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SAN BERNARDINO COUNTY

Land Use Services Department
Building and Safety Division

SIGNIFICANT CHANGES
2019 CALIFORNIA RESIDENTIAL CODE

RESIDENTIAL CODES:

- **CRC Section R106.1.5**

Exterior Balconies and Elevated Walking Surfaces

CHANGE SIGNIFICANCE: This code modification deals with exterior balconies and elevated walking surfaces and proposes to include the language from the 2018 IBC as amended into the 2019 CRC. This amendment will align with the requirements in the 2019 CBC.

Exterior balconies

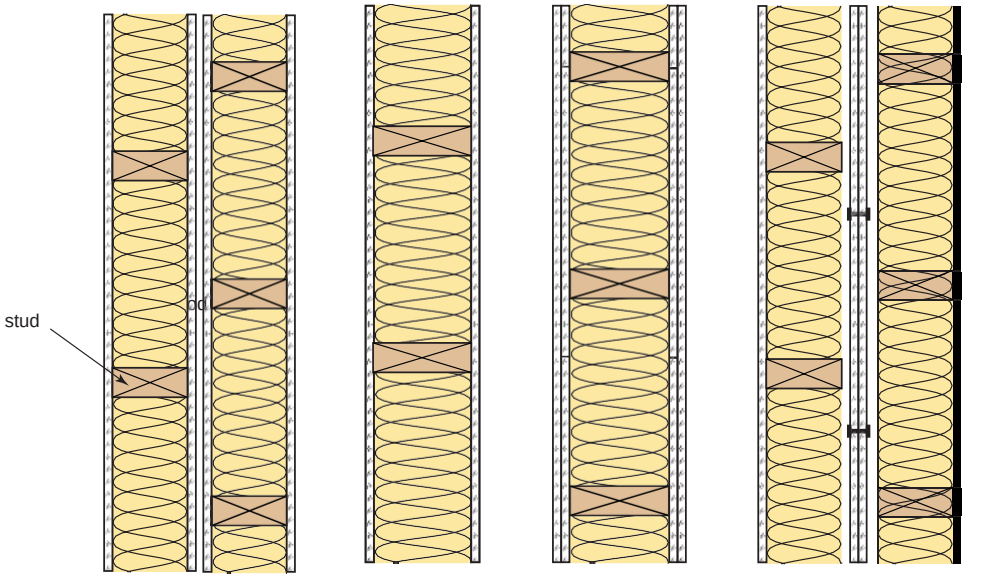
- **CRC Table R301.5**

Balcony and Deck Live Loads

CHANGE SIGNIFICANCE: This table deals with the minimum uniformly distributed live loads. The modification deals with the fact that this information is not applicable to one- and two-family dwellings built under the CRC. As a result HCD included language from the 2017 Emergency Rule- making as new amendments in the 2019 CRC.

- **CRC Section R302.2**

Townhouse Separation



Typical fire-resistant-rated wall assemblies for separating townhouse dwelling units

CHANGE SIGNIFICANCE: Townhouses, by definition, are three or more connected dwelling units. The total number of townhouse dwelling units in a single building is unlimited. It follows that a priority of the code has always been to separate townhouse dwelling units with fire-resistant wall assemblies to limit the spread of fire in the structure and to provide some protection to occupants from events that occur in the neighboring unit. Prior to the 2016 edition of the CRC, the general rule required townhouses to be considered separate buildings and referenced Section R302.1 regarding fire resistance for exterior walls. For some code users, reference to a section about exterior walls created a somewhat tenuous link to the fire-resistance requirement. However, most building officials and builders accepted that the fire separation provisions of Section R302.1 dictated that each townhouse dwelling unit required a 1-hour fire-resistant-rated wall to separate it from the adjoining townhouse. This created two separate 1-hour rated walls, and this has been common practice for many years across the country. The code further required that each individual townhouse be structurally independent, meaning that a collapse of the structural wall, floor, ceiling or roof components of one townhouse in a fire incident would not impair the structural integrity of the adjoining townhouse. As an exception, the code allowed a fire-resistant common wall between dwelling units without structural independence and limited installations in the wall to electrical components to limit membrane penetrations and preserve structural integrity.

In the 2016 CRC, the language in Section R302.2 related to separate buildings and reference to the exterior wall provisions in Section R302.1 was removed. In practice, based on a history of good performance, the options for constructing two separate rated walls or one common separation wall continued as approved practices in most communities, the former often approved as an alternative method. To resolve these issues and clarify the application of the code, the fire separation requirements have been placed in the townhouse

provisions of Section R302.2. The code now clearly describes the two paths for compliance—two separate fire- resistant-rated walls or a common wall.

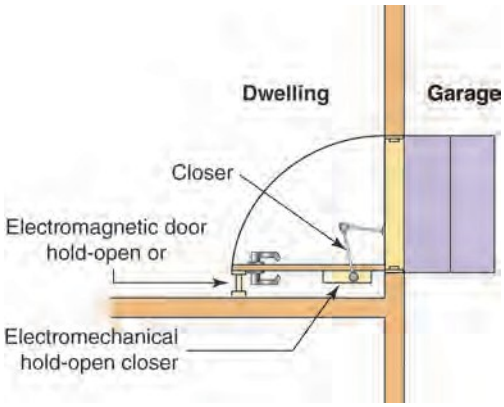
For clarification, a link is provided between the common wall provisions of new Section R302.2.2 and Exception 5 of Section R302.2.6 related to structural independence. Structural independence is not required for common separation walls. The other townhouse provisions have not changed substantially. For example, when using the common wall method, the minimum required fire-resistance rating of the wall is still based on the presence of an automatic fire sprinkler system.

Determining compliance with the fire-resistance rating of wall assemblies previously required that the assembly be tested in accordance with either ASTM E119 or UL 263. In addition to those referenced standards, the CRC now specifically recognizes all of the options in Chapter 7 of the *California Building Code* (CBC) for determining the fire-resistance rating. This change is reflected in all of the rated assembly provisions in Section R302—fire resistance of exterior walls, townhouse separations and two- family dwelling separations. The referenced CBC Section 703.3 states that any of the methods in the list must be based on the acceptance criteria specified in ASTM E119 or UL 263. By reference, the CRC now accepts those proven methods that have been used successfully in the CBC for many years. Some methods require a determination by the building official, either approval in accordance with the alternative methods provisions in CRC Section R104.11 or acceptance of designs from approved sources or agencies. The CBC also offers prescriptive methods in Section 721 or methods for calculating equivalent fire-resistance ratings in Section 722. Certainly any of these methods could have previously been used subject to approval by the building official in accordance with Section R104.11. However, the references to the various methods in the CBC leave no doubt that there are multiple solutions available to satisfy the fire- resistance-rating requirements of this section in the CRC.

In a minor editorial change, the language in the exception to the para- pet provisions clarifies the fire-retardant-treated (FRT) wood requirements by inserting references to the applicable sections in Chapter 8. The word “approved” has been removed because it suggested that each FRT product required review and approval by the building official. Referenced Section R802.1.5 describes the process for treatment, manufacturing, testing and labeling of FRT wood products.

- **CRC Section R302.5**

Dwelling-Garage Opening Protection



Automatic closing door between house and garage

CHANGE SIGNIFICANCE: To provide some minimum protection against the spread of a fire that originates in the attached garage, the CRC has always required some fire resistance for the separation between the garage and dwelling unit. Typically, this requirement is satisfied with the application of regular ½-inch gypsum board on the garage side of the separation.

This separation is not a fire-resistant-rated assembly, but simply a layer of approved material installed on the garage side to provide some resistance to fire. Similarly, the code does not require a fire-resistant- rated

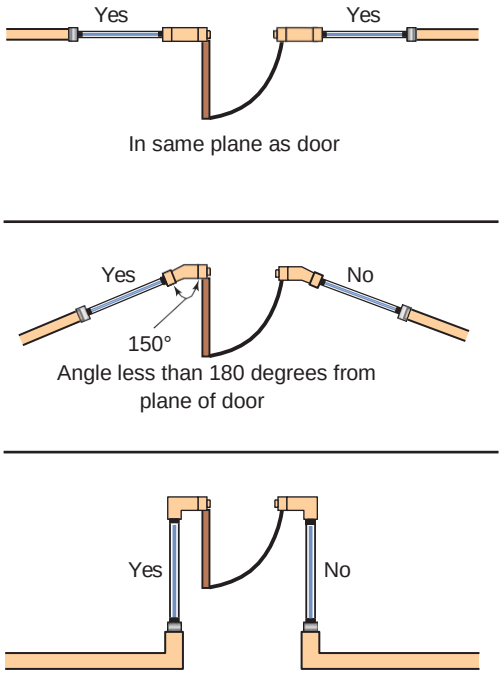
door assembly for the opening between the garage and residence. Instead, the CRC prescribes the type and thickness of the door, or requires a 20-minute rating for the door slab only. The requirement for self-closing devices introduced in the 2013 CRC intended that the door returned to a closed position after opening to address concerns related to increased fuel loads in garages, and the potential for fire and the related toxic combustion byproducts migrating into the dwelling unit. Although Sections R302.5 and R302.6 are primarily concerned with fire resistance, the decision to place self-closing devices in the code was also intended to prevent car- bon monoxide from the exhaust of vehicles operating in a garage from entering the dwelling unit. Maintaining a closed door between the garage and residence has been in place to supplement the safeguards of required smoke alarms and carbon monoxide alarms. Self-closing devices are typically spring-loaded hinges or door closers.

The addition of automatic-closing devices intends to provide additional options for ensuring the door is closed in a fire event. Provided that they are functioning properly and not disabled, self-closing devices return the door to a closed position each time it is opened. On the other hand, an automatic-closing device can hold the door in an open position, when desired, until released automatically in the event of a fire. Such devices are typically used in commercial occupancies for doors in fire-resistant- rated assemblies. The door is held open to provide easy passage for occupants under normal conditions. The most common configuration uses an electro-magnet to hold the door open. Power to the electro-magnet is disconnected upon activation of a fire alarm system, smoke alarm system or by some other means, thereby deactivating the electro-magnet. Once released, the door swings shut by means of a closer. Other combination hold-open and closer devices are available that contain integral smoke or heat detectors that initiate release of the door upon activation. Rather than an electro-magnet hold open, electro-mechanical closers are also available. Any of these hold-open devices also allow the door to be closed manually if so desired. The code does not stipulate the method for activation of the automatic-closing device. For residential buildings regulated by the CRC, activation in most cases will be accomplished by detection of smoke, either through a nearby smoke alarm or an integral smoke detection device.

The provision for dwelling-garage opening protection is consistent with the premise that closed doors limit the spread and impact of residential fires and addresses the increased fire hazard in garages. Introduction of automatic-closing devices to protect the opening between the house and garage intends to provide reliable options and to recognize new technology that is available in the marketplace. This alternative addresses a concern by many that self-closing devices are sometimes disabled or removed by the homeowner because of the inconvenience. Given the flexibility to have the door closed or held open, advocates for this change contended that the automatic devices are less likely to be disabled by the occupants.

- **CRC Section R308.4.2**

Glazing Adjacent to Doors



Glazing adjacent to doors

CHANGE SIGNIFICANCE: In general, the CRC has always regulated glazing installed less than 24 inches from the edge of a door as a hazardous location requiring safety glazing, provided the lowest edge of the glazing was less than 60 inches above the floor. This intends to address the hazard of a person approaching a door slipping or tripping and falling into the glass, or perhaps mistaking a large window as a door or opening. A window installed in the same wall and therefore in the same plane as the door is a common occurrence. In the context of safety glazing, reference to the plane of the door always indicates that the door is in a closed position for making a determination. For windows that are not at an angle to the door position, the application of the code is straightforward and well understood. Prior to the 2016 CRC, the requirement also applied to glazing installed at an angle to the door, such as a bay installation with windows on each side at a 45-degree angle. An exception addressed windows installed perpendicular to the plane of the door that exempted glazing on the latch side of and perpendicular to the door.

In the 2016 edition, windows installed perpendicular to the door only required safety glazing on the hinge side where the door swung against the window. This intended to address a person being pinned and pushed into the glass by someone coming through the door from the other side. The code section was reorganized to describe two separate conditions creating a hazardous location: 1) glazing in the same plane (same wall) as the door and 2) glazing that was perpendicular to the plane of the door. This inadvertently did not address windows installed at an angle—say, 45 degrees from the plane of the door. This change to the code intends to address that oversight. The first condition remains the same—that is, windows installed in the plane of the door and within 24 inches require safety glazing no matter the swing of the door. For windows installed at an angle less than 180 degrees, safety glazing is only required where the window is located on the hinge side and the door swings in the direction of the glazing. Glazing installed greater than 180 degrees from the plane of the in-swinging door poses no hazard of a person being pushed into the glass by the door.

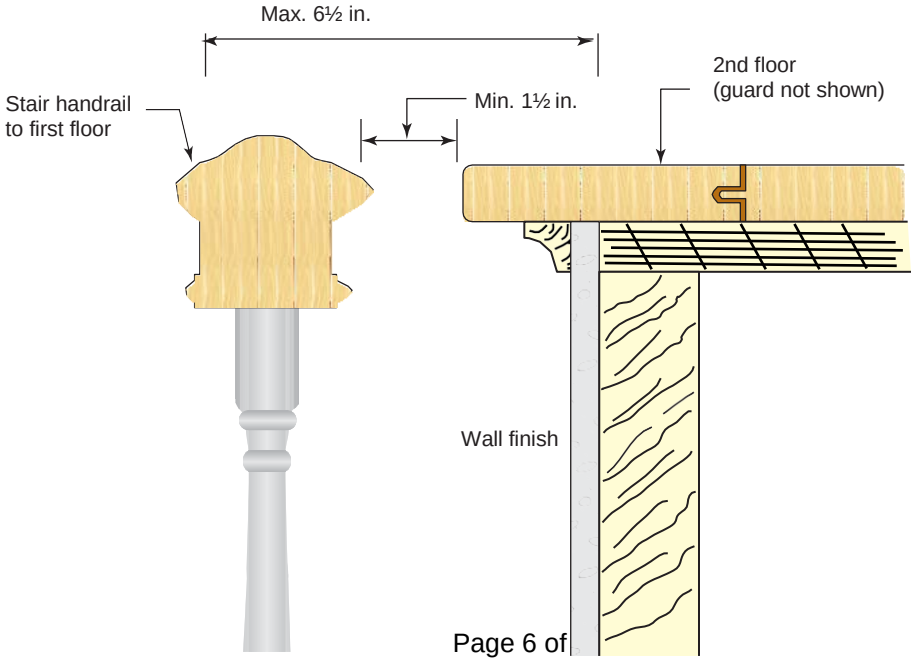
- **CRC Sections R311.7.1 & R311.7.8**

Handrail Projection

A passing handrail at a tread projection

CHANGE SIGNIFICANCE: The section on stairway width prescribes the minimum clear width of 36 inches for the portion of the stair above the handrails and below the required headroom height of 6 feet 8 inches. A lesser clear width is required at and below the handrail location and is determined based on the presence of one handrail or two handrails. Previously, the maximum handrail projection was located in the same section of the code. The maximum projection of one or two handrails subtracted from the net clear width of 36 inches corresponded to the minimum width requirement at and below the handrail height. To clarify the provisions, the handrail projection dimensions have been placed in a new section within the handrail requirements and separate from the stairway width requirements. There was concern expressed that code users might be missing the projection limitations. While not changing the width requirements, the change intends to provide for better understanding and compliance with the handrail provisions.

A new exception to the maximum handrail projection dimensions intends to address situations where a handrail passes by some other projecting elements that would reduce the necessary clearance for grasping the handrail.



Greater projection allowed where handrail passes a floor nosing

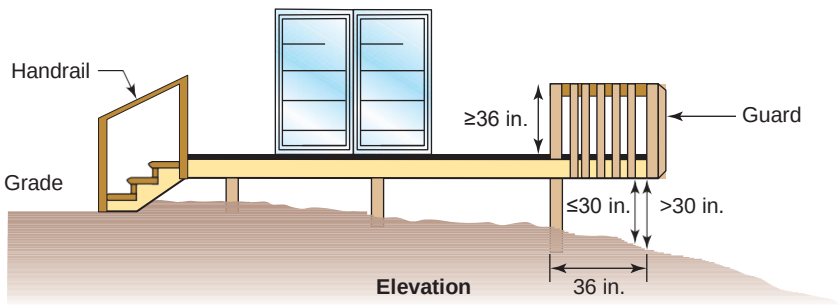
For a handrail adjacent to a wall, the code requires a mini- mum space of 1½ inches between the wall and the handrail. It may not be possible to maintain the desired clearance of 1½ inches where the hand- rail passes the projection of a landing or floor above, as an example. Clearance issues also may occur at switchback stairs where the skirt-board and tread return of the flight above project into the stair space below by as much as 2 inches. Where the handrail of the lower flight passes the projection, there is often no space or a very small space between the handrail and the projecting element. The new exception allows a maximum hand- rail projection of 6½ inches (an increase of 2 inches) under these conditions to provide the necessary clearance for grasping the handrail. However, there is no corresponding reduction in the stairway width requirements. The clear width of 36 inches above the handrail still must be maintained. At and below the handrail height, the minimum clear width is 31½ inches with one handrail and 27 inches where handrails are installed on both sides. The new exception intends to provide additional options for optimizing stairway designs. It may also enable the installation of code-compliant handrails on both sides of the stairway as is recommended for an aging population and a philosophy of “aging in place.”

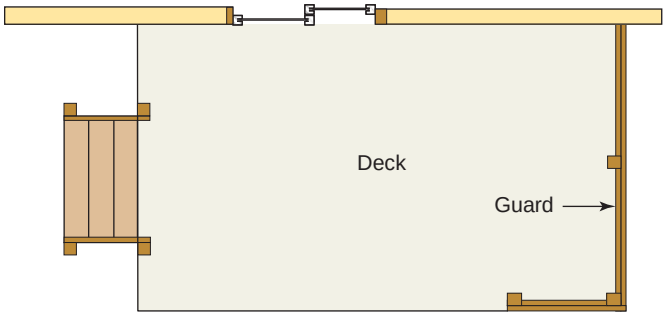
- **CRC Section R312.1**

Guards

CHANGE SIGNIFICANCE: The code requires guards at prescribed locations to reduce the hazard related to falls from open-sided walking sur- faces, particularly when that walking surface reaches a certain height where a fall is more likely to cause injury. From the beginning, the CRC has established that trigger point as a height of anything greater than 30 inches above a floor or grade below. Beginning with the 2010 edition of the CRC, the code has prescribed the method for determining that vertical distance in an objective and consistent way. Under previous editions of the code, in the case of a deck, this measurement was often taken to the grade directly below the edge of the decking surface. However, a sloped site or sudden drop-off adjacent to a deck or porch caused concern that such a measurement did not accurately reflect the level of hazard. The code has since required that the height of the walking surface above grade or floor below is measured from the lowest point within 3 feet horizon- tally from the edge of the deck, porch or other element.

Although the code has given specific direction on the method for determining the height above grade, it has been less specific as to the extent that guard protection is required for the perimeter of the walking surface. That is, if one end of a deck is greater than 30 inches above grade, but the other edges are 30 inches or less, is a guard required only on the one end or the entire deck? The intent of the code has been that the guard is only required where the hazard exists—in this example, on the one end of the deck. However, interpretation has varied among jurisdictions, with some of the opinion that only the portion of a deck with the stated level of hazard requires a guard and others saying that once any portion of a deck requires a guard, the entire perimeter requires the same level of protection. The 2019 CRC settles the question by specifically requiring a guard only on those portions of a walking surface that exceed the prescribed height of 30 inches above grade.





Plan view

Guard required at portions of deck greater than 30 inches above grade

- **CRC Section R314**

Smoke Alarms

CHANGE SIGNIFICANCE: The code has long recognized the importance of smoke alarms in protecting occupants from the hazards of fire by pro- viding early warning and time to escape from the dwelling—so important, in fact, that this is one of the few provisions of the code that is retroactive when certain construction activity occurs, even in areas that are not being altered. Battery-operated smoke alarms are relatively inexpensive and easy to install and are considered a reasonable requirement to place on existing buildings. This retroactive requirement is triggered by construction work requiring a permit, with the exception of exterior work such as siding, roofing and window replacement. Installation, alteration or repairs of plumbing or mechanical systems are also exempt. Alarms are required in the same locations as for new dwellings. Prior to the 2016 edition of the CRC, the building official had the responsibility to deter- mine if it was reasonable and feasible to provide electrical power to these smoke alarms in addition to battery power, or if only battery-operated smoke alarms could be installed in existing areas. The code gave some direction in making the determination based on the removal of interior finishes as part of the work or access for wiring being provided by a crawl space or attic. In the 2016 edition, that provision was removed in favor of accepting battery-operated alarms in existing buildings undergoing alterations. However, the interconnection requirements remained the same as in previous codes, and matched the power requirements for alterations to existing buildings. Requiring interconnection of the devices was based on feasibility and required a determination by the building official. The exemption for interconnection of the smoke alarms under these circumstances has been removed.

A smoke alarm is required in each sleeping room, outside each sleeping area and on each story, including basements and habitable attics. Interconnection of the alarms—so all alarms sound when any one is activated—is necessary to alert occupants in all parts of the dwelling, even though the alarm detecting the fire is remote from the occupant's location. This is especially important for occupants in sleeping rooms who may not be fully alert or awake. In the past, interconnection was achieved with a wire connecting all alarms physically. That is easily accomplished in new construction but not always feasible in existing buildings without removing drywall or other finishes. With increasing availability of wireless smoke alarms in the marketplace, the difficulty of interconnection during alterations has gone away. With that barrier removed, the code now requires interconnection of smoke alarms, for new construction and in existing buildings when installation of smoke alarms is triggered by alterations, repairs or additions requiring a permit. In discussion of the change, there was consensus that wireless technology makes interconnection affordable for improving life safety.

Other changes to Section 314 are editorial and remove unnecessary language. For example, when setting the criteria for retroactively installing smoke alarms in existing buildings, the CRC states that alterations, repairs or additions requiring a permit trigger the requirement. It is not necessary to include reference to adding sleeping rooms because that is covered by the initial statement. Likewise, stating that the listed exceptions are exempt from the requirements of the section is redundant. Exceptions are exempt from the section preceding them. The redundant language has been removed.

- **CRC Section R317.1**

Balcony or Elevated Surface Moisture Protection

CHANGE SIGNIFICANCE: The first part of this modification clarifies the requirements for positive drainage for any water that could infiltrate moisture-permeable floors. The previous language of this code is not applicable to one- and two-family dwellings built in accordance with the CRC. As a result, the HCD included language from the 2017 Emergency Rulemaking as a new amendment to the 2019 CRC.

The second part deals with the language change regarding ventilation beneath balcony or elevated walking surfaces from the 2017 Emergency Rulemaking for the CBC into the 2019 CRC. HCD has included this language change to have this amendment align with the 2019 CBC requirements

- **CRC Section R317.3**

Fasteners in Treated Wood

CHANGE SIGNIFICANCE: In the CRC, Table R602.3(1) lists fastener options for wood-to-wood connections. As an alternative, Table R602.3(2) Alternate Attachments to Table R602.3(1) lists additional connection options. Staples have been included in both tables as a fastener option for some connections. Fastener requirements for preservative-treated and fire-retardant-treated lumber are found in Sections R602.3 and R507 with additional requirements for the fasteners found in Section R317. Nails, nuts, washers, screws, bolts and timber rivets may be made of stainless steel, hot-dipped galvanized steel, silicon bronze or copper materials.

In the 2019 CRC, stainless steel staples are added as an additional code accepted solution. This addition specifically limits staples to stain- less steel when installed in preservative-treated lumber.

The thin wire gages used in staples are much thinner than those used in nails, and are consequently more susceptible to corrosion. While currently stainless steel staples are the only available option for staples meeting increased corrosion-resistance requirements, if a manufacturer has a non-stainless steel staple solution for preservative- treated lumber, evaluation reports based on testing can be used to show equivalence to the mini- mum requirements in Section R317.3.1.

Staples in fire-retardant-treated wood are required to be made of the same materials as nails and timber rivets—stainless steel, hot-dipped galvanized steel, silicon bronze or copper materials.