CITY OF IRVINE STANDARD NOTES

RESIDENTIAL CONSTRUCTION

2013 CALIFORNIA GREEN BUILDING STANDARD (1.0)

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.

**WATER EFFICIENCY AND CONSERVATION** (CGBSC 4.303**)**

**INDOOR WATER USE**

Plumbing fixtures and fittings shall comply with the following table.

FIXTURE FLOW RATES

|  |  |
| --- | --- |
| FIXTURE TYPE | MAXIMUM FLOW RATE |
| Showerheads | 2.0 gpm @ 80 psi (see note 1) |
| Private Lavatory Faucets | 1.5 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 gal-lons 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** (CGBSC 4.304.1)

When provided by the builder prior to final inspection, automatic irrigation system controllers for landscaping shall be:

* weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants’ needs as weather conditions change.
* weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have rain sensor input.

**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, 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 five 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.

**ENVIRONMENTAL QUALITY**

**FIREPLACES** Wood burning devices including fireplaces are not permitted under 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 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% prior to approval to cover (CGBSC 4.506.3).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 table 7.1 below.
* Be ENERGY STAR compliant.
* Be controlled by a readily accessible humidistat, 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 to50 to 80 percent.
* See below for supplemental requirements.

**ADDITIONAL AIR QUALITY REQUIREMENTS- 2008 CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS (BEES) (Not applicable to hotels or motels)**

Specific indoor air quality standards required by the California Building Energy Standards, section 150(o), and reference document 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 be demonstrated to comply based on equation 4.1a or 4.2 per ASHRAE 62.2. 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 3 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 to Table 7.1 below. (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 6 filter(s) shall be provided such that all recirculated and mechanically supplied outdoor air is filtered before passing through thermal conditioning components.
* HVAC system having air handlers or return ducts in the garage shall have a total air leakage of no more than 6% of total fan flow when measured at 0.1 inch w.c. (HERS via CF-4R-MECH-20).

|  |  |  |  |
| --- | --- | --- | --- |
| 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 are 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 Floor Area* |  | *Insert Calculated Value* |

Design outdoor air flow is:

not required (if calculated value does not exceed 15)

required (if calculated value exceeds15). See sheet  for design details.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PRESCRIPTIVE DUCT SIZING REQUIREMENTS-APPLIES TO ALL EXHAUST FANS**  **(TABLE 7.1 Adapted from CF-6R-MECH-05)** | | | | | | | | |
| Diameter, (in) | Flex Duct | | | | Smooth Duct | | | |
| Fan Rating cfm @ 0.25 in. w.g. | 50 | 80 | 100 | 125 | 50 | 80 | 100 | 125 |
| Maximum Allowable Duct Length (ft) | | | | | | | | |
| Diameter, (in) | Flex Duct | | | | Smooth Duct | | | |
| 3 | X | X | X | X | 5 | X | X | X |
| 4 | 70 | 3 | X | X | 105 | 35 | 5 | X |
| 5 | NL | 70 | 35 | 20 | NL | 135 | 85 | 55 |
| 6 | NL | NL | 125 | 95 | NL | NL | NL | 145 |
| 7 and above | NL | NL | NL | NL | NL | NL | NL | NL |
| This table assumes no elbows. Deduct 15 ft of allowable duct length for each turn, elbow, or fitting. Interpolation and extrapolation in Table 7.1 is not allowed. For airflow values not listed, use the next higher value. This table is not applicable for airflow > 125 cfm.  NL = no limit on duct length of this size.  X = not allowed, any length of duct of this size with assumed turns, elbows, fittings will exceed the rated pressure drop. | | | | | | | | |