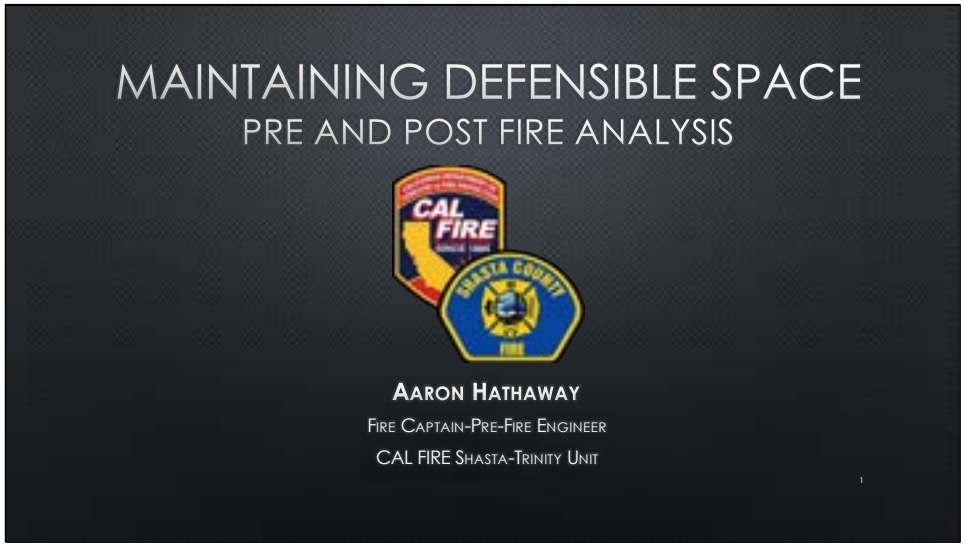
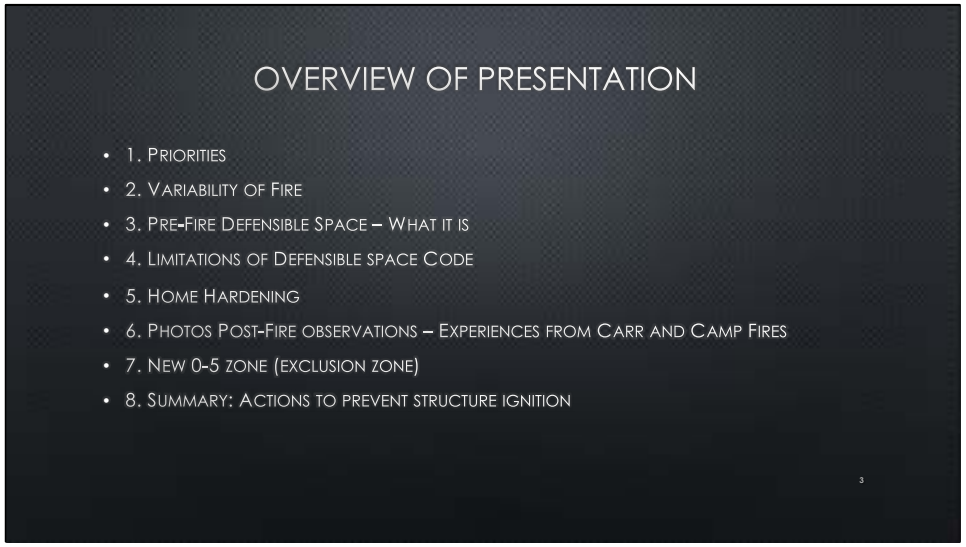


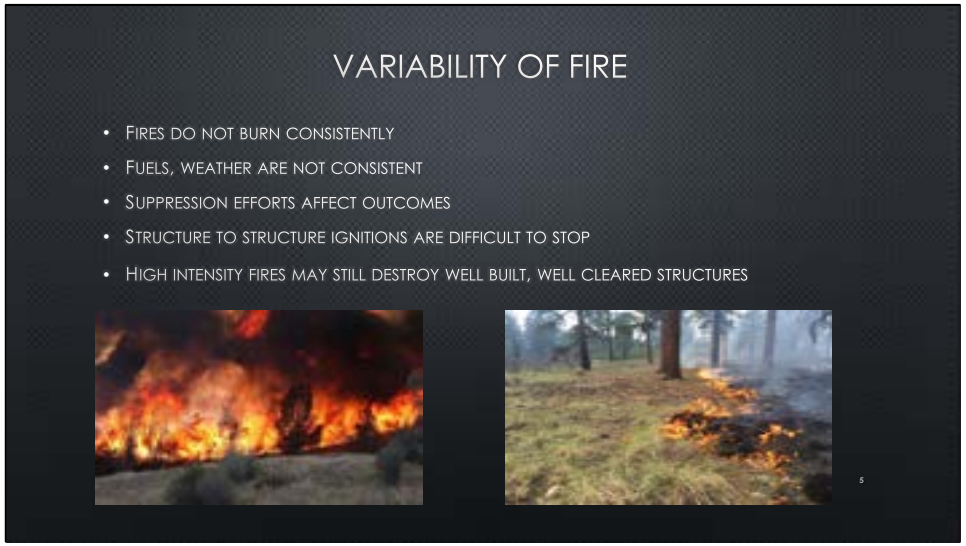
I'm Aaron Hathaway, I'm the pre-fire engineer for the Shasta-Trinity Unit. What that involves is dealing with the firewise communities and just like Captain Osbo said out there at region. It originally that was a really small percentage of what this position has done. But as you guys are going out and doing work on the ground and looking for certification and trying to help your communities be more fire safe and more fire aware, that portion of my job has started to increase to where I do a lot more of that than originally planned. But that's all right, because this is actually one of the portions of my job that I really enjoy. There's some other portions that I prefer not to do, and so if I can distract myself on this, I love it. All right, so anyways, yeah, I'm pre-fire engineer for Shasta-Trinity Unit.

Background, I grew up here in Shasta County. I've been living here all my whole life, but I. Born right there at Mercy Hospital. Lived out in Millville, but have traveled the whole county, through sports, through firefighting, through friends throughout the whole county. So I'm aware of each and every one of you guys 's concerns that you guys face in your own communities, and how fuel types change in each community and how that affects everyone of you. So I sympathize with you in your tasks and your jobs and I am look forward to continuing to work with you as I have many of you already in this room. I also have a little bit of a building and construction background. When I was seasonal for very long time in this department. That's what I would do in the offseason was do construction. And so I understand what home hardening is and what materials are used in that and I hope to be able to convey some of that maybe to you guys today. And then a relevant duties, I oversee in in this position I oversee all the defensible space inspectors for Shasta and Trinity unit. So I have five permanent employees or sorry one permanent employee and four seasonal employees, but their jobs are full-time inspectors for the state of California. And their job is to go around and do the 4291 inspections, which we will go over a little bit of today because that plays into our new zone that's coming about. That is the zero-to-5-foot zone that everybody is so excited about. So, yeah, and then I've also been out and seen this, the back end. So a lot of the reason why the State is going out and doing these inspections beforehand is to try to keep individual homeowners safe and their assets safe in case of fire. But what else is doing is collecting a lot of data and statistics. The first time we ever go out to someone's property, we just take a look at what the building construction is of that property and what it has on it. And now if a fire was to run through there and it burned down the house, that's the statistic we have. We know what type of material it was built out of. We know type of windows. It was like whether it's dual pane or single pane windows. And we're gathering that information to help, some people might hate it, kind of changed the building code in the state of California to make it more fire resilient. And so you can go ahead and hit the next slide please, ma'am.



So the priorities for this presentation talk about a little bit about the variability of fire, talk about pre-fire defensible space and what it is, limitations of defensible space. And that's where we're starting to see some changes, right? Those limitations, we recognize those were there and that's why we're bringing up a zero-to-5-foot zone. And and so we're always trying to progress and to make it safer for the landowners. I have a bunch of photos, cost of the Carr Fire and the Camp Fire showing. Uh, why home hardening is important? Why the zero-to-5-foot zone is important. And then we'll talk about the new zero-to-5-foot zone, what some of the regulations are going to be in that. And some ways that we can kind of do those in a cheap manner. And then last we'll just just go over some of the siding of stuff I used.

So priorities for the state of California are come in three ways. First, it comes as life safety. We take that over as a priority over everything else. OK. And then second is property improvements to property. So it's not just your 40 acres of bare lot dirt that falls under #3 protecting the environment. Number two talks about our improvements or monetary value type improvements, right. So you build a a house and and you want to protect that. That's number two of our priority when we have fires and then #3 is just protect the normal or the general landscape around.



So with the variability of fires, there's a lot of things that change how that fire moves. OK. We have topography with changes that we have wind speed, direction. We have consistent fuel beds or inconsistent fuel beds. That's the whole purpose of us doing defensible space, is trying to manipulate the land and the general growth of how things want to grow in our environment, manipulate them do when a fire comes through here, it's not consistent enough that it allows fire to run through it and destroy your property in your assets. All you guys are Shasta County residents and live up here in the north state, you guys have seen traumatic fires come through. And you guys have seen us try to get out ahead of them and stop them with no results whatsoever. Even with these fuel breaks that we're building even with these, there are for small percentage of fires that on a 1% like horrible day that they're just gonna create devastation no matter what. You go back to 1992 and you do the Fountain Fire. That was a one day fire pretty much. The majority of the damage that was done on the Carr Fire one day. The majority of the damage done on the Camp Fire in 2018 as well. One day you go to the Tubbs Fire in 2017 which burnt into Santa Rosa. Majority of the damage done one day. Right and so. There is going to be a small percentage, unfortunately those are the ones that we see and stand out most to us, right.

So a defensible space program. Like I said, I have five employees total. They go out and do inspections. We end up seeing a total of about 5000 residents a year. Now I just look up Shasta County. I just did it the other day and did a parcel map. And we have roughly 98,000 parcels here in Shasta County. That doesn't mean all of them are developed because there's a, you know, a percentage that aren't developed. But as you can see, that's a really small amount. But my direction to my inspectors is always been one thing. I don't care what their number is at the end of the year, it could be 2000. As long as we are going out and making contact with those landowners. And sometimes the reason our numbers are as low as they are is because we go out and we're talking with those land owners and we spend 35 minutes instructing them and teaching them and showing them. Whether it be through videos on our phone or or just using our defensible space inspection checklist and the laws that are associated with it. We spend a lot of time with them and that is my goal is always public communication and meeting with the public. And so that's the way we're doing it here in Shasta and Trinity Counties. Yes, it does mean our numbers are maybe a little bit lower and everything, but you know what that means is the next time I come up to that house, that's a 2 minute meeting. Right, and that's a pass rather than a fail. Maybe the first time I went to that house it was a fail. And we spent the 30 minutes instructing why it's dangerous to have your wood pile right up against your house, or it's dangerous to have, you know, this type of building material or a deck that's attached to your house without scraping the dirt around it and clearing that dirt around it. So the fire has direct flame impingement on it, so. Anyways, that's our that's our main goal.

DEFENSIBLE SPACE – THE CODE

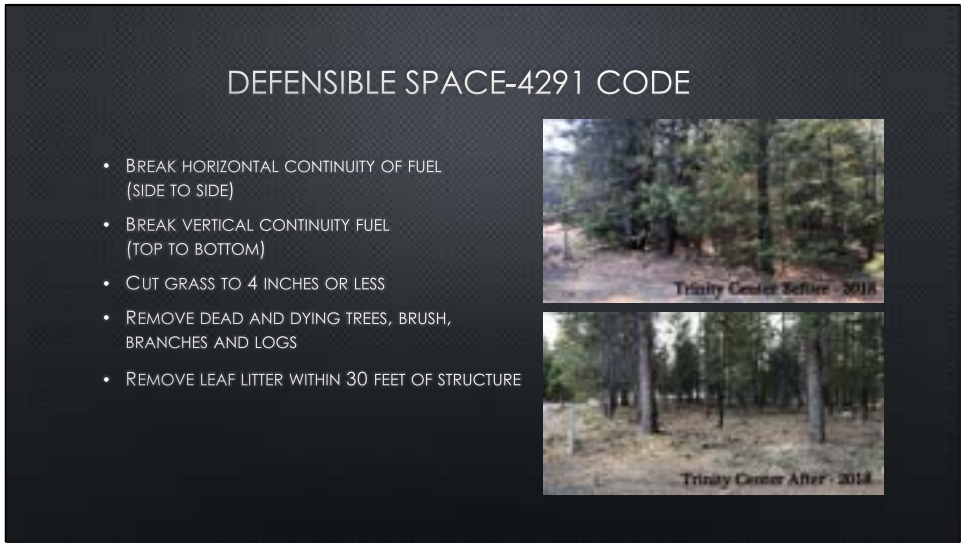
- PUBLIC RESOURCE CODE (PRC) 4291 STATES:

(1) MAINTAIN DEFENSIBLE SPACE OF 100 FEET FROM EACH SIDE AND FROM THE FRONT AND REAR OF THE STRUCTURE*, BUT NOT BEYOND THE PROPERTY LINE.

7

*STRUCTURE: ANY PERMANENTLY CONSTRUCTED BUILDING WITH A ROOF AND WALLS, GREATER THAN 120 SQUARE FEET.

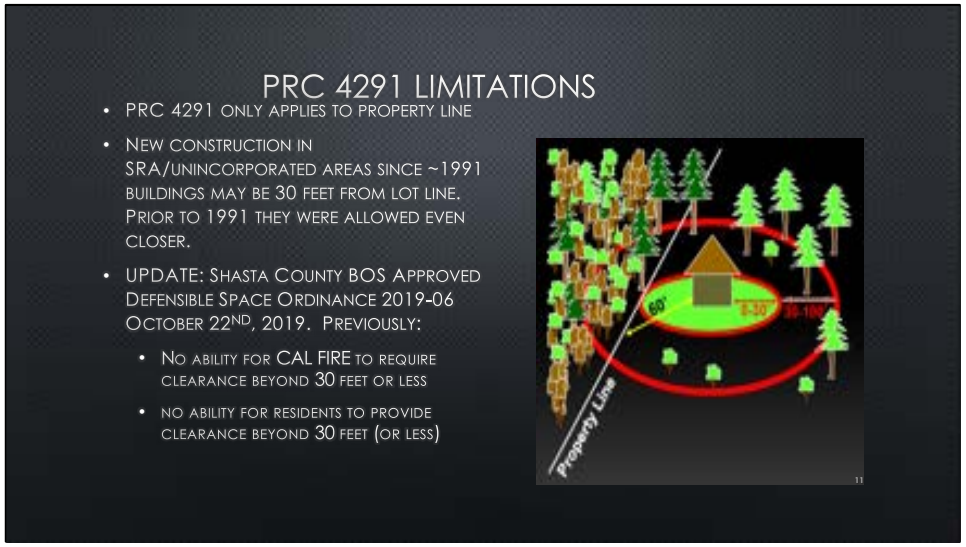
So we got a quick demonstration for you guys. If you ever drive out to Whiskeytown Lake, you guys have probably seen this before. These signs on the right hand side as you're heading out. This is at our fire station, Station 58 there and actually doesn't look like this anymore. We ended up clearing off the whole hillside, but I would say, you know what, we're going to clear it all. It was a great demonstration for what it was, but we realized we were not doing our part to make the fire station safe and those communities, you know, those houses around us. And so we said, yeah, it's a great demonstration for people to see, but it's not great for the community and so we ended up clearing that out.



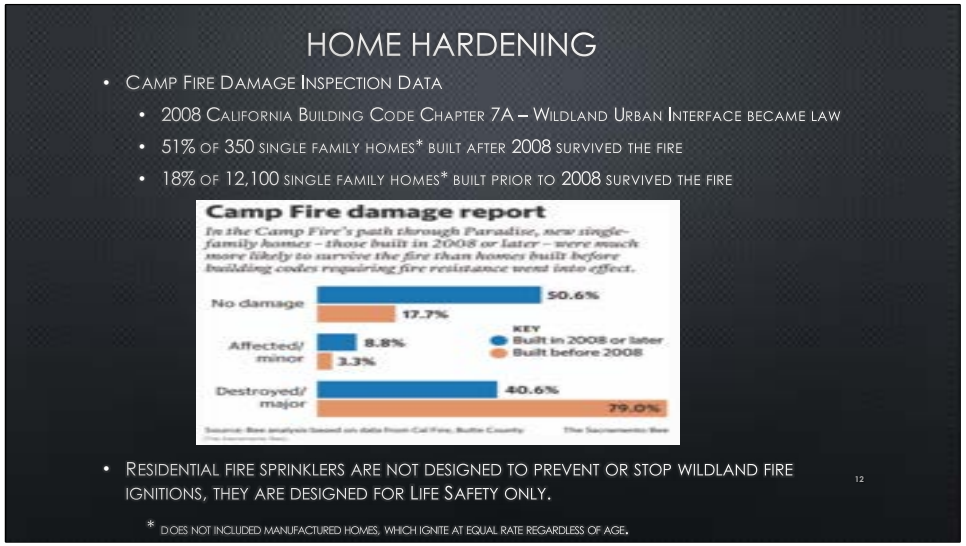
So the goal here is just to break a break up that fuel continuity like I kind of talked about. And by breaking up that fuel continuity, we change the fires behaviors. On 99% of the fires just by doing this one thing. We stop them. Right. It's just that small percentage that is going to blow through that no matter what, just due to whether and normal stuff we got going on. So, uh, yeah, here are some of the list of things. I'm not going to go over this too much. You guys can see them right here. I don't want to go over it just because we're going to be discussing a little bit more farther down the road and I don't want to go over much time.

So the year of the Carr Fire we had already gone and done inspections on almost that whole west side of Redding, west side of Old Shasta that this fire burned into. And so that's where we got these statistics from. Those were actually right here through my shop that these statistics were made. It was done by my previous counterpart, but. Approximately 15% of the Carr Fire in the SRA,which is state responsibility area, was inspected in 2018 prior to it. So as I go through some graphs and stuff of of houses that burned down, that's where we're getting these statistics from. So the majority of homes within Carr Fire that or the Carr Fire that did not pass their inspections were destroyed. I'll repeat that, and this is why it's important for you this, this is why I wanted to and I love coming out and talking with the firewise communities. The majority of the homes that did not pass the inspection were destroyed. OK, this is your dollars. This is your life. This is your history. This is your moments. Right. Trapped on pictures, memories and houses, all these things. These are all your things if you do not do the defensive space. You can lose it. We really need to concentrate on the 100 feet around our house and make that our top priority and that's where you guys are so good at being able to go out and share that with your communities.

So where the 4291 inspections fell short, right, is in the past we've allowed. Uh, bark mulch right up against houses. We've allowed fences, wood fences in neighborhoods to connect from one house. Run your fence line to the next house. Run your fence line to the next house to the next house. We fell short in that in the fact that now we are creating a consistent fuel bed for fire to travel. For the bark mulch in 2017, there was a fire called the Thomas Fire down in Southern California. And this was uh Montecito like. Big dollar multi million dollar homes that I was down there to to be a part of in defending and I felt weird like. I come on this property and they, these prop, these owners, you know, probably spend 100 to $200,000 a year on landscaping on their properties. They have professional landscapers coming and doing the work, right. We were still losing houses. Even with all that, right, everything trimmed down and a large percentage of the reason we were losing houses down there is because bark mulch. Right up against the house. And we would be there when the initial fire front came through. And we'd be protecting it. But then we'd have to run to the next house to protect it when that initial fire front came through and there was a little piece of bark smoldering that we miss. As we walked, right. And so we would come back to these houses 3-4 hours later, we'd realize there was a structure fire. And in these multi million dollar homes and so that's where we fell short on a lot of it and that's where the zero-to-5-foot zone comes about. And so. Most large and destructive fires burning well above average weather conditions. For instance, the Carr Fire which. actually had its anniversary two days ago. It's the 28th of July today, 26th of July is when it started and. So that was the hottest day of the year so far that day in Redding it was 116 degrees and it was miserable. I remember it. But so anyways, that's some of the limitations or the the problems we've had in the past and we're trying to fix some of those things.

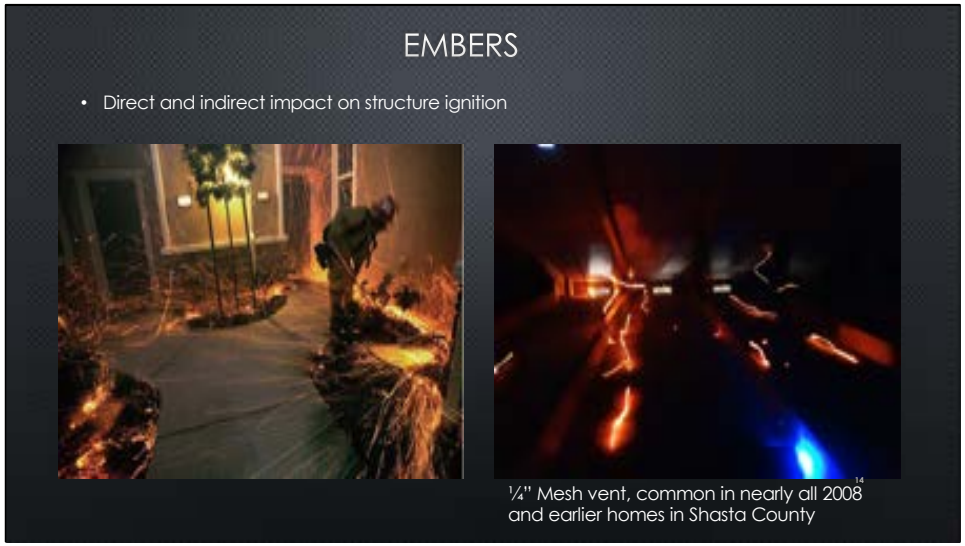


All right. This is just talking about some other laws that have changed. So in 1991. Houses built previously in 1991. They didn't have county rules as far as offset. What that means is if you are going to build a house and let's say you had an acre lot you were going to build a house on, you could build that within 5 feet of your property line. You could put your house within five feet your property line. Since 1991, the incorporated county of Shasta County said, hey, you know, we're not going to allow that anymore, we want a 30 foot offset. Which means that now most construction unless you get a yeah some sort of waiver, you have to you have to at least 30 feet from your property line. Where that comes into play is defensible space inspections. We are only able to allow we're only the law only allows us to have you go in and clean up to your property line. So if you have a house previous 1991 and you're within five feet of property line, we can only score you and have you clean that five feet off that property line. We can't have you held accountable for that other 95 feet to get that 100 foot span, does that make sense to everybody?

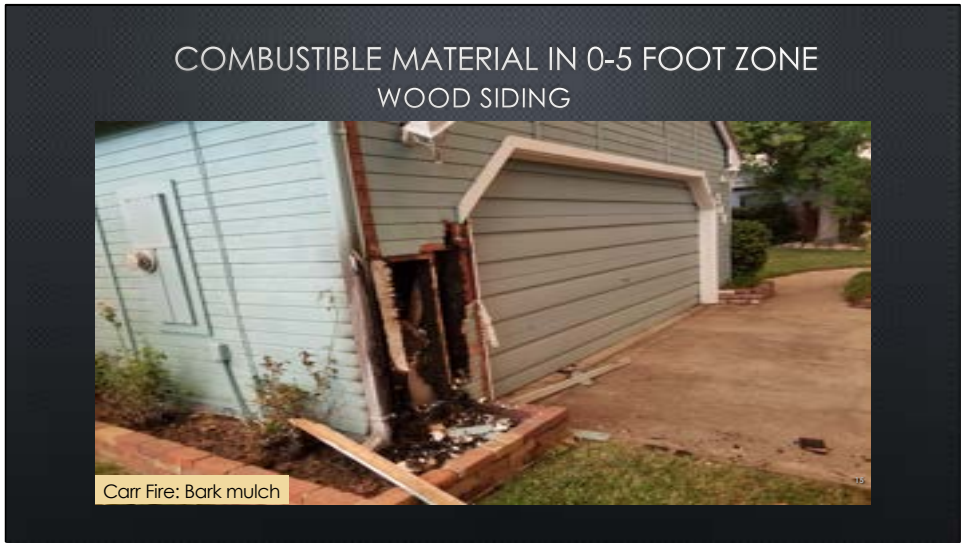


Yeah, so here's some of the statistics from the Carr Fire and the this one just from the Carr Fire, or sorry from the Camp Fire, I apologize. So 2008 is when that Chapter 7A compliance came into. It changed a couple things before 2008 in our e-venting, right, we were able to have quarter inch mesh vents. Uh then after 2008 we went to 8th inch mesh. And uh, we also changed it said that if you live in a high fire hazard severity zone, you had to have dual pane windows, right. Or it might say now I mean there's it's, it's evolved. Now it even includes if you live in a high or very high severity zone that you have to have gutter guards on your gutters. That your gutters need to be made of aluminum instead of plastic. Yes, you can go out and buy plastic gutters for your house. Yeah, strange, but means they have to be made out of some sort of noncombustible material. Also goes to the point of talking that there has to be a drip edge. That that gutter is attached to so that way embers can't get in. You know if if you burn in your debris that's in the gutter, it doesn't have direct contact with your sheeting for your for your plywood, your plywood sheeting on your roof. So it's been a great benefit to us and you can see in the statistics alone how much it made a difference on this Camp Fire. So, 51% of the 350 single family homes built after 2008 survived the fire. And that's a big percentage. 18% of the 12,100 homes that were built previous to 2008 uh, survived the fire. So you're talking 22% or sorry, 82% of the houses burnt or built previous to that law and the construction laws burnt down. Where over 50% of them were saved just due to different materials that were used to construct that building. So there's some of the statistics. You can see the graph down below talking about how many were damaged, how many were affected, and then how many were majorly affected.

OK, so I I'm going to show you guys some pictures from the Carr Fire, and the whole purpose of showing these pictures is just to illustrate why this new zero-to-5-foot zone is important. All these pictures are here from this Carr Fir, so they are all local. They are all things that as you guys look, you'll go like, got that at my house. Or Yep, I've seen that before, right? And I I did that on purpose when I built this PowerPoint because I wanted it to be close to home. I wanted it to be something that you guys see and have the ability to do it. And then that way hopefully you guys can share this with the groups of people that you're going out with. So 2015 to 2018 damage inspection data. 93% of homes that catch on fire are completely destroyed.



Go ahead and have the next slide. So here's a quick picture of embers. This is why. So another statistic I don't actually have on this slide or on this presentation. But if I was to pose a question on how houses burned down, do you think more houses burned down due to embers catching material around the house on fire? Or do you think it's more likely that the fire is just has direct fuel beds that the fire slowly moves like this in your house right here? And it catches your house and catches on fire. What do you think? The flying embers, yeah, so 90% of structured loss, over 90% of structural loss that happens on fire is due to ember cast rather than direct flame impingement. Now that doesn't mean that the. I mean it's still going to burn down because of direct flame impingement because, but it's ember that lands in a receptive fuel bed like bark mulch right against your house might smolder there for a day, 10 hours, four hours, one hour. And then catch that house on fire.



So here we are. We're starting with some of the pictures but here in Shasta County of some of the fires. So this is a here on the Carr Fire you can see the landowner had bark mulch up against their house. You can see right here you got this house and we're we're definitely a subdivision setting, right. In a subdivision setting, you don't typically have the open spaces. You don't have the the wild brush. You don't have typically you're either seeing water lawns or water vegetation around houses. But you can still lose your house in those situations if you have the wrong kind of materials right up against your house. And so here it started in the bark mode, started running up the thing and we, uh, we were able to cut it out and stop extension to the rest of the house.

COMBUSTIBLE MATERIAL IN 0-5 FOOT ZONE
WOOD SIDING

Carr Fire: Mulch and ornamental plants; three separate areas of ignition

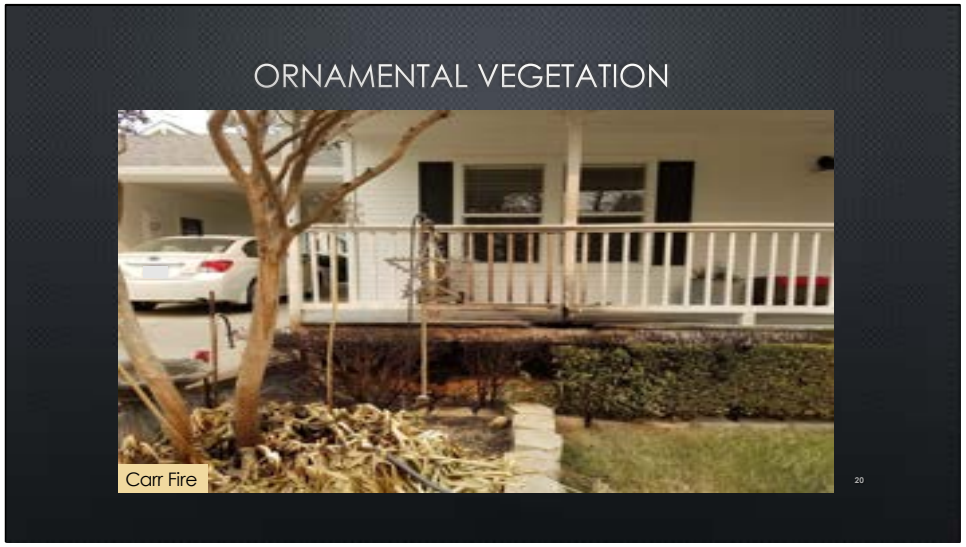
16

Uh, this particular house had three different areas where the house actually ignited that we ended up having to put out also due to mulch and decorative plants in this little section right here where we look at, look how close that is to the house, right. You're talking from that, you know, 6 inch range to the house out to that 2 foot range. Other than that, do they have, is concrete combustible? They have really good setup, right? Like you would think that the house. On a scale looking at it without thinking about the mulch or the long like water plants that are in there, you would think that that would be a house that would be safe from combustion. But what we do in that zero-to-5-foot zone, I cannot emphasize this enough, is going to be the most important work we do on our property.

So here we got, we're changing building types here now, right? So now we have a stucco. which in itself is pretty non combustible. A lot of new stucco though has foam backed. And so as it takes enough heat, it'll melt that foam. It's kind of weird. You'll you'll see it on another picture here where it just looks like the wall melted. But that's the foam melting back behind it. But you can see the window got hot enough that it was delaminating portions of this window right here. But once again, just a consistent fuel bed of whether it was mulch, whether it was some sort of ground cover that went consistently from whatever the walkways they're up to their house is what caught this one on fire.

Yeah. Another one with a planter right up next to it. We're talking on the patio here. So the new zero-to-5-foot zone is actually going to take into what we have on our back patios into account. It's gonna take into effect what we store next to our houses.

And. So here's what I can say it looks like it's just like melted off the wall. That's because in new today's new construction, whenever you're doing stucco, you almost have to like, beg the contractor to do it the old way. Otherwise they just do it this way. It adds insulation and it makes it so they don't have to do it cheapens their material cost. So but this is this happened because of garbage cans. Right next to the house. Who does that right outside the garage? Yeah. I bet 90% of us do that, right. 90% of us do that because we don't want it in our garage because it stinks. So we put it outside our garage so those garbage cans can catch on fire really easily.



So here we have a a planter bed. You can look at some of the other plants that didn't burn around it. Would you say they're watered on a daily basis? Yeah, I would too.

Uh, yeah. So we're back to a different, uh, more of a wood type construction on the exterior there. That could be I guess concrete siding, but I'm going to go with wood, burnt up through the planters into it, so.

OUTBUILDINGS/ RV'S/BOATS/ ETC.

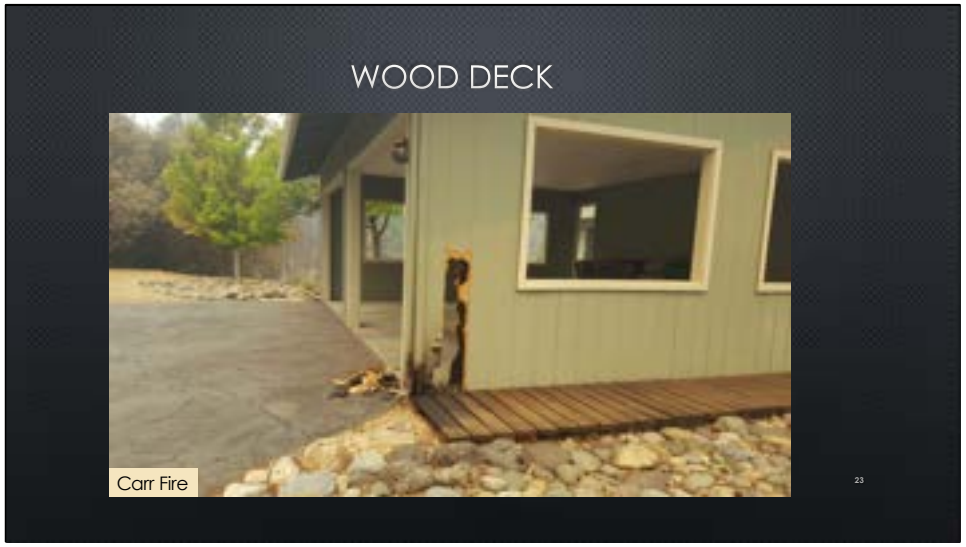
- PRC 4291 requires 10 feet of bare soil around outbuildings* within 100 feet of structure
- No standard for RV's, boats, etc.

Carr Fire: Exposure to home from trailer igniting, trailer was exposed to vegetation

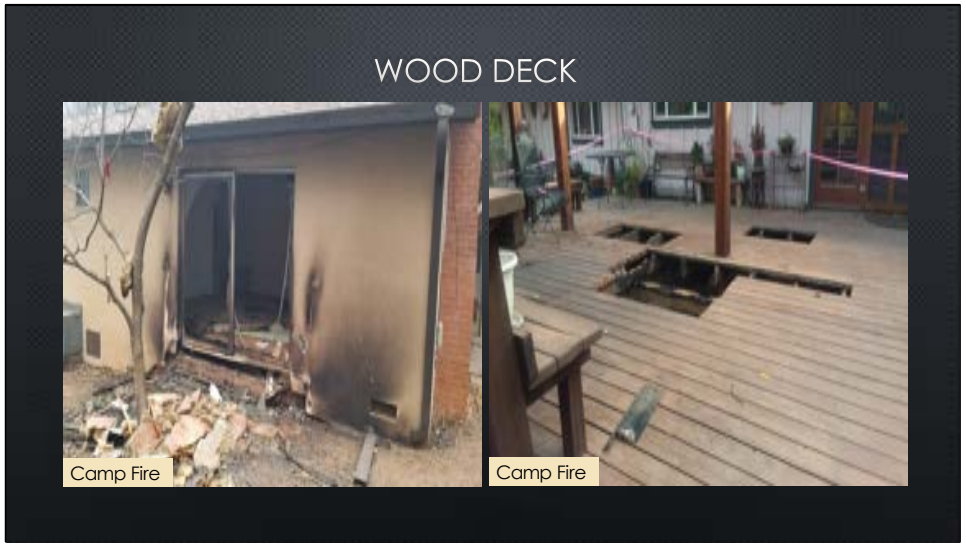
22

*Outbuilding: structure less than 120 square feet

Uh, so the new zero-to-5-foot zone also is going to cover, uh encourage, I guess I should say it's not going to restrict, but encourage you to keep garbage cans away. Trailers away from your house, if there's a way for those to start on fire. Vehicles.



And then, uh, you know, here's a picture of a fire that probably started on this little wood deck right here. And it's not that the deck itself is flammable, it's the little bit of material underneath, right as and that's part of the reason why in the new zero-to-5-foot zone it's gonna recommend and not recommend It's gonna force if you have a raised patio or a deck like this. Uh, that you have that 100% clean underneath.

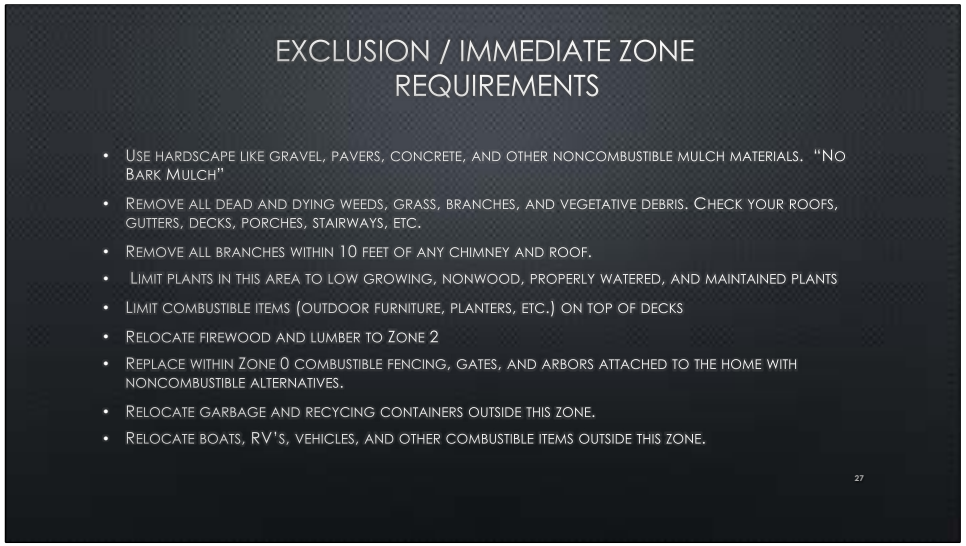


All right. So this is a couple pictures from the Camp Fire of a wood deck. You can see where we came in and. All in general, would you say this deck is pretty clean of debris? Right, the thing I don't know from this picture, if there was a piece of furniture there with a a cushion on it, right? Because those foam cushions, they burn really well.

Uh, so the fence post thing, the Camp Fire in one of the parts that Barbara has talked about, that they come and talk about is how many houses were lost in the Camp Fire and the Carr Fire due to fences and them linking houses together in communities together. So there's. This house caught on fire directly due to the fence burning and snaking right into it because there was no break in fence material or combustible material in that fence between the house and that. So the zero-to-5-foot zone addresses fencing and actually making a break right up next to your house by doing a non combustible material.

All right. So look, talking about it on the left side here, that's the old inspection, 4291 inspection and what it looked like. It pretty much contained 2 zones, zero feet to 30 feet and then 30 feet to 100 feet. Now in that zero to 30 foot zone, it did address a lot of the same things that zero-to-5-foot zone is going to address. It did address branches hanging over your house. It did address having a mesh on your chimneys. You know, for your smoke chimneys.

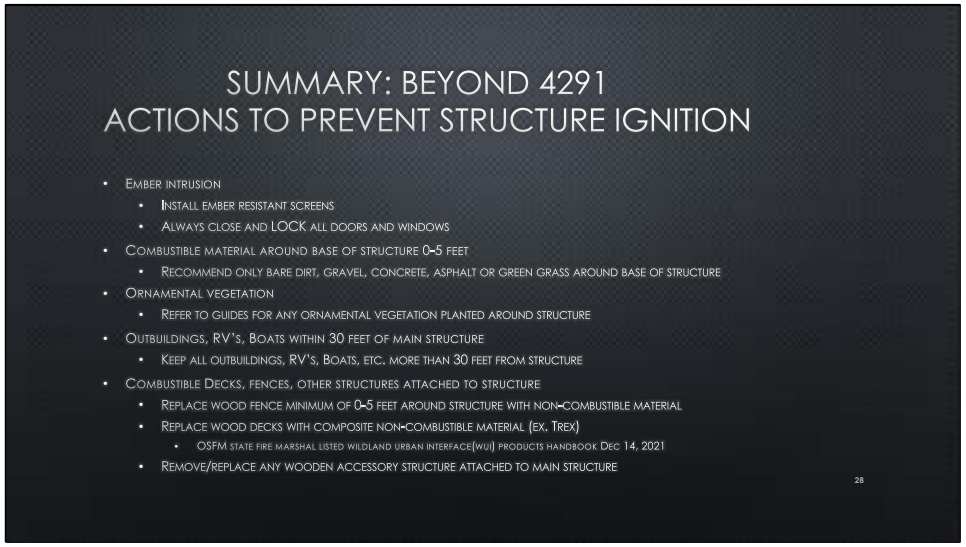
But that new zone on the right side for you guys shows that zero-to-5-foot. So if I have a deck. And it's an above ground deck. What that means is I include that deck in my zero-to-5-foot zone, which means I'd wrap around my house. Where that deck goes, I wrap around that deck as well. OK?



So the new zero-to-5-foot zone is going to be called an exclusion zone or a immediate zone. Here's what is written on the state's website as of yesterday. I just went back through because it actually changed. Uh, before yesterday it actually used to give us spacing, and so your fence had to be 10 feet. The last 10 feet had to be. That's no longer on our says website. I don't know why. They changed it within the last month. And uh, but yeah, uh no using bark mulch around your house. They recommend either bare mineral soil, pavers, concrete. Uh this, the 4th one does change a little bit. It says to low growing plants. I know in my parents house we have a bunch of decorative plants that are like hedged to like 4 feet just right underneath the windows at their house. And. Low growing plants. I went out to Shasta College and talked with the the department out there and they said that that is 12 inches or lower.

Uh as we continue on, talks about the new defensible space, talks about outdoor furniture on our property, whether it's combustible or not. My experience, and my recommendation is if you have a couple minutes as you're leaving the house, just throw that out 30 feet past your house, right? Or take it inside.

So it's gonna talk about in that zero zone replacing gates, arbors or attached stuff to our house. I don't know if it's going to give dimension sides on that like arbors, right? Like, let's say you have a a pavilion out there, and it's made out of wood. Really. An 8 inch by 8 inch timber does not have. Uh, ignition source if it doesn't have an ignition source larger than ember. Probably not gonna start. Or let's say it's a two-by-two post, but we have, we live in a community that has a bunch of conifers and it's got needle cast all over touching it. That's when we start running into those issues. Yep. Uh, so And then relocate garbage cans and recycling containers outside of this zone. And then last, relocate boats, RV's, vehicles and other combustibles.



OK, so this is just the this is the end of it pretty much. If you go to the office of State Fire Marshall. List and when you type in there go list it Wildland Urban Interface products. It'll pull up a PDF document. That has. It was done in 2021, so it's a couple years old, but it has a bunch of the manufacturers that do home hardening materials, right? And it also goes into distributors of those individual materials.

RESOURCES

CAL FIRE Shasta-Trinity Unit
- 875 Cypress Ave. Redding, CA
- 530-225-2418

- CAL FIRE
- www.ReadyforWildfire.org

- Insurance Institute for Business and Home Safety
- https://disastersafety.org/wildfire

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And that's the end. Thank you.