZING REQUIREMENTS

(TABLE 5.3 Adapted from ASHRAE 62.2-2019)

DUCT TYPE	FLEX DUCT								SMOOTH DUCT							
FAN AIRFLOW RATING CFM @ 0.25in. of Water	50	80	100	125	150	200	250	300	50	80	100	125	150	200	250	300
DIAMETER[a], IN	**MAXIMUM LENGTH[b,c,d], FT**															
3	x	x	x	x	x	x	x	x	5	x	x	x	x	x	x	x
4	56	4	x	x	x	x	x	x	114	31	10	x	x	x	x	x
5	NL	81	42	16	2	x	x	x	NL	152	91	51	28	4	x	x
6	NL	NL	158	91	55	18	1	x	NL	NL	NL	168	112	53	25	9
7	NL	NL	NL	NL	161	78	40	19	NL	NL	NL	NL	NL	148	88	54
8 and above	NL	NL	NL	NL	NL	189	111	69	NL	NL	NL	NL	NL	NL	198	133

a. For noncircular ducts, calculate the diameter as four times the cross-sectional area divided by the perimeter.

b. This table assumes no elbows. Deduct 15ft. of allowable duct length for each elbow.

c. NL = no limit on duct length of this size.

d. x = not allowed; any length of duct of this size with assumed turns and fitting will exceed the rated pressure drop.