



County of San Diego, Planning & Development Services
WILDLAND-URBAN INTERFACE
BUILDING DIVISION

County Fire and Building Code Requirements

The wildfires of 2003 were the largest in California history, and had a huge impact on lives in San Diego County. The fires demonstrated, again, how vulnerable and powerless we are in the face of wildfire. Below are some examples of the problems that we have identified from prior fires:



- Vulnerable building construction;
- Structures ignited by native and landscape vegetation;
- Poor access and escape routes;
- Inadequate water supplies; and
- Limited fire fighting resources.

For decades, the County has worked with fire agencies, planners, environmental experts and the building industry to craft codes that are responsive to the wildfire challenge. Since the 1980's, the County's fire codes have been strengthened in successive code adoption cycles with the primary goal of protecting the safety of our citizens and enhancing your home's ability to survive wildfire.

These changes have paid off. In the Cedar, Paradise and Otay fires (October, 2003) 2,137 homes were destroyed in the County (unincorporated) area. There were approximately 15,000 homes in the burn area; therefore the "loss" rate was about 14%. In comparison, there were slightly over 400 homes in the fire-damaged area that were built under the 2001 Fire and Building Codes. Of these more recently built (and more fire-resistive) homes, only 17 were destroyed – a "loss" rate of only 4%. Therefore, **homes built under recent codes have a more than three times better chance of survival!**

Although such measures protected many homes located within the areas impacted by the 2003 wildfire, lessons learned from the devastating wildfires of 2003 resulted in further refining of the codes, which became effective August 13, 2004.

The attached is a **SUMMARY** of key changes in the 2004 Fire and Building Codes; however, it is only a summary and does not include all issues and all options. When designing a project please also refer to the actual code language. The codes are available at the cashier at the Planning & Development Services office or on the web at:

http://www.amlegal.com/sandiego_county_ca
<http://www.co.san-diego.ca.us/PDS/docs/firecode.pdf>

WILDLAND-URBAN INTERFACE

Summary of County Building and Fire Code Requirements

Fuel Modification Requirements

Consistent with state and county codes the fuel (vegetation) modification zone is 100 feet from structures. The area located within 50 feet of the structure must be cleared and planted with fire-resistant plants. The landscaping must be irrigated. Grass and other vegetation located more than 50 feet from buildings or structures and less than 18 inches in height above the ground need not be removed where necessary to stabilize the soil and prevent erosion.

For more information on creating defensible space around your home and guidance regarding suggested planting materials see the County web site at: http://www.sandiegocounty.gov/pds/fire_resistant.html

Location of Structure on Lot - Setback

Fuel modification (vegetation control) is necessary for the life of the building. Fuel modification on neighboring property is not authorized by this fire code section. The fuel modification zone may not extend beyond the lot being developed. Agreements with neighbors, while desirable, cannot be depended on; ownership and cooperation can change. Therefore, it is critical that the fire code regulate the minimum distance from structure to property line.

Where adequate setback distance is possible, the structure shall be located such that 100 foot fuel modification can be obtained on the property. This setback is particularly important where fuel modification is restricted such as an Open Space Easement or a where fuel modification may not take place (e.g. riparian areas, state or federal land.)

The absolute minimum setback is 30 feet. If the fire authority having jurisdiction [FAHJ], the planning authority having jurisdiction [PAHJ] and the County Fire Marshal identify the hazard in the area as "minimal" or meeting one of the other exceptions below, they may allow less than 30 feet setback.

In high hazard areas, exceptions are allowed only if the parcel is too small to accommodate the structure with a 30 foot setback, or the structure is in the interior of a grouping of homes with adequate defensible space designed and maintained on the perimeter of the group.

Building Construction Requirements

- **Exterior Wall:** Exterior wall surfaces must be non-combustible, ignition-resistant material, heavy timber, or log wall construction. Examples are stucco, masonry, and cement-fiber board. Previously required only when 100' clearance could not be achieved, it is now required regardless of clearance. An exception exists where 3/8-inch wood siding is allowed when installed over fire-rated gypsum sheathing that is tightly butted, or taped and mudded.
- **Windows (Glazing):** Exterior windows, window walls, glazed doors, and glazed openings within exterior doors shall be insulating-glass (dual-glazed) units with a minimum of one tempered pane, or glass block units, or have a fire-resistance rating of not less than 20 minutes. Vinyl window frames must have welded corners to prevent glass from falling out with flame impingement and metal reinforcing in the interlock area to prevent the windows from opening or falling unexpectedly. In addition, vinyl windows must have a label showing they are certified to ANSI/AAMA/NWDA 101/I.S.2-97 structural requirements. An exception exists that the building official may allow dual glazing without a tempered pane in moderate hazard severity zones when there is a fuel modification zone at least 100 feet wide.
- **Skylights:** Skylights must be tempered glass.

- **Insulation:** Paper faced insulation is not permitted in attics or ventilated spaces due to the potential of embers igniting the paper. Foil-backed or un-faced fiberglass batts and blankets are better suited to conditions of potential fire hazards. Use foil-backed insulation in areas where a vapor barrier is required.
- **Exterior Doors:** Exterior doors must be of approved non-combustible or ignition-resistant construction, or solid-core wood not less than 1 3/8" thick, or have a fire protection rating of not less than "20 minutes."
- **Roofs:** Roofs shall have a minimum Class 'A' roof covering. For roof coverings where the profile allows a space between the roof covering and roof sheathing, the spaces shall be constructed to prevent the intrusion of flames and embers, be fire-stopped with approved materials or have one layer of No. 72 ASTM cap sheet installed over the combustible sheathing.
- **Roof Gutters:** Roof gutters shall be provided with the means to prevent the accumulation of leaves and debris.
- **Eaves:** Eaves, soffits and fascias must comply with requirements for fire-resistive construction. A guidance document (form PDS 198) provides possible detail options.
- **Unenclosed Underfloor Areas:** Structural supports and framing members must be constructed of non-combustible material, exterior fire-retardant-treated wood, one-hour fire-resistant material or by using heavy timber construction methods. An exception exists for the structural supports decks, balconies and similar projections when skirted from floor level to ground level with non-combustible material.
- **Vents:** Attic vents shall not be installed in eaves, eave overhangs, soffits, cornices or between rafters at eaves. Vents are permitted in the eave assembly only under the following conditions:
 - Eave or cornice vents are constructed to resist the intrusion of flames and burning embers into the attic area of the structure; or,
 - When allowed by the building official and the Fire Authority Having Jurisdiction, enclosed eaves may have strip vents on the underside of the eave closest to the fascia provided the closest edge of the vent opening is at least 12 inches from the exterior wall and the building is protected by a fuel modification zone at least 100 feet wide

All vents (roof, foundation, combustion-air, etc.) shall resist the intrusion of flames and embers or shall be protected by louvers and 1/8" non-combustible, corrosion-resistant mesh. Turbine attic vents shall be equipped to allow rotation in only one direction.

- **Patio Covers and Carports:** Patio covers, carports, and other roof projections and attachments must be one – or a combination – of the following:
 - ✓ non-combustible construction (*e.g., concrete, metal*)
 - ✓ protected by one-hour fire-resistive material (*e.g., stucco, fiber-cement board*)
 - ✓ approved fire-retardant treated materials (*factory-applied fire retardant, pressure-treated lumber, listed for exterior use, installed per listing*)
 - ✓ heavy timber construction (*minimum 2x T&G decking, 4x6 rafters and beams, 3x ledgers, and 6x6 columns/posts*)

- **Decks and Balconies:** Decks, balconies, and other floor projections and attachments must be of one – or a combination – of the following:
 - ✓ non-combustible construction (e.g., *concrete, metal*)
 - ✓ protected by one-hour fire-resistive material (e.g., *stucco, fiber-cement board, ceramic tile, deck surface listed by approved evaluation service as one-hour-rated or Class A roof covering*)
 - ✓ approved fire-retardant treated materials (*factory-applied fire retardant, pressure-treated lumber, listed for exterior use, installed per listing*)
 - ✓ heavy timber construction (*minimum 4x8 joists, 4x10 or 6x8 beams, 3x ledgers, and 6x6 columns/posts*)
 - ✓ alternative decking materials per County Building Code 92.1.709A.1.4 (available at http://www.sdcountry.ca.gov/pds/docs/amended_code_05-13-2011.pdf)

There are no fire-resistive requirements for handrails, guards, and balusters.

- **Fences and Other Attachments:** Any portion of a fence or other structure within five feet of the building shall be constructed of non-combustible material or material that meets the same fire-resistive standards as the exterior walls of the structure.

Water Tank Requirements

Water tank requirements have also been simplified. (*Water tanks are required where a project is not within a water district, or not within 1500 feet of a water district line that could be extended for hydrants.*) Instead of a sliding and sometimes confusing scale from 1500 gallons to 10,000 gallons, there are now only two sizes. These are based on total area of the buildings to be protected. They are:

Up to 1500 sq. ft.	=	5,000 gallons
Over 1500 sq. ft.	=	10,000 gallons

This general rule applies in most circumstances. An increase in required water supply may be required depending on the size of the structure.

Residential Fire Sprinkler Requirements

Residential Fire Sprinkler requirements have not been changed and are required in almost all circumstances in hazardous fire areas. Residential fire sprinklers are designed to protect occupants from fires that start inside the dwelling, giving them time to escape. They do prevent house fires from spreading to vegetation. They are not, however, intended to protect the home from wildfire (though there have been a few cases where radiant heat ignition of interior contents was stopped by a sprinkler.) Far more people die in fires that start within dwellings than start anyplace else, including wildfires.

No recognized standard exists for fire sprinklers protecting the exterior of a home in a wildfire. Effective exterior building fire protection comes from non-combustible walls and eaves, restricted attic ventilation, class “A” roofs, fire-resistive decks, dual pane or tempered windows, fire-resistive doors – “**defensible structures**” ...and from properly maintained vegetation – “**defensible space**”.