

Making Tierrasanta a Fire Safe Community

The fires of 2007 should have been another wakeup call to the City, County and Tierrasanta residents. We saw improvements in policies, communications and coordination after the 2003 Cedar Fire. Fortunately politicians have recently recognized that Tierrasanta needs an additional fire station and better fire response times and improved brush management policies. These improvements will be slow in coming, and the issues will be a continued focus of the efforts of the Tierrasanta Fire Safe Council working with the San Diego Fire Rescue Department. In the mean time we Tierrasantans should seriously begin work on reducing the structural ignitability of our homes. Some of the lessons learned from fire damage data collected as far back as the Brentwood fire in 1961 show: 1.) 75% of buildings destroyed had wood roofs; 2.) 66% of structures that sustained damage were ignited first from the roof; 3.) 12% had unprotected eaves as the point of fire entry; 4.) 1.5% of dwellings destroyed had fire point of entry through windows; 5.) 70% of dwellings destroyed were located within 50 feet of chaparral; 6.) 45% of dwellings destroyed had minimal or no setback from slopes; 7.) 45% of stilted or cantilevered structures were destroyed; 8.) homes burned along ridges were directly correlated with intersection of main and tributary canyons; homes located at the top of canyons, draws, along narrow ridges with steep slopes were especially at risk.. Embers get caught in gaps in roofs and interfaces to the roof and structure or gutters. Making matters worse is the accumulation of leaves and other flammable debris from nearby trees that can lodge in these same voids just waiting for the firebrands.



Trees closer than 10 ft from house. Duff on roof

There are many issues with structure ignitability that can be discussed but the remainder of this article we address the roof and the eaves of structures where embers or firebrands from miles away can find a 'home' and begin its destruction.

Tierrasanta still has a number of shake shingled homes. Even with the 'minimum' required defensible space brush thinning of 100 feet, a wood roof structure has a 21 times greater probability of burning than a non-wood roof home. During a fire wood roof homes take a large amount of water and a lot of firefighter effort to attempt to save them. In effect, these homes are not defensible and it should be known that firefighters may pass up homes where they have determined that a home is not as defensible to protect homes where structural ignitability and defensible space has been addressed.

During years with normal rainfall wood roofs have a higher probability of igniting than chaparral. So a house in the proximity of native chaparral may burn from embers or firebrands that have found a wood roof home while chaparral containing more moisture than a wood roof will not support ignition. Of course with the current drought in San Diego much chaparral has died exacerbating the risk. While burning, wood roofs create their own firebrands that can travel up to three miles depending on wind conditions. So homes may be at risk from wood roof firebrands generated from distant upwind neighborhoods with burning wood roof structures.

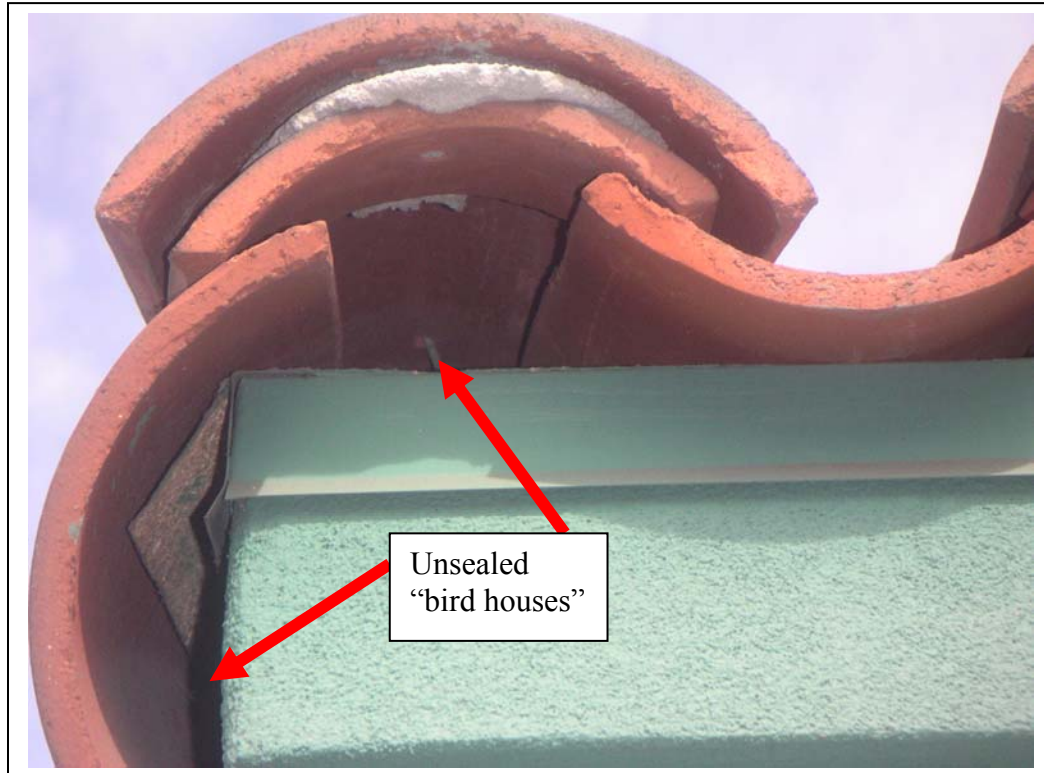
Firebrands can also enter a home through attic vents under the eaves or soffits (these are eave enclosures that are found mostly on newer houses) and all types of roofing that has not been properly sealed.

Eaves act like umbrellas in the wind and catch wind with embers and debris as the wind pushes them into any crack, void or vent.



Vents facing the wildland urban interfaces (WUI) to our northeast are particularly susceptible. In Tierrasanta these are our open spaces, canyons, MCAS and Mission Trails Regional Park (Remember the Cedar Fire!). An opening less than $\frac{1}{4}$ inch will allow firebrands to be drawn in. Most homes in Tierrasanta have overhanging eaves with attic vents under the eaves allowing circulation to prevent attic mold. These vents are covered with screening that, in fact, has $\frac{1}{4}$ inch spacing. A recommended screen spacing to block firebrands is closer to $\frac{1}{8}$ inch.

Often overlooked are unsealed roofs. For example, Spanish cement tile roofs have voids between the roof and the tile due to the shape of the tile. These voids, which can be bird houses, are advertised as allowing circulation of air which helps keep the attic cool, but during a fire the normally beneficial drafts can propel firebrands into the voids if there are openings greater than about $\frac{1}{8}$ th of an inch.

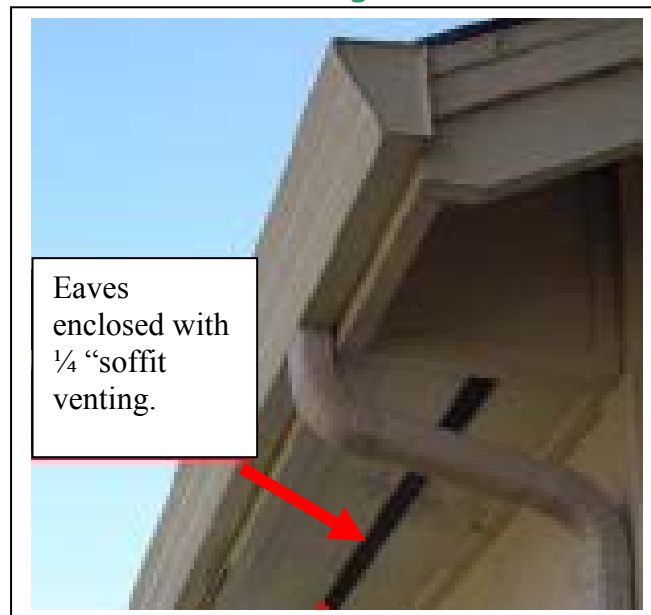


Spanish clay tiles are more susceptible due to the irregularities of the tiles and the lack of integrity of eave-closures/bird stops to enclose the ends. Some clay tile and cement tile roofs are capped or sealed with cement which over years can become loose and separate or fall out due to foot traffic, shifting, or settling. The edges and peaks of Spanish tile roofs are particularly susceptible. Roofs with interlocking panels such as stone coated steel or flat light cement tile are much less susceptible to firebrand invasion but still require some attention to proper sealing.

A number of homeowners in Tierrasanta have installed solar panels on their roofs. Most are raised from the roof with at least six-inch spacers. A home that is down wind from trees, especially deciduous trees, may collect debris under the solar assembly. Solar panels themselves need surface cleaning at least every six months to maintain the energy transfer efficiency. At the

time of cleaning homeowners should examine the space between the roof and the panels to ensure that dust has not settled in as a firebrand catcher.

The wood under the eaves are also capable of catching firebrands due to spacing and loose fitting junctions of the material construction. These overhanging eaves should be enclosed and sealed with non combustible soffits (that word again) with 1/8th inch screen venting. The soffit vents inhibit fire entry but allow the attic to get the air circulation needed.



Another improvement to consider is to cover or replace wood fascia (this is the board behind the gutter where the gutter connects to the roof.) with a non combustible material.

This article addressed home roof related fire safety issues. In addition, Tierrasantans should take a strong look at their neighborhoods for other fire threats. Fire safety is both an individual homeowner and neighborhood responsibility. One neighborhood characteristic that should be reviewed is any overly-lush environs. Discuss the possibility of vegetation reduction with your neighbors or homeowners associations. Determine if your landscapers are educated in and practice fire wise design. Don't forget to query our politicians either. It is up to us to keep Tierrasanta fire safe.

This article with linkable examples and references may be found on the Tierrasanta Fire Safe Council web site at http://campbellot.com/fireSafe_tierrasanta

References and useful links:

1. A Homeowners Guide To Fire and Watershed Management at the Chaparral/Urban Interface - Klaus W. H. Radtke

2. Living With Wildfire - Burn Institute

3.

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4. <http://www.sciencedaily.com/releases/2007/11/071101202302.htm>

5. http://www.tilerroofing.org/tileroofing/interior_ektid41.aspx

6. http://www.nctimes.com/articles/2007/11/02/homes/17_58_1811_1_07.prt

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10. http://www.flash.org/follow_link.cfm?type=resource&resourceID=143

11. <http://firecenter.berkeley.edu/quarles/VulnerablePartsofYourHome-SQ.pdf>

12. http://thepinetree.net/index.php?module=announce&ANN_user_op=view&ANN_id=4277