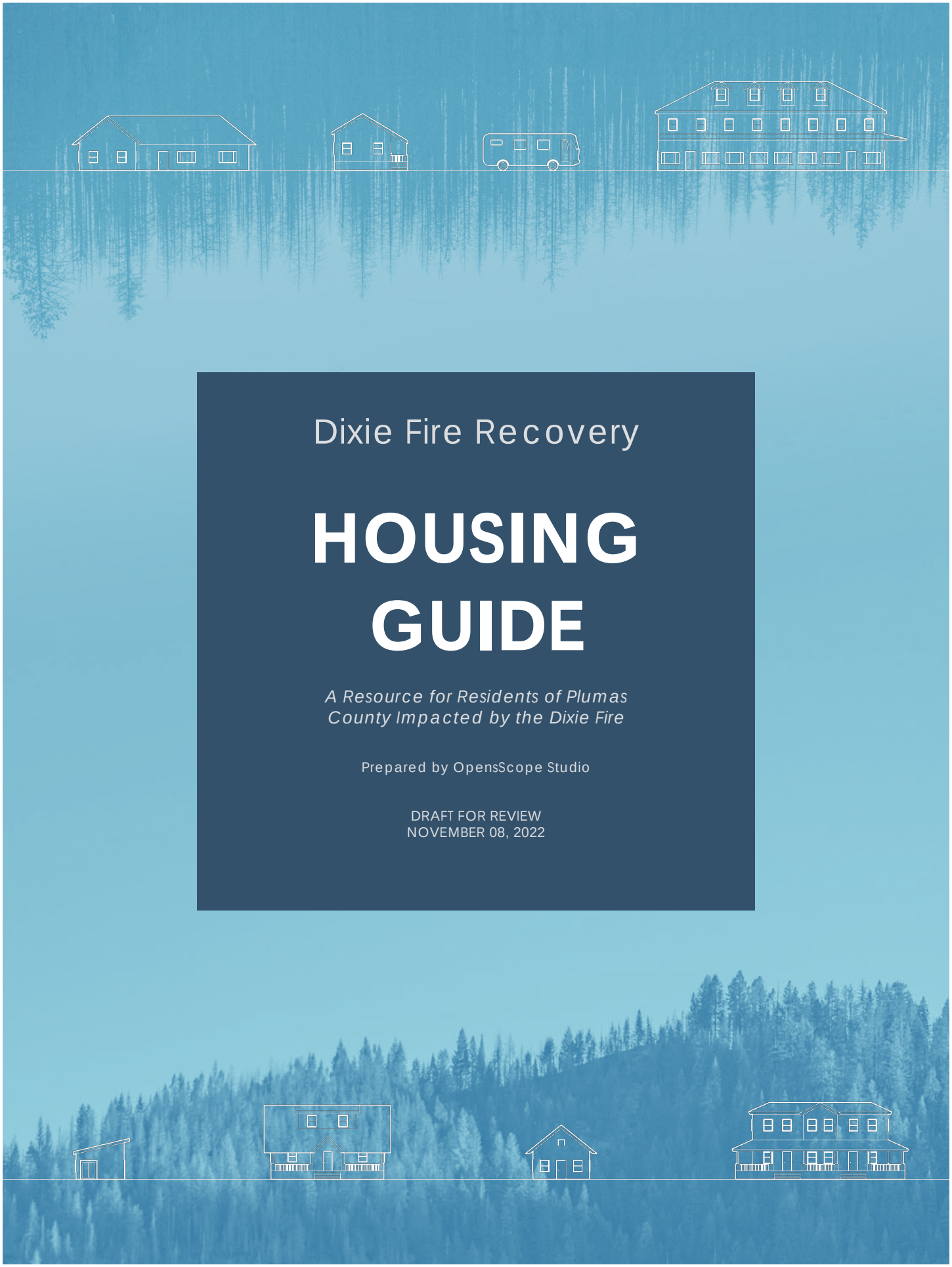

Dixie Fire Recovery

HOUSING GUIDE

A Resource for Residents of Plumas County Impacted by the Dixie Fire

Prepared by OpensScope Studio

DRAFT FOR REVIEW
NOVEMBER 08, 2022

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DRAFT

INTRODUCTION

Rural areas like Plumas County, and their residents, play many essential roles in our society. Urban areas, especially in California, are reliant on rural residents to be stewards of our forests, water, and air. We are inherently interconnected, even when geographically separated. In the wake of a disaster like the Dixie fire, it is not a viable solution to simply abandon the regions that have been destroyed. To do so would be to forsake our responsibilities to the natural environment that we as humans are all a part of, to the cultures and ways of life that are inextricably tied to these places, and to each other. We must rebuild, and rebuild with a new awareness of the risks that come with living as part of a rapidly changing climate.

In the wake of the 2021 Dixie Wildfire, much was lost. For many, the greatest loss was not just their house, but can be summarized in the words of one Greenville community member who shared their story during the production of this document:

"I miss my neighbors."

The communities we each call home are not just places, but also the people that make them up. Rural communities, like those in Plumas County, know this better than anyone. Especially when facing the threat of wildfire, it is not enough to think just about rebuilding one house. We must view each home as a part of the whole community - their future resiliency depends on it.

Living in the wildland urban interface today comes with inherent challenges and hazards. That being said, there are proven strategies for planning and designing such communities and buildings that effectively manage this risk. This guide introduces many of those strategies in the hopes that residents will be able to not just rebuild, but also create a more resilient community in the process.

This document is intended to support the residents of Plumas County as they rebuild their homes and communities. The information included in this document aims to support residents in navigating the process of rebuilding a home. This document will be a helpful first step to understanding the process of rebuilding a home, and the options available to consider at each stage.

Like any resource, this document is not a replacement for hiring a professional to help plan a project. This is currently a living document, and as such, there may be important parts of the process not currently outlined here. This document will continue to be updated based on community needs and feedback.

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1. HOUSING OPTIONS

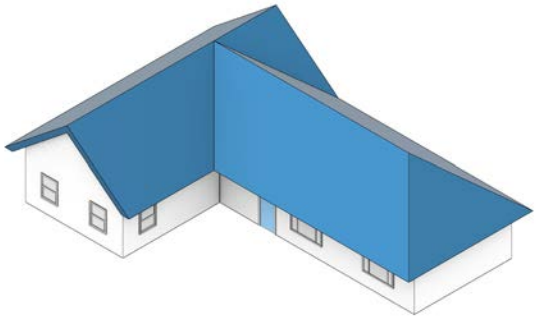
HOUSING TYPES OVERVIEW

The section introduces a variety of housing types that homeowners may consider when approaching the rebuilding process. While some of these types may be unfamiliar in Plumas County, each type is viable in at least some zones (with the exception of Tiny Homes on Wheels, which are currently prohibited throughout the county). Each type is limited to parcels of their respective zoning type as outlined in the planning code.

The building code and planning code sometimes use similar names for categories that are actually distinct. For example, the category "R-3" as used in this chapter is a residential occupancy type defined by the building code, and shouldn't be confused with the "3-R" single family residential zone defined in the planning code. For more information on zoning and the planning code, see Chapter II. Housing Construction Process - Introduction to Codes on page 37.

SINGLE FAMILY (DETACHED)

A free-standing residential building intended to be occupied by one family unit. The building code categorizes this type of housing as occupancy type R-3, and it is regulated by the Residential Building Code in most parts of California.



Why you may want to consider a Single Family Home:

- Most familiar residential type for most homeowners in California
- Most prevalent residential type allowed by zoning
- Feasible to add an accessory dwelling unit (ADU) to the same lot

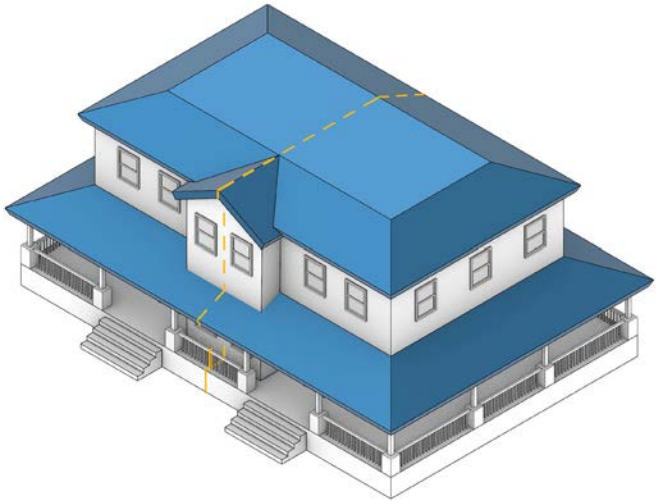
LOCAL EXAMPLES: *SINGLE FAMILY HOMES*

438 Main Street, Greenville, CA [Google Maps, 2009]

Parsonage of Methodist Episcopal Indian Church, Greenville, CA. [Burke Library Archives, 1912-1953]

DUPLEXES

A building containing two independent units. In the building code, a duplex is considered occupancy type R-3, and they are regulated by the Residential Building Code in most parts of California.



Why you may want to consider a Duplex:

- Ability to rent out the second unit can provide rental income.
- Option to have a multi-generational home while maintaining some independence.
- Community connection to neighbors in other unit
- Duplexes are allowed statewide in single family zoning if the property is owner occupied

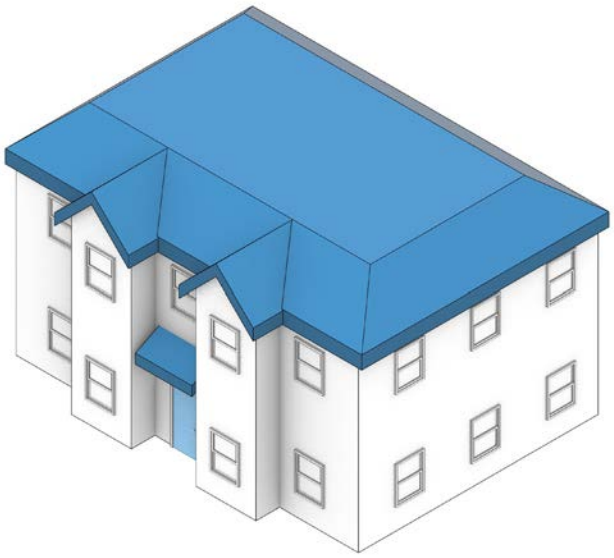
EXTERNAL DUPLEX EXAMPLE: *STACKED DUPLEX*

Documented by Missing Middle Housing | Berkeley, CA

Stacked duplexes are typically 2 story detached structures containing two units stacked vertically. This example shows a typical condition with two separate entrances both facing the street. Stacked duplexes maintain the appearance of a small-to-medium sized single family house, while allowing for independent living spaces that share walls, reducing costs and preserving outdoor space. Residences of this type can easily be built to fit many different local styles.

TRIPLEXES AND SMALL MULTIFAMILY

A building with three (“triplex”) or more (“multifamily”) independent units. A building with three or more units is considered occupancy type R-2 in the building code, and treated like an apartment building. These fall under the jurisdiction of the California Building Code, not the Residential Code. Properties of less than 5 units can be financed with a residential mortgage, like a house. If there are 5 or more units it would become an investment property and require a commercial loan.



Why you may want to consider Small-Scale Multi-family housing:

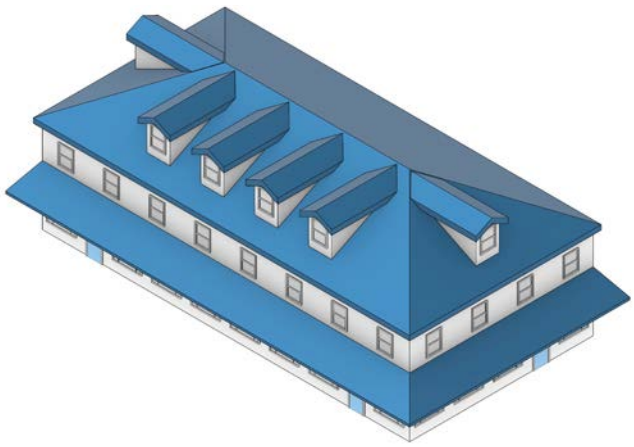
- For people who want an investment property, three and four unit buildings allow the owner to carry a conventional residential mortgage which typically has a lower interest rate and is easier to qualify for than a commercial loan.
- Ability to rent out additional units can provide rental income
- Community connection to neighbors in other units

EXTERNAL SMALL MULTIFAMILY EXAMPLE: *CLOVERLEAF COTTAGE COURT*

Love Schack Architecture | Victor, ID | 2020

Cottage Courts are clusters of 5-10 small, typically 1 story residential units around a shared courtyard. The proximity of the homes enhances the sense of community while preserving surrounding undeveloped landscapes, like in this rural town. To increase the efficiency of construction, each home uses the same footprint, but was customized to suit their location on the site and the unique needs of individual homeowners. Designing the homes collectively allowed contractors to move sequentially between homes, speeding up the construction process and lowering costs.

MIXED USE AND LIVE-WORK



Mixed use buildings serve multiple purposes, typically pairing residential units with commercial, institutional, cultural, or entertainment spaces. Live-work buildings are geared more towards home-based businesses where people are not necessarily serving the general public. This could potentially cover a wide variety of occupations.

Mixed use buildings are typically financed with a mixed use loan (commercial, government-backed, or short term). Mixed Use and Live-work accommodations are typically considered occupancy type R-2 by the California Building Code. Potential sites for mixed use development are constrained by local zoning, typically to town centers that are zoned as Core Commercial (C-1) and Periphery Commercial (C-2) in Plumas County. These zones allow for dwelling units on the second floor if the entire first floor is commercial use (Plumas County Code Sec. 9-2.1902, Sec. 9-2.2002).

Why you may want to consider a mixed-use building:

- Small scale mixed-use development create a downtown district with a classic small town America feel
- Connects residents with local businesses, supporting the local economy while creating a more walkable and livable community
- Option for business owners to live on-site, reducing their costs and commutes.

LOCAL EXAMPLE: *MIXED USE*

Hunters Ace Hardware [Google Earth, 2009]

Hunters Ace Hardware [Eastman, Jervie Henry. At Greenville, Calif. University of California, Davis. General Library. Dept. of Special Collections, 1946]

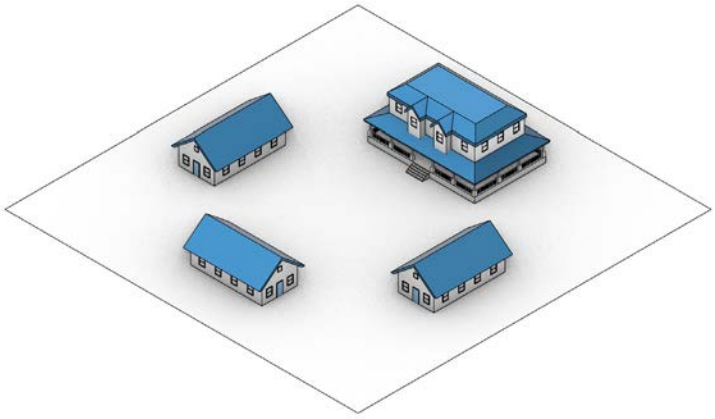
EXTERNAL LIVE-WORK EXAMPLE: *TRUE NORTH DETROIT*

Prince Concepts | Detroit, MI | 2017

9-unit live/work community built with quonset huts built as part of a neighborhood redevelopment project 2 miles from downtown Detroit. The site includes both live/work apartments as well as a private yoga studio, a gallery, and an apartment style hotel room.

CO-HOUSING

Housing Communities consisting of a series of private dwelling units that all have access to some shared spaces, like communal lounges, workshops, kitchens, laundry facilities, or porches. Co-Housing is not to be confused with communes (where residents typically share a set ideology and property), or co-living (where each resident has an independent bedroom, and shares all other spaces in the residence). In some ways, co-housing is more similar to condominiums. However, most Co-Housing communities are independently managed by residents rather than relying on external property managers (as is the case in most traditional condos).



Co-Housing can exist under a variety of ownership models. In order to finance a Co-Housing Development in the United States, Co-Housing can be organized as a cooperative (where you purchase a share of the property in exchange for a lease to stay in a unit) or mutual housing association (where residents or developers form a nonprofit that holds the property and grants the right of occupancy). They can also be legally organized as a condominium in order to meet the expectations of lenders when pursuing a mortgage. In this case, the development is legally classified as a condominium, but is still organized and maintained by the residents themselves rather than an external corporation.

Why you may want to consider a Single Family Home:

- Most familiar residential type for most homeowners in California
- Most prevalent residential type allowed by zoning
- Feasible to add an accessory dwelling unit (ADU) to the same lot

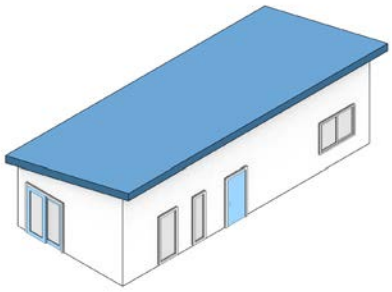
EXTERNAL CO-HOUSING EXAMPLE: *THUNDER VALLEY CDC*

Porcupine, SD | Ongoing

Lakota operated Community Development Corporation serving the Pine Ridge Reservation. The Regenerative Community Development includes single family homes (3 groups of seven homes each), a 12-unit apartment complex, and shared community building. Of the 21 single-family homes, 15 were set aside for low income families. Some of the buildings were constructed by their Workforce Development Program participants.

ADUS

An accessory dwelling unit (ADU) is a residential unit added to a site with a primary building, and is sometimes referred to as a "in-law unit" or "granny flat." ADUs are intended to make use of underutilized space on a site. ADUs are subordinate to the primary residential unit(s), usually because of their placement on the lot and/or the size of the unit. California State ADU laws make it possible to add ADUs to single family homes, backyards, or within existing buildings with a separate entrance. In Plumas County, ADUs are limited to 1,200 square feet (Plumas County Code Sec. 9-2.201.1).



Why you might want to consider adding an ADU to your property:

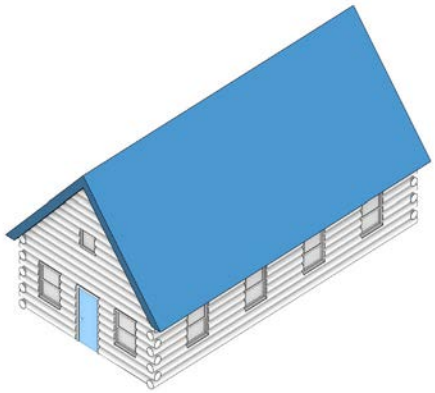
- Excellent way to generate additional income off of the space you have on your property
- Adds rental capacity to Plumas County, supporting the local economy by accommodating seasonal labor or short-term renters
- Creates additional space to host guests, family, etc.
- Ability to have a multi-generational household on one property with a greater degree of privacy

EXTERNAL ADU EXAMPLE: *HEART GLADUR ADU PROTOTYPES*

OpenScope Studio | San Mateo, CA | 2019

These ADU plans have been pre-reviewed in select San Mateo County jurisdictions, enabling homeowners to save time and money when building an ADU. The designs offer a range of floor plans that demonstrate how ADUs can integrate with a variety of different lots and backyard sites to add an additional unit.

CABINS



Many of the homes that may come to mind when hearing the word "cabin," that were lost in the fire were more accurately a single family home built in a cabin style or aesthetic. These homes that were on-grid and typically used as year-round residences shouldn't be confused with the cabins described below.

In the context of typology (rather than style), cabins are simpler structures with limited utility capacity, or totally off-grid. They are most often intended as seasonal residences. Many Plumas County residents lost cabins in the fire that they may want to rebuild. For most in Plumas County, a cabin would most likely be viable if it is to be a one-to-one replacement for a previously existing structure that was destroyed.

In Plumas County, cabins have typically been built on parcels zoned as a Timberland Production Zone (TPZ) or General Forest Zone (GF), which each allow for a minimal amount of dwelling units on each parcel (the allotted amount is dependent on the parcel's size).

If you are interested in rebuilding a cabin, you should first have a conversation with the county planning department. The regulations around cabins are unique compared to other housing types, and clarifying what will be allowed in your specific situation before beginning the design process will ultimately save you time and resources.

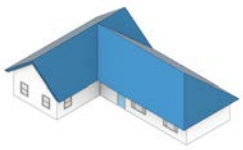
GREENVILLE - HOUSING TYPOLOGIES

This map documents the variety of housing types and styles in Greenville before the Dixie Fire. Each style is represented below by a diagram that serves as an example of that type. These diagrams by no means capture the full stylistic qualities of each home, but are meant to help illustrate and document what was previously existing in the community.

The style categories are approximate based on the visual documentation of the town still available. Multistory single family homes likely shared stylistic characterstics with one of the other single family home categories, but are differentiated due to scale, as most homes in this area weren't as large. Undocumented homes are represented on the map to provide context about what is missing, or has not yet been possible to categorize based on data available post-fire.

This is meant to be used as a tool to help homeowners remember and understand their community's composition before the fire so that they can make informed decisions about what the town will look like in the future.

Single Family Home - Cottage Style

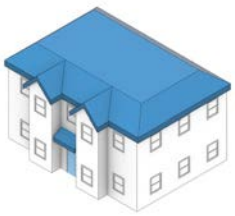


Single Family Home - Ranch Style

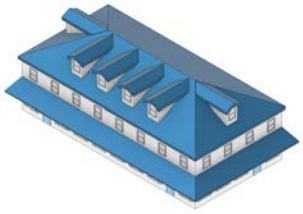
Single Family Home - Farmhouse Style

Multistory Single Family Home

Manufactured Mobile Home



Apartment



Mixed Use

Undocumented


HIGHWAY 89
MAIN ST
CRESCENT ST
MAIN ST
LEGEND
Single Family Home - Cottage Style
Single Family Home - Ranch Style
Single Family Home - Farmhouse Style
Multi Story Single Family Home
Manufactured Mobile Home
Apartment
Mixed Use
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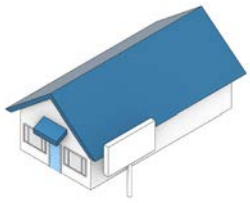
CANYONDAM - HOUSING TYPOLOGIES

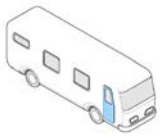
This map documents the variety of housing types and styles in Canyondam before the Dixie Fire. Each style is represented below by a diagram that serves as an example of that type. These diagrams by no means capture the full stylistic qualities of each home, but are meant to help illustrate and document what was previously existing in the community.

This is meant to be used as a tool to help homeowners remember and understand their community's composition before the fire so that they can make informed decisions about what the town will look like in the future.

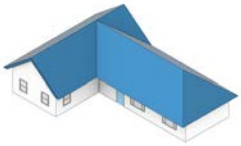


Business/Commercial

Cabin

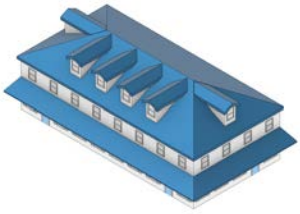


RV



Single Family Home

Manufactured Mobile Home



Mixed Use


LAKE ALMANOR
HIGHWAY 89
LEGEND
Business/Commercial
Cabin
Single Family Home
RV
Manufactured Mobile Home
Mixed Use
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HOUSING PRODUCTION

This section introduces a variety of housing production methods that homeowners may consider when planning to build their home. In addition to the most common construction methods introduced here, there are also a few alternatives to traditional housing construction like Tiny Homes and RVs. These may not be appropriate long-term solutions for most homeowners, and are included here primarily for comparison.

SITE BUILT

Site Built houses (AKA "stick built") are fully constructed on your property. This involves getting bids from general contractors, who manage the project and hire subcontractors as needed to complete the work. Typically, general contractors provide a bid for the entire project up front. If changes are made, or unforeseen conditions are encountered, you typically would have to approve the changes and pay an additional amount for that work (a "change order").

Benefits:

- Traditional construction method that many homeowners are most familiar with.
- You see the entirety of the construction process unfold before your eyes.
- Built to your specifications.
- Site-specific

Disadvantages:

- Construction is seasonal in Plumas County, with bad winter weather typically preventing some work from being executed.
- Materials stored outside during construction can warp, mold, etc.
- Home builders have to wait for the foundation to be completed before they can begin constructing other portions of the house, extending the timeline of construction compared to some other construction methods
- Material cost can be higher than off-site methods, depending on where contractors source materials
- Potentially higher labor costs, depending on availability of contractors and the distance they must commute each day of on-site work.

FACTORY BUILT HOMES

PREFABRICATED HOMES

A factory built (AKA “factory built” or “system built”) home is pre-fabricated in pieces at an off-site facility before being transported to the home’s property for final assembly. There are two types of assembly methods that can be factory built:

PREFABRICATED MODULAR

Prefabricated Modular homes (AKA “system built” homes) are built as a series of three-dimensional pieces (“modules”) at a factory before being transported to the site and assembled. While prefabricated modular homes can be assembled more quickly once they arrive at your property, they can be much more difficult to transport over long distances or to remote locations.

PREFABRICATED PANELIZED

A house where the exterior is pre-fabricated as flat panels at a factory before being transported to the site and assembled. Prefabricated pieces typically include the roof, wall panels, and floor systems. Fabricating the home as flat panels makes delivery to your property simpler, especially to remote locations. However, delivering everything as flat panels leaves slightly more assembly work for the on-site portion of construction, taking slightly longer than prefabricated modular homes.

Benefits:

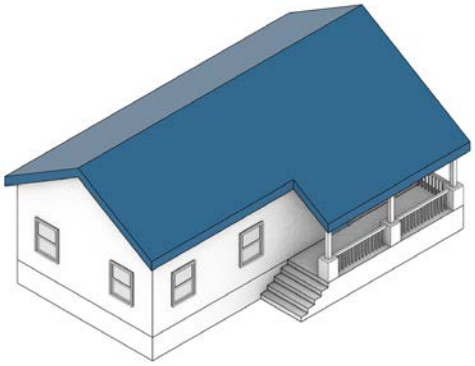
- Faster to construct than site built homes, since the fabrication of the home’s pieces begins off-site while the foundation is laid on-site
- Factory fabrication of the home can help control:
    - material costs
    - labor costs
    - quality (since materials are stored indoors during prefabrication)

Disadvantages:

- Can be difficult to transport over long distances or to remote locations
- Some builders may require payment in full before the home is built
- Customization is limited, compared to a site-built home
- Long wait times for manufacturing (2-3 years in some cases currently)
- In areas like Plumas County, there is often no local representative from the manufacturer to help should issues arise
- It will still be necessary to hire a local contractor to do on-site installation, and there can be additional wait times for assembly to be completed post-manufacturing if none are available

MANUFACTURED (MOBILE) HOMES

Manufactured homes (AKA “mobile homes”) are built in a factory with a permanent steel structure as part of the floor. This allows them to be set on concrete piers in place of a permanent foundation. Thus, it is possible to move them somewhere else in the future, and also means ownership of a manufactured home can be separate from the land it sits on.



They are available as single wide (up to 1,200 square feet, with 1-2 bedrooms) to triple wide units (over 2,000 square feet, with three or more bedrooms). Since manufactured homes are built to preemptive federal "HUD" standards, manufactured homes are exempt from the required installation of residential fire sprinklers unless required by local ordinance (Plumas County does not have a local ordinance requiring sprinklers for manufactured homes).

This type of housing is very common in Plumas County: it made up 14% of the housing stock in 2019 vs. 4% statewide. Unlike many municipalities, manufactured homes are allowed in all zones of Plumas County that allow for residential occupancy (Plumas County Code Sec. 9-2.412), so long as the manufactured home:

- Is certified under National Mobile Home Construction and Safety Standards of 1974 (meets HUD Standards)

- Is installed on a foundation
- Meets the snow load requirements of that zone (load requirements vary throughout the county)
- Is able to meet the residential occupancy standards of the zone where it is placed (for example, a manufactured home is likely not viable in zones C-1 or C-2 since the allowed dwelling units are dependent on sharing the lot with a primary commercial space).

Benefits:

- Quality of manufactured homes is much higher than in previous decades. Prior to 1976, there were no standard building codes for mobile homes. Any manufactured home constructed since 1976 is required to meet strict HUD standards.
- Potentially lower material costs, since factories source materials in higher bulk quantities

Disadvantages:

- Traditional financing is not available for these types of units.
- These homes typically do not hold or gain value like a site-built home.
- Typically not as energy efficient as a site built home.
- Less room for customization than a site built home.

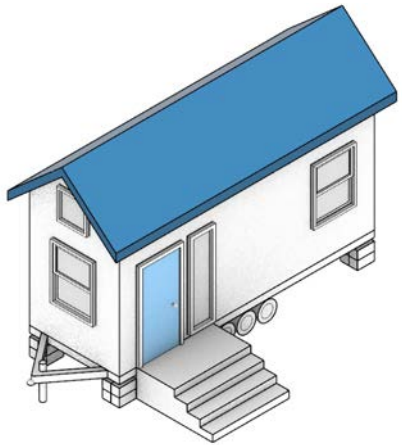
ALTERNATIVES

Tiny Houses

A small house, typically under 600 square feet. Tiny houses come in two main categories with different foundational structures. The regulations and standards around each are different, but otherwise these may appear very similar. **Regulations in Plumas County don't currently allow for tiny houses on wheels to be built as a permanent residence.** While it is possible for community leaders to change such ordinances in the future, they shouldn't be considered as a primary housing solution currently.

TINY HOUSE ON WHEELS

THOWs are built on a trailer and can be moved. Since they are built on a trailer rather than a traditional foundation, it is possible to build a smaller home than local size minimums may require. A THOW must be registered with the California DMV and comply with American National Standards Institute 119.2 or 119.5 safety requirements. They must be moved by towing and cannot be self-propelled.



In Plumas County, THOWs are considered and regulated as RVs. **This means that they are not allowed to be used as a permanent residence outside of the emergency ordinance currently in effect** (Ordinance No. 21-1140 , in effect until December 31, 2024). While it is possible for community leaders to change such ordinances in the future, they shouldn't be considered as a primary housing solution currently.

TINY HOUSE ON FOUNDATION

THOFs are built on a foundation like a traditional site-built home. Both prefabricated and site-built THOFs require a county building permit and plans, just like a traditional house, regardless of its size. To receive a permit, a THOF must meet all zoning standards, snow load, wind load, seismic, WUI, and solar, and energy code requirements. The California Building Standards Code requires tiny homes to have:

- A ceiling height of at least 7 feet 6 inches
- 1+ room(s) with a gross floor area of 120+ square feet
- A net floor area of at least 70 square feet for all other living spaces

Benefits

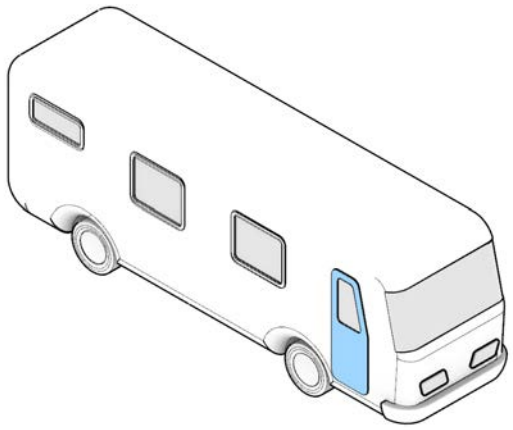
- Low cost
- Offers an alternative lifestyle that some people prefer

Disadvantages

- Small size
- Not easily extended or remodeled
- Lower energy efficiency
- Not typically seen as an investment like a standard house
- If on wheels, can only be occupied seasonally like an RV
- If on a foundation, tiny homes are still required to comply with solar, fire sprinklers, and other building code requirements, which often means the cost isn't as low compared to a standard sized home as one may assume

RVs (Recreational Vehicles)

Motor homes, travel trailers, truck campers, or camping trailers that contain less than 400 square feet of gross area are all considered recreational vehicles. RVs are by definition a vehicle, so they are regulated by and must be registered with the California DMV. While they are generally not to be used for year-round occupancy, and can only be used when located in an RV park or campground (not on a parcel zoned for single family or other occupancies), there is currently an emergency ordinance in Plumas County allowing for year-round occupancy on private parcels (Ordinance No. 21-1140 , in effect until December 31, 2024).



Benefits:

- Immediately Available
- Easy to move between sites

Disadvantages:

- Not an adequate solution for most beyond the first couple of years
- Value depreciates quickly like a vehicle, rather than gaining value with time like most homes
- It is not legal to park in many locations long-term.
- 1+ room(s) with a gross floor area of 120+ square feet
- A net floor area of at least 70 square feet for all other living spaces

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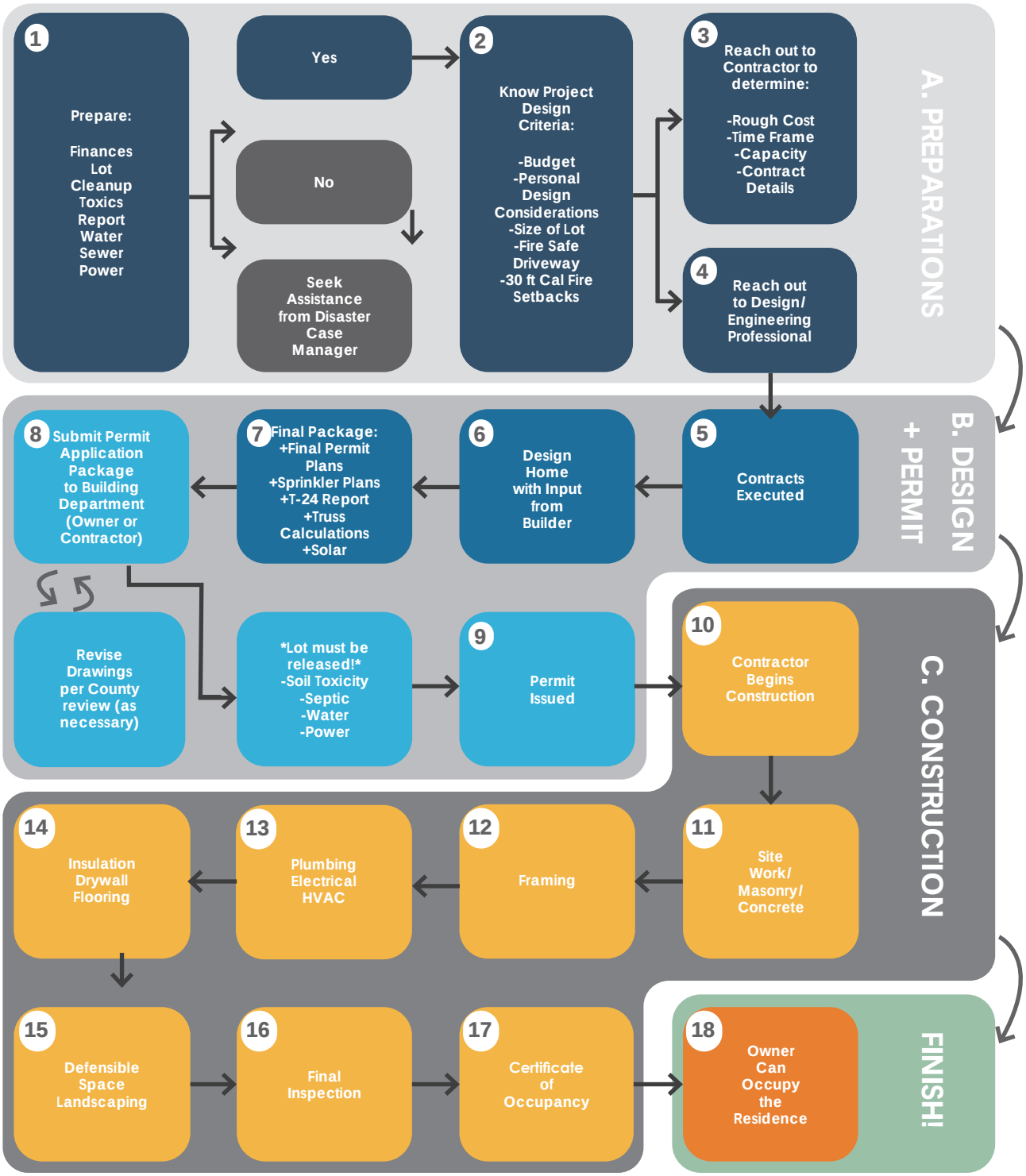
2. HOUSING CONSTRUCTION PROCESS

SINGLE FAMILY DESIGN AND BUILD PROCESS



FILING FOR A BUILDING PERMIT

Plumas County - Single Family Permitting Requirements (bit.ly/PermitReqs)

A major part of the process of building a home is getting approved for permits from your local municipality. The permitting process is intended to ensure that buildings constructed in the community will meet the requirements of zoning and building codes. The process of receiving permits and building a home will be slightly different depending on if you are building a custom home or building from pre-approved plans. The following sections outline the process and requirements associated with each.

BUILDING WITH PRE-APPROVED PLANS

The permitting process can be daunting if you are unfamiliar, and it takes time before starting construction. For these reasons, you may want to consider building with pre-approved plans. These are building plans that have been reviewed by the governing municipal body to ensure conformity with codes and standards in advance. Ultimately, this can reduce the time normally needed for permitting, as well as the cost of this process.

While pre-approved plans have been developed to the right level to achieve pre-approved status, they are not complete and ready to build from. You will still need to make a variety of decisions and preparations with the designer of those plans (the engineer or architect of record) in order to receive your permit and begin construction. These decisions can help you make a pre-approved plan more personalized to your needs and desires as well. **Just because the plans are pre-approved does not mean they are open source - the plans must still be purchased from their author, and alterations must be made with the author of the designs. These pre-approved plans are typically about ½ the cost of commissioning a custom designed home, depending on the designers you are working with.**

The Plumas County Building Department currently has 10 pre-approved plan sets ranging from 600 to 1800 square feet. Using pre-approved plans will reduce the cost of the normal plan review to about 25% of what it would be otherwise, but any changes made to the plans will be reviewed at a separate rate. Only residents who are rebuilding a home lost within the perimeter of the Beckwourth or Dixie fires are eligible to utilize pre-approved plans at this time.

In addition to the pre-approved plans (two complete sets plus one additional floor plan), the following will be required to submit for full permitting:

- Completed Single Family Dwelling New Construction Permit Application
- Site Plan (can be provided by the engineer of record)
- T-24 Energy Code Report (can be provided by the engineer of record)
- An Engineering Set (structural calculations)
    - Structural Calculations
    - Revised Roof Truss Calculations
        - Snow load varies throughout Plumas County, so it is necessary to revise these calculations for your specific site
        - While not required in all municipalities, you are required to hire a licensed engineer in Plumas County due to the local snow loads. Hiring a licensed engineer is also the easiest way to meet the requirements and get the engineering set approved, since these involve complex calculations. Some Architects may also be able to produce an engineering set for your residential project.
- Fire Sprinkler System Construction Drawings
- Photovoltaic/Solar Plans
- Plan Check Fee

The following must be submitted before the building permitted can be issued:

- General Contractor Designation and Signature on Building Permit Application, OR Owner-Builder Form Initialed and Signed by Property Owner
- Potable Water Supply Verification: Water Well Permit or a will-serve letter
- Sewage Disposal Verification: Sewage Disposal System Permit or a will-serve letter
- Driveway Encroachment Permit or Written Waiver (required if driveway encroaches onto a county or state road)
- Firesafe Driveway Permit
- Grading Permit (required when earthwork beyond foundation footings is necessary)
- Accurate Detailed Directions to Jobsite
- Any remaining Fees must be paid

BUILDING WITH CUSTOM PLANS

If you are building with custom designed plans, the permitting process is slightly more extensive, as the entire project will need to be reviewed for the first time. If you've hired a building professional to design a home for you, they should be able to assist in moving your project though the permitting process.

The following will be required to submit when applying for full permitting:

- Completed Single Family Dwelling New Construction Permit Application
- Construction Drawing Set (two complete sets plus one additional floor plan)
- Site Plan
- Structural Calculations
- Fire Sprinkler System Construction Drawings
- Photovoltaic/Solar Plans
- T-24 Energy Code Report
- An Engineering Set
    - Structural Calculations
    - Roof Truss Calculations
        - While not required in all municipalities, you are required to hire a licensed engineer in Plumas County due to the local snow loads. Hiring a licensed engineer is also the easiest way to meet the requirements and get the engineering set approved, since these involve complex calculations. Some Architects may also be able to produce an engineering set for your residential project.
- Plan Check Fee

The following must be submitted before the building permitted can be issued:

- General Contractor Designation and Signature on Building Permit Application, OR Owner-Builder Form Initialed and Signed by Property Owner
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- Firesafe Driveway Permit
- Grading Permit (required when earthwork beyond foundation footings is necessary)
- Accurate Detailed Directions to Jobsite
- Any remaining Fees must be paid

NOTES ON SITE PLANS

The required site plans must be drawn in accordance with an accurate survey of boundaries/ property lines. This will be a necessary part of rebuilding for all homeowners, regardless of what existed on the site before - in this case, you should never assume your property is "grandfathered in" *(protected as a lawfully pre-existing nonconforming use of the land)*.

A site plan must show:

- The size and location of new construction
- The size and location of existing structures on the site
- Differentiate which are to stay on the site and which are to be demolished
- Distances from lot lines
- Established street grades
- Propose finished street grades
- Flood hazard areas, floodways, and design flood elevations (if applicable)

The sheet must have a minimum of a 5" wide x 10" high blank area for notes and department approval.

NOTES ON UTILITIES AND SEPTIC SYSTEMS

Septic inspections are done by the Plumas County Department of Environmental Health. Your plans need to show the existing system and how the new building is connecting to it. The Department of Environmental Health will need to determine whether your existing system is suitable for the proposed new structure. You may need to install a new septic tank and/or leach field.

Other utility connections will need to be coordinated with the utility company. In Greenville, water and sewer require coordination with the Indian Valley Community Services District, while electrical connections need to be coordinated with Pacific Gas and Electric. Other parts of the county have electricity provided by the Plumas-Sierra Rural Electric Cooperative.

PRE-SUBMITTAL MEETING

Prior to submitting your plans and building permit application, it is strongly recommended that you schedule a pre-submittal meeting with a plans examiner to review preliminary drawings. This is an opportunity to ask questions and work out any critical code issues prior to submitting your permit application, and can help you identify unanticipated requirements early in the plan preparation process.

For the meeting, you will need a set of drawings, including a preliminary site plan, floor plan for each floor level, and preliminary cross-section(s). These drawings should be printed on paper for a face-to-face meeting in the Quincy Permit Center. Alternatively, phone meetings can also be arranged if drawings are sent electronically. A phone meeting may be preferable depending on your schedule, location, and seasonal weather.

3. INTRODUCTION TO CODES

INTRODUCTION

Codes are written regulations that determine what can be built where. When building a home, the two codes that you must comply with are the Building Code and the Planning Code. The Building Code deals with safety and technical requirements for buildings. It is defined at a state level, so in Plumas county, the California Building Code applies, as well as local amendments outlined in the Plumas County Code. The Planning Code deals with zoning and usage of property. The Planning Code is defined at a local level; in Plumas County, planning and zoning information is outlined in the Plumas County Code.

The building code and planning code sometimes use similar names for categories that are actually distinct. For example, the category "R-3" is a residential occupancy type defined by the building code, and shouldn't be used interchangeably with the "3-R" single family residential zone defined in the planning code.

OVERVIEW OF CODES

BUILDING CODE

Building codes include electrical, mechanical, plumbing and energy codes that govern the way buildings are designed and built. The codes cover everything from the allowable size and number of exits to the way plumbing and electrical work must be installed. These codes are primarily concerned with health and safety issues.

Construction in the state of California is governed by the California Code of Regulations (Title 24), also referred to as the California Building Standards Code. The California Code of Regulations includes thirteen parts, including the The California Building Code (CBC) and the California Residential Code. The Plumas County Code (bit.ly/PlumasCountyCode) - Title 8: Building Regulations outlines the local amendments to the California Code of Regulations that apply in Plumas County.

PLANNING CODE

Planning and zoning regulations are focused on overall community impacts, and involve requirements such as setbacks (the required distance between the property line and the building), height limitations, reflectivity, and other design considerations. Planning codes are concerned with how land is used (meaning where you can build houses, versus where you could build an office or a store), and how intensely it can be developed (where you can build a single home, versus a duplex or apartments). The Plumas County Code (bit.ly/PlumasCountyCode) - Title 9: Planning and Zoning outlines the planning and zoning requirements for Plumas County.

SEPTIC SYSTEM REQUIREMENTS

In areas without a public sewer system, a private system needs to be built. The size of the system is determined based on the number of bedrooms in the dwelling unit (not by number of baths or area), and the plumbing code dictates the required setbacks needed for the leach field (the area where liquid waste flows into the ground). In some cases the required size of the septic leach field and the setbacks can be an impediment to developing a lot - especially if there is a well on site that needs to be at least 100' from the edge of the leach field.

ENERGY CODE

ENERGY CODE BUILDING STANDARDS

New and newly remodeled residential construction is required to meet the 2019 California Energy Efficiency Standards, sometimes referred to as "Title 24." This set of codes mandates energy use and the efficiency of new buildings. A report needs to be generated showing that a new building meets these codes. There are a mix of mandatory and prescriptive requirements that must be met. All buildings require insulation and a minimum amount of ventilation. Doors and windows are also regulated. The codes are climate specific, areas with more extreme weather require more insulation.

PV PANELS

The California Solar Mandate is a building code that went into effect on January 1, 2020. It requires all newly constructed low-rise residential buildings to have a photovoltaic (PV) system as an electricity source. The 2019 Energy Code defines a low-rise residential building as: "A building, other than a hotel/motel, that is occupancy group: R-2, multifamily, with three habitable stories or less; or R-3, single family; or U-building, located on a residential site." This mandate does not apply to additions or alterations to existing buildings.

The minimum size of a PV system depends on the climate zone, floor area, and the number of dwelling units in a building. The energy analysis professional hired creates an estimate for the property based on these requirements. The required size of a PV system can be decreased by as much as 25% if paired with an on-site battery storage system.

Exceptions

- Properties that are significantly shaded or have a small enough roof
    - "...scenarios where the effective annual solar access of the roof of a building is restricted to less than 80 contiguous square feet because of shading by objects outside the dwelling"
- Buildings that were destroyed as a result of a disaster in an area in which a state of emergency was proclaimed by the Governor before January 1, 2020. (The Dixie Fire disaster area is not covered by this exemption)
- Buildings that are connected to a community solar project
- In Plumas County, there is an exemption to the solar mandate until 2023, but permits for construction would need to be submitted no later than December 30, 2022.

ENERGY CODE (TITLE 24) UPDATES

Many homeowners are concerned about meeting code requirements, especially as the code cycle advances to the 2022 editions (for any projects applying for a permit on or after January 1, 2023). This section is intended to highlight some of these changes to the energy code for single-family buildings. While this section is not intended to be fully comprehensive, it should outline the changes that will have the most noticeable impact to homeowners seeking to build.

The Energy Code is updated every 3 years in order to increase building's energy efficiency. These increases in energy efficiency should reduce utility costs and emissions, while improving indoor comfort, air quality, and the market value of a home.

VENTILATION AND AIR QUALITY CHANGES

A home's space conditioning system (space heating and air conditioning) with ducts that exceed 10 feet must use MERV 13 equivalent filters. Using an air filter of this standard or better will help improve indoor air quality, especially during fire season.

There are also increased standards for the quality of new kitchen hoods, and new sizing requirements for ventilation system ducting that will provide improved indoor air quality.

ATTIC INSULATION INCREASE

In many climate zones, attic systems will require more insulation than previous code editions.

BATTERY STORAGE READY

Single-family homes will be required to be battery storage ready, meaning they are designed with electric systems capable of accommodating the future installation of a battery backup system. For now, this means there should be space reserved for the future installation of a battery backup system, and circuitry must be designed with branches to connect such a battery to the refrigerator, egress lighting, and an outlet in a bedroom.

ELECTRIC READY

The 2022 code will not ban natural gas outright, but it does make electric appliances the default choice. To be "electric-ready," the home will be required to include electrical feeds and space for future electric appliance upgrades, even if using a gas appliance in the meantime. These requirements include preparations for electric water heaters, cooktops, dryers, and heat pumps.

Homes can comply with the code either via the prescriptive approach, or the performance approach. If using the prescriptive approach, at least one heating appliance must be powered by electricity, like using a high-efficiency electric heat pump in place of a gas furnace. The prescriptive approach may also require electric or solar water heating, depending on the climate zone and size of the home. For many homeowners, electric appliances will be the most appropriate choice.

IMPORTANCE OF CODE STANDARDS

FIRE SPRINKLERS

Interior Automatic Fire Sprinklers have been required on new single family homes in California since 2011. This requirement was developed with preservation of human life in mind, and can help limit the harm caused by building fires.

While interior fire sprinklers may not prevent a home from wildfire ignition in every scenario, they can help limit the ways that a wildfire may ignite the house. It is possible for a home to ignite from wildfire from the inside out. This happens when embers blow in through open or broken vents, windows doors, or other openings. Should they enter and spark ignition on the interior of a home, an interior sprinkler system will likely extinguish the fire before it spreads to the rest of the structure. Even if a portion of the interior or exterior should ignite, fire sprinklers will likely prevent the fire from being as destructive as it may have been otherwise.

Fire sprinklers are also extremely effective in the case of a normal house fire outside of fire season. They slow the spread of fire throughout the home, and buy more time for emergency responders to act. Sprinkler systems also help emergency responders extinguish a fire with significantly less water overall, and limit the release of heavy metals and emissions from the burning of synthetic building materials into the surrounding environment.

Interior sprinkler systems can often contain a fire with just 1 or 2 sprinklers being triggered - each sprinkler head is triggered individually as temperatures rise around it, meaning the whole home won't be unnecessarily soaked. This means they are extremely effective at limiting the extent of property damage from a fire - according to the NFPA, automatic fire sprinklers contain the fire to the room of origin 97% of the time.

Fire Sprinklers, like almost every part of a home, do require maintenance, and homeowners should anticipate this. Proper maintenance, testing, and inspection ensure that a sprinkler system continues to function properly, and protect a homeowner's investment in the sprinkler system.

While many may see fire sprinklers as an additional cost, general contractors have been including them in their calculations for the cost per square foot of a new building since 2011 when they were first mandated. It's not truly an additional cost, but should be built into the expected cost of building a home. Even if you consider the cost of the sprinkler system alone, the likelihood of the system protecting both life and property provides significant value in addition to peace of mind.

PHOTOVOLTAIC (PV) SYSTEMS

Photovoltaic Systems, often referred to as solar systems, offer many benefits. They help homeowners tap into a renewable energy source, and protect the natural environment around you by limiting emissions. They may also provide financial benefits, though the overall savings compared to relying on traditional utilities depends on the size and cost of the system itself, as well as the efficiency of the system which will vary for each site.

PV systems' effectiveness depends on the location of a homeowner's property, the surrounding landscape, and seasonal weather conditions. When built on appropriate sites, they help build independence and resiliency for both families and communities by decreasing reliance on utility companies.

There is currently an exemption to the solar mandate in Plumas County in place until 2023. This means that homes with permits submitted by December 30, 2022 will not be required to incorporate a PV System. Homeowners submitting for permits on this timeline may still wish to consider the benefits of a PV system eventually once more urgent rebuilding tasks have been accomplished, as they can be a key piece of infrastructure to support future resiliency.

4.
FIRE PREVENTATIVE MEASURES

INTRODUCTION

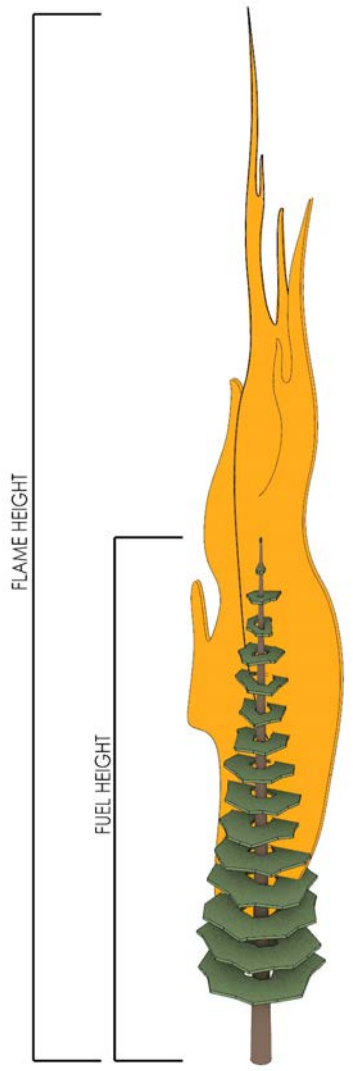
This chapter outlines many important elements that factor into the relationship between a home and a wildfire. Included is an overview of how wildfires act to destroy homes, the importance of caring for both home and landscape, and explanations for many required and optional design choices that can help protect a home from wildfire.

FIRE BEHAVIOR

When planning to build your home as fire-safe as possible, it is important to understand the behavior of a fire. Fires ignite structures in three main ways:

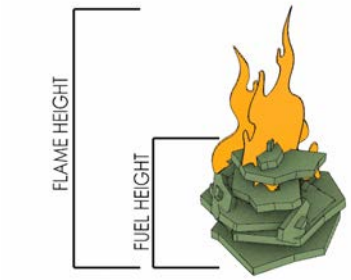
DIRECT FLAMES

Direct Flames are the primary risk that people associate with fires. The behavior of flames is impacted by many factors, like the wind, but as a general rule, you can expect flame length to be roughly double the fuel length. While flame behavior isn't universal and depends on factors like the wind, this means you should plan for a flame to extend about double the length of whatever it ignites. For example, if you have a tree you expect to grow to 15 feet tall, plant it more than 30 feet from the home. Keep this in mind when introducing anything flammable to the site and around your home, like landscaping.



EMBERS

Embers are small pieces of burning debris blowing off of a wildfire that can travel about a mile beyond the fire itself. Since they can travel with the wind well beyond the extent of the actual fire, they can still be a risk before or after the fire has passed a site. Embers can ignite many different materials around the home (primarily in the 5 feet immediately surrounding the building footprint). Embers



can ignite materials outside like plants/plant debris, mulch, fencing, and patio furniture, and can also enter attic vents or an open door or window. The majority of structures ignite this way during a wildfire (about 90%). Limiting the amount of material embers can ignite on and around a home significantly increases the chance of a home surviving.

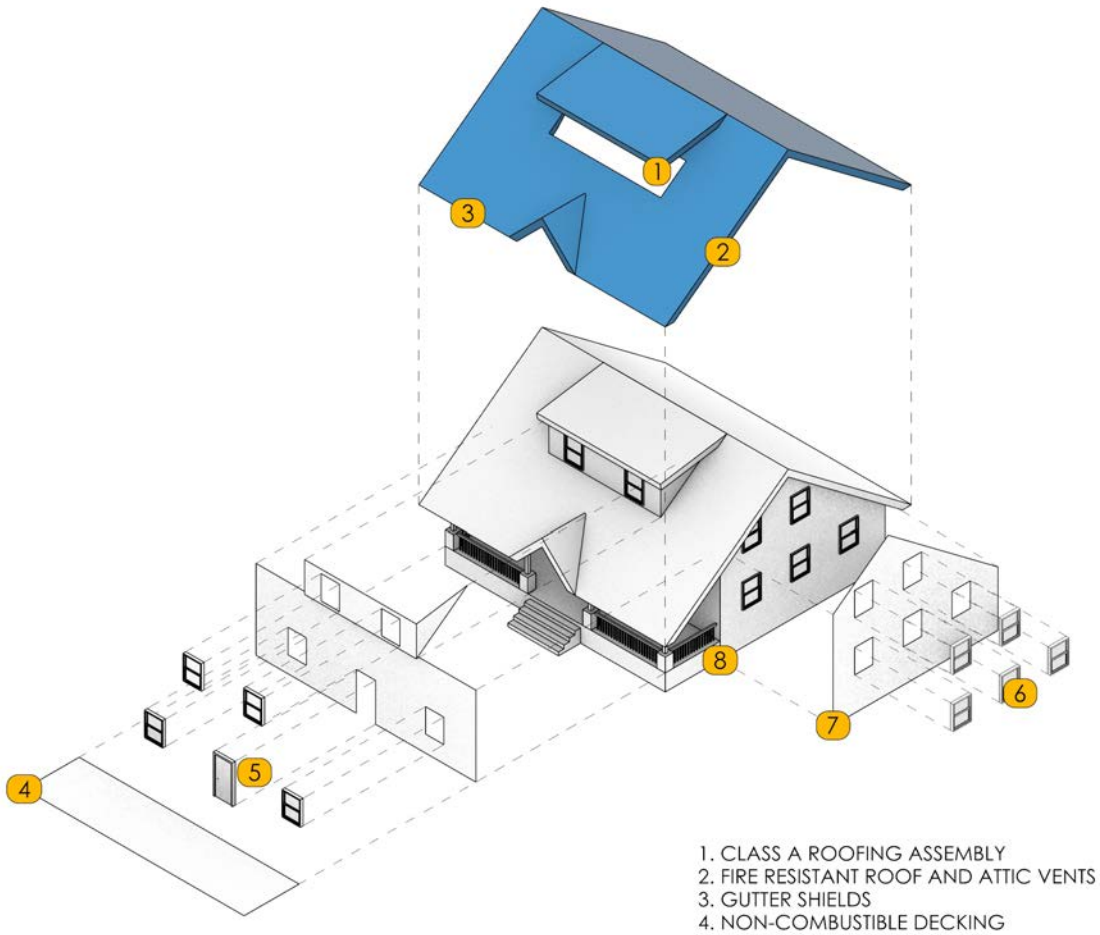
RADIANT HEAT

Wildfires also give off radiant heat, similar to (but more intense than) the heat you feel when standing near a campfire. This radiant heat can reach beyond the flames of the main body of the fire. If a fire is close enough to a fuel source, the radiant heat can cause ignition. Even if the radiant heat isn't hot enough to cause combustion itself, it can still pre-heat materials, making them more likely to ignite from direct contact with flames or embers.

THE WILDLAND-URBAN INTERFACE (WUI)

The Wildland-Urban Interface is the area of land that is the edge between undeveloped land and areas developed by humans. This geographical area is identified by the State of California as a "Fire Hazard Severity Zone," and as a result, property owners building in these regions must comply with the standards outlined in the California Building Code Chapter 7A and California Residential Code Section R337. These sections establish standards for a building's ability to resist wildfire ignition and spread for the sake of protecting both life and property.

Homes built in the wake of the Dixie Fire fall into the WUI, and must comply with these requirements. The sections below outline some of these key requirements, as well as additional considerations meant to empower homeowners to build in a resilient and educated way.



HOME DESIGN AND MATERIALS

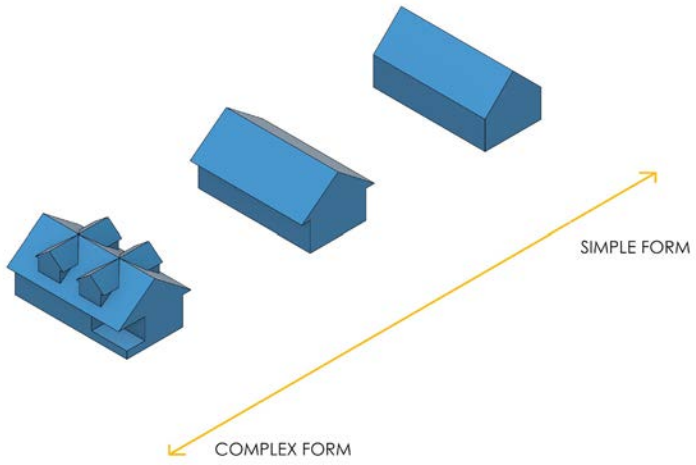
While it is impossible to completely protect a home from fire solely through design, design choices do have a significant impact on the likelihood of a home igniting. When making decisions, consider not just aesthetics, but also with a focus on the long-term resilience of the building and your community.

Construction materials and products are classified based on performance as follows:

- **Non-Combustible** - a material that will not ignite and burn when subjected to fire
- **Ignition Resistant** - a material that has been tested to prove its ability to limit flame spread more effectively than combustible materials, but will still ignite or burn eventually.
- **Combustible** - a material that has the worst performance when exposed to fire, and should be expected to burn.

FORM

The form of a building impacts the risk of fire. A simpler form with fewer nooks, crannies, and small spaces is generally safer from the risk of fire. More complex forms create more corners that can accumulate flammable debris and embers during a nearby wildfire.



ROOFS

Fire ratings for roof covering products and assemblies range from Class A to Class C, or are unrated. Class A products provide the most protection, and unrated provide the least. Class A roofs are commonly available and can be affordable, so they are the best choice for a wildfire prone area like Plumas County. Class A products include certain asphalt fiberglass composition shingles, concrete, metal, and tiles. Common unrated materials include untreated wood shakes/shingles. Some wood shake roofs may achieve Class A ratings when treated with fire-retardant chemicals and paired with the correct roof assembly.

Tile roofs, while very fire resistant, leave unnecessary and dangerous gaps between tiles. They are also prone to cracking, especially when walked on for the sake of maintenance.

These gaps invite wildlife like birds to nest, filling the roof with combustible debris. If these permeate the roof, they can cause the entire structure to ignite. It is possible to install bird stopping to plug these gaps, but this requires additional maintenance to ensure it functions properly at all times.

Metal roofs are also very fire resistant, but can expand and shrink during periods of temperature fluctuations. This is to be expected with seasonal changes, but also during a wildfire. If not properly installed and maintained, this expanding and shrinking can create gaps where flammable debris can gather, increasing the risk of home ignition.

The best approach is to limit the amount of nooks and crannies throughout the roof wherever possible, and maintain the roof to ensure it is clear of debris at all times, especially during fire season. Opting for a roof with a simpler form and fewer intersections will also help limit opportunities for debris and embers to accumulate.

EAVES AND SOFFITS

Overhangs on a building can present unnecessary opportunities for a building to collect embers, radiant heat, or gasses given off by a wildfire. If the overhand, eave, or soffit ignites, the fire has direct access to spread to the roof, attic, or exterior walls. Consider choosing a home design without overhangs, or with limited overhangs only where essential to provide proper protection from rain, snow, and sun.

Eaves are typically built with soffit panels made out of metal, untreated wood, or vinyl. Untreated wood panels can ignite, vinyl panels can melt, and metal panels may distort, all allowing embers and gasses to enter and ignite the structure. Where including overhangs on the building, use soffits panels with a minimum one hour fire resistance rating to keep ignition sources off of the roof structure for as long as possible. Flat soffits that run parallel to the ground, rather than angled and parallel to the roof, also help limit the accumulation of heat and embers rising from the fire below. Do not leave overhangs open, as this leaves the roof structure exposed and most vulnerable to ignition.

VENTS

Attic and roof ventilation is necessary to prevent moisture accumulation and prevent the development of mold and rot. Vents allow for airflow that help moderate indoor temperatures, and in the winter, minimizes the risk of experiencing ice dams on the roof.

While they are essential to the proper performance of a home, vents are a likely entry point for embers which can cause the structure to ignite from inside the attic. Avoid large gable end vents if possible, since their size and vertical orientation make them likely entry points for embers. Vents located on eaves, or any surface parallel to the ground and direction of

the wind, will be less vulnerable to ember entry in the first place.

Since vents are necessary for the proper functioning of a roof, use vents recommended for use by the Office of the State Fire Marshal. These products are listed within this Building Materials Listing (bit.ly/BMLSearch), and can be found by searching under category "8165 – VENTS FOR WILDLAND URBAN INTERFACE (W.U.I.)."

GUTTERS

Many homes are designed with an excess amount of gutters, which provide additional areas for flammable debris to gather. Ideally, the home will be designed with the minimum needed amount of gutters.

Regardless, maintenance of the gutters is essential. Many assume gutter guards will protect their gutters from all debris and eliminate the need for gutter maintenance, but this is a myth. Gutter guards do still catch some debris, and still require regular cleaning. It is essential that homeowners understand they are a tool to help with the ease of maintenance and cleaning, not a substitute for it.

WINDOWS

Window design, placement, product selection, and maintenance all impact the fire resiliency of a home.

Most older buildings used single-pane windows, which are highly vulnerable to failure during wildfire. Multi-pane windows (dual- or triple-pane), which are made out of multiple sheets of glass separated by an air gap, perform better when exposed to radiant heat, and come with other benefits, like energy savings and improved building performance. The California Building Code requires at least one sheet of glass in a multi-pane window to be tempered glass. Tempered glass is about four times more resistant to failure during a wildfire than the weaker laminated or annealed glasses.

When designing a home, it is important to consider the ways windows placement or use can create opportunities for ignition during a wildfire. If a window is added to a private space like a bedroom or bathroom, it may encourage a future occupant to plant bushes or trees nearby to provide privacy. However, planting so close to the exterior wall, window, and eaves all create dangerous and unnecessary opportunities for ignition. Instead, opt for frosted glass, a transom window, skylight, or other daylighting strategies that preserve privacy in spaces like bedrooms and bathrooms.

Window sizing also impacts the risk of home ignition from wildfire. The majority of windows

break due to stress caused by temperature differences between the glass and the frame. Large pieces of glass in larger windows have more edge area than smaller windows, and are therefore a higher risk. Designing a home with a higher number of smaller windows, rather than fewer large windows, may help maintain the building enclosure during a wildfire.

The inclusion of window screens can help protect windows from the radiant heat that would cause them to crack and fail. Window screens made out of bronze, fiberglass, and aluminum have all been proven to increase the time exposed to heat needed for cracks to compromise a window. Screens can also help filter out embers that may blow through a broken window causing the interior living space to ignite. While windblown embers are still able to pass through screens, the fine mesh of a screen helps keep out larger embers that are more likely to cause ignition. While screens do provide some protection against radiant heat, they will do nothing to protect against flame contact. For this, automatic shutters are a better choice.

Both windows and screens should be investigated regularly to ensure they are successfully filtering out debris (without accumulating it - any debris building up between the screen and window should be cleaned regularly to prevent potential ignition). If either have cracks or gaps before a wildfire, they will not perform during a fire. Maintenance is more essential than design or product choice.

DECKS AND PORCHES

In California, decks on new homes must be built out of materials that have passed a minimum performance test. Listings of many products that comply with the California decking requirements can be found within this Building Materials Listing (bit.ly/BMLSearch) from the Office of the State Fire Marshal. Some untreated wood decking is included in the Building Material listing, as they have bee n proven to not be highly combustible by themselves. Usually, they are ignited by another adjacent fuel source that catches first, like unmaintained yard and plant debris, or stored patio furniture.

To make a deck as fire resistant as possible, a noncombustible material like ceramic or cement tile is superior to wood decking. Many products exist that mimic the appearance of wood while providing superior combustion resistance. However, these materials are typically significantly more expensive and may be cost prohibitive for many homeowners.

Decks and porches alone aren't as combustible as often assumed. However, danger can arise based on their use: if the space underneath a deck or porch is used as storage, flammable materials are introduced, raising the risk of combustion. Decks should be designed to ensure it is easy to regularly remove leaf litter and debris that may blow underneath, or in a way that will discourage/prevent debris from gathering in the first place. Beware that even if you enclose the area beneath a deck, wildlife may still burrow beneath, which can

introduce debris.

For many, the best option may be leaving the area beneath a deck exposed and easily accessible so it can be easily cleaned out, especially during fire season. Wood decks should also be checked regularly for rot, as decaying wood is more likely to ignite. Additionally, be sure that any patio furniture or anything stored on the deck can easily be moved into the home or away from the structure completely in case of wildfire to remove as many potential fuel sources as possible.

EXTERIOR SIDING MATERIALS

When it comes to home wildfire resistance, the roof, vents, windows, deck, and landscaping/vegetation on site are each more important than the choice of siding material. However, using combustible siding materials can still allow the home to ignite in two ways: either by catching fire and spreading flame vertically to other building components like windows, eaves, and vents, or by catching fire and allowing fire to penetrate through the wall, igniting the stud cavity and the living space beyond. For these reasons, it is recommended to use a non-combustible siding material, or at least avoid combustible siding materials whenever possible.

Common siding materials, including most wood products and vinyls/plastics, are considered combustible and should be avoided when designing for fire performance. Recommended non-combustible siding materials include three-coat stucco, metal siding, and fiber cement siding.

SPRINKLERS

INTERIOR SPRINKLERS

Interior Fire Sprinklers have been required on homes built in California since 2011. While interior fire sprinklers may not prevent a home from wildfire ignition in every scenario, they can help limit the ways that a wildfire may ignite the house, since it is possible for a home to ignite from wildfire from the inside out. They additionally protect both life and property in the case of a house fire from a source besides wildfire. For further information, see the Importance of Code Standards Section on page 42.

EXTERIOR SPRINKLERS:

When being required to include interior sprinklers on a new home, many homeowners may wonder about the potential of including sprinklers on the exterior to more directly protect from wildfire. Such systems do exist, and are designed to moisten the building's faces and immediately surrounding landscape with foams or gels to prevent ignition.

They are by no means a substitution for other fire protection measures and design considerations. Exterior sprinkler systems from some leading manufacturers cost between $30,000 to $60,000 (depending on the size of the home). Depending on your situation, this same money may be more efficiently spent on higher quality, fire-resistant home building materials. However, if you have already maximized the fire resiliency of every other aspect of your home and can afford it, an exterior sprinkler system may provide an additional layer of protection.

Many of the exterior sprinkler systems on the market are relatively new and under-researched in terms of their effectiveness; as a result, they may be oversold by the manufacturer. An exterior sprinkler system will be ineffective if there isn't enough water supply, and depending on the source the system is using, can put unnecessary strain on the same system firefighters may be relying on to extinguish the blaze. A system is also only effective if it activates when needed. One that must be manually activated is unlikely to protect effectively in the case of evacuation, and systems that rely on smart technology to activate may be ineffective if utilities are down from the wildfire. Consider all of these factors when evaluating the potential value of an exterior sprinkler system.

GARAGES

Weather stripping can be installed around and under a garage door, which will help prevent embers from blowing through gaps and igniting flammable materials stored inside.

SITE AND LANDSCAPE

Caring for the area immediately surrounding a home is just as important as the design of the home itself, as this will impact the way the fire approaches and spreads to the home. A well-designed landscape can help protect the home, and need not be a completely barren perimeter.

DEFENSIBLE SPACE

Defensible Space refers to the area around a home that is used as a buffer between a building on the property and the vegetation and wildland surrounding it. Defensible space serves as a stopgap to help limit the spread of wildfire, and helps enable firefighters to protect themselves and the property.

A primary component of the WUI requirements is that homeowners must maintain 100 feet of defensible space. This 100 foot perimeter currently consists of Zone 1 and Zone 2, but will also include Zone 0 effective January 1, 2023. In addition to the 100 foot perimeter is Zone 3, the access zone, which applies to roads and driveways.

ZONE 0: 0 - 5 FEET

Foundation to Immediate Landscaped Area

Zone 0 includes the building itself and the 5 foot perimeter surrounding it. This area should be kept completely free of items, materials, and vegetation that would combust.

In this zone, patios and hardscapes are ideal. This helps keep a buffer between flammable landscaping and the home itself. It is recommended to keep landscaping at a distance that will keep it from being at risk of growing up against the home or under the eaves with time. Avoid storing firewood, lumber, or other combustible materials in this zone against the house or under decks. They should be kept at least 30 feet away from the home.

ZONE 1: 5 - 30 FEET

Home Ignition Zone

In the 30 feet surrounding the building, pay attention to planting. Maintain clearance between plants, and trip trees to maintain crown separation. Trees should also be trimmed to remove limbs 6-10 feet from the ground, as well as any branches that overhang the roof or come within 10 feet of a chimney.

It is a common misconception that this zone needs to be completely free of planting; trees and plants can actually help hold some heat, keeping it off of the home or structure in the case of a fire. This can help prevent it from igniting. However, they should still be planted

at a distance such that they wouldn't be a risk if they do happen to ignite.

ZONE 2: 30 - 100 FEET

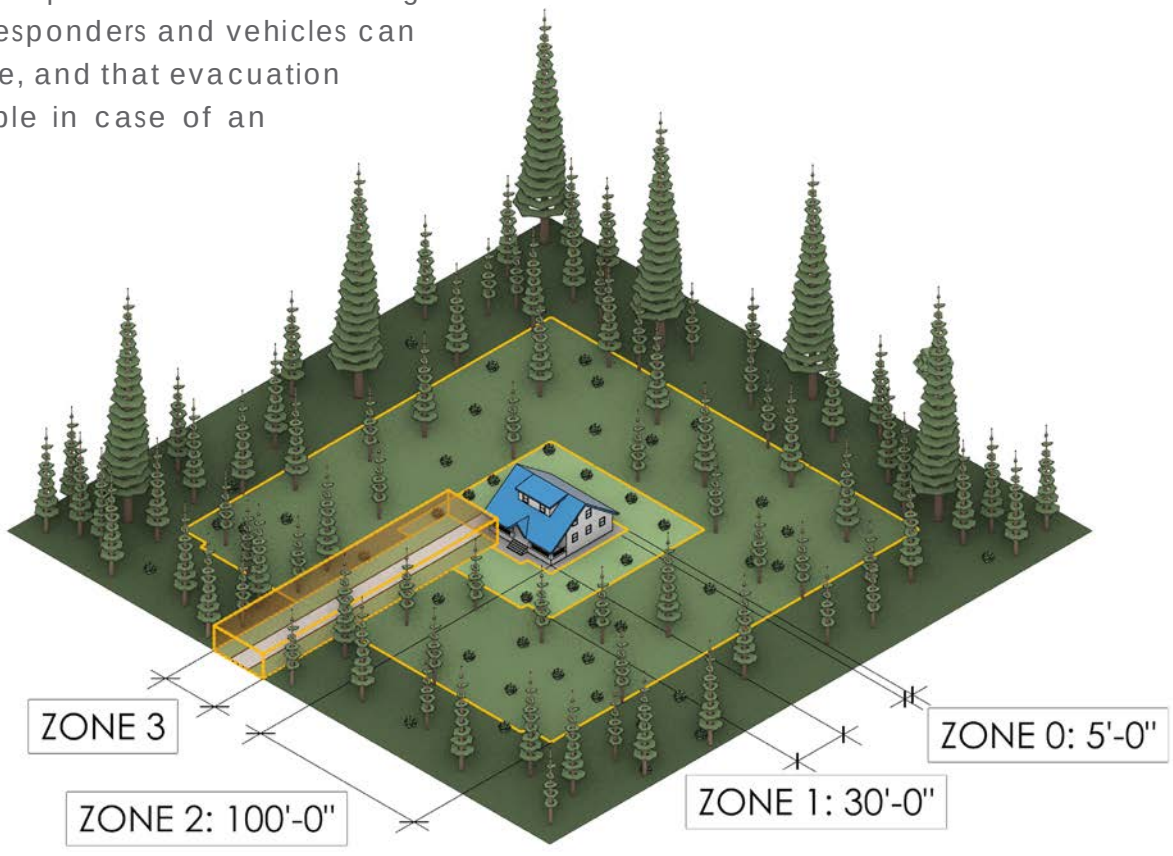
Extent of the Defensible Space

Zone 2 runs to at least 100 feet from the home. However, more space may be required based on topography (slopes and hillsides require more clearance than flat areas) or other conditions identified by the fire department. Regulations in California don't require you to create defensible space on property you don't own, but it is always a good idea to work with your neighbors to maintain defensible space together. Increasing the safety of one property also increases the safety of adjacent properties, and the entire community.

In this zone, create vertical and horizontal spacing between shrubs and trees, remove fallen plant debris (pine needles, leaves, twigs, bark, cones, etc.), and mow grasses down to no more than 4 inches tall.

ZONE 3: THE ACCESS ZONE

The access zone runs along roads and driveways. Here, 14 feet of overhead clearance, and 10 feet of clearance from the edge of the roadway or driveway are required. Maintaining this space is critical to ensuring that emergency responders and vehicles can access the site, and that evacuation will be possible in case of an emergency.

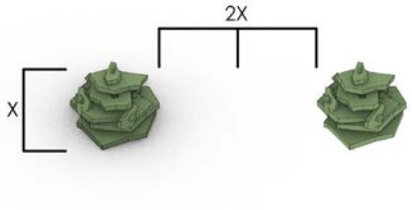


LANDSCAPING AND PLANTING

When planning landscaping for the property, it is equally important to care for plant placement, spacing, and ongoing maintenance. Keep in mind the defensible space zones outlined above (in the "Defensible Space" section) and follow recommended spacing between plants to prevent fire spread. When caring for all of these elements, it is possible to create a fire-resistant landscape that contributes to the overall resiliency of the property and home.

When choosing plants, select species that are adaptable to the hardiness zone of your property. These zones indicate the annual minimum temperatures expected, and help in the selection of species that will thrive in your area. Plants that are not well suited to your hardiness zone may die more easily, introducing unnecessary dry fuel sources for fires to spread by. You can identify the hardiness zone for your specific address on the USDA Plant Hardiness Zone Map (bit.ly/USDAPlant); much of Plumas county is in the range of zones 6b to 7b.

Also consider the fire-resilience of the plants you integrate into your landscape. While no plant is truly "fireproof," some species are more resistant or resilient than others. This means that while they may burn, they are less susceptible to ignition, and less likely to become fuel sources that will increase the fire's intensity and spread it to your home. Avoid using shredded bark mulch, especially near your house, as it is easily ignited. Instead, consider using gravels or decorative rocks that help prevent the spread of fire. Large bark chips can be appropriate when applied away from structures. Properly irrigated landscaping is also much less susceptible to ignition.



Fire-resistant plants tend to have moist leaves, little dry material (like woody stems), waterlike sap, and low amounts of resin material. This in contrast to highly flammable plants, that tend to contain or accumulate fine dry material (such as twigs, leaves, bark, or needles), have leaves with strong aromas, and high amounts of waxes, oils, saps, and resins. The Fire-Resistant Plants for Home Landscapes guide (bit.ly/FirePlants) from Pacific Northwest Extension offers an overview of fire resistant species for your consideration. Additionally, the Manual of California Vegetation (bit.ly/CalNPS)from the California Native Plant Society contains a database of many relevant species with a section for each describing their fire behavior characteristics. Searching via their map can provide a better understanding of the variety of species native to your region.

FENCES

When choosing a fencing material, it is important to consider the proximity of the fence to the home. If the fence is located within 5 feet of a building, and especially if it physically attaches to that building, a non-combustible fencing material should be used. This reduces the chance that the fence will ignite and spread the fire to the exterior of the adjacent building. Even if a fence is located further than 5 feet from the building, it may be a good idea to use a non-combustible material. If a fence on the edge of a property catches fire, it could generate embers that will blow towards and ignite the house.

Remember that most fences will catch and accumulate debris - some more than others. Regardless of choice of fencing type or style, it will be essential that it is well maintained and regularly cleared off. Choosing a fence that can allow some debris like leaves to blow through may be easier to maintain than something like a chain link fence that is likely to catch most debris that blows up against it.

Panelized lattice fencing, and other styles that allow for greater airflow, will limit the amount of embers that will accumulate on the fence, potentially igniting it. Panelized steel fencing has some ability to resist radiant heat exposure, and may be a good fit when there is a neighboring building within 20 feet of a home. The panelized steel fence can help protect the home from the radiant heat of the adjacent building should it catch fire.

A privacy fence made out of planks with little to no separation are much more likely to catch both debris and embers, increasing the likelihood of ignition. Vinyl fencing isn't likely to ignite from the embers themselves, but can still ignite from direct flame exposure. Such fence types should be avoided.

DRIVEWAYS

When rebuilding, it is worth considering how the layout of the driveway on the property impacts or limits the ability of firefighters to protect your home in the case of a fire. A driveway that provides direct access to the home with a minimum of 10 feet of clearance from plants and trees on either side will enable firefighters to protect your home more effectively and safely. If there is a gate on the driveway, it should open inward and be at least 12-16 feet wide to allow emergency vehicles to enter in the case of a wildfire near the property.

ADDRESS NUMBERS

During a fire, firefighters will need to locate your home as quickly and easily as possible. They will likely be searching in smoky and potentially dark conditions. Making your address numbers as clearly visible from the road as possible helps them save time that can make a difference in trying to protect your home.

In California, address numbers must be a minimum of four inches tall on a contrasting background. Metal house numbers like brass and bronze will oxidize with time, making them more difficult to read. High contrast numbers made out of white, stainless steel, or reflective materials will be the most effective. It can be helpful to illuminate house numbers as well.

MAINTENANCE

Overall, the most important part of home fire safety is regular maintenance, including (but not limited to):

- Roofs
- Gutters
- Landscaping

The designer of a home in a fire prone area should work to reduce the maintenance load on the homeowner and occupant. When preparing to build a home, the homeowner should discuss long term maintenance with the designers and building professionals to advocate for the importance of this consideration.

INSURANCE

Known wildfire risk is continuing to push home insurance out of reach for many. Insurance companies in California consider the potential of wildfire hazards, and may decline to extend a policy to a property they consider to be too high of a risk. Even if insurance can be secured, wildfire risk is raising rates for such homeowners significantly.

Some insurers may take into account fire mitigation measures, which can help bring the cost of insurance back into reach. The Wildlife Prepared Certification Program (bit.ly/WPrepCP) is a program recently initiated by the Insurance Institute for Business and Home Safety (IBHS). This program provides certification to homeowners in California who successfully meet their research-backed wildfire mitigation standards. These requirements are very similar to the fire safety recommendations throughout this housing guide. Homeowners can take a free online assessment to ensure they have met all of the requirements before applying. The application fee of $125 covers the physical third-party inspection, documentation, and review of the home. Even if a homeowner is uninterested in receiving official certification, the free online assessment may be a helpful tool for reviewing one's wildfire preparedness. The first home certified under the Wildfire Prepared Certification Program was in Paradise, CA as part of the rebuilding efforts from the 2018 Camp Fire.

Homeowners who are unable to find coverage from main market insurance companies due to wildfire risk may still be eligible to pursue property coverage under the California FAIR Plan (bit.ly/CAFAIRPlan).

5. INTRODUCTION TO HOME FINANCING MODELS

INTRODUCTION

This chapter introduces a variety of financial options available to homeowners seeking to rebuild. Each individual will have unique needs, and most homeowners will be a good fit for only a portion of the options presented below. Many homeowners may be pursuing other funding sources that are specific to the Dixie Fire recovery efforts and aren't fully outlined here.

This information is intended to be navigated with the support of a Disaster Case Manager. If you are navigating this complex process without their help, it will be necessary to do further research to identify the most appropriate solution for your unique situation.

LOAN TYPES

CONSTRUCTION LOANS

A construction loan is a short-term (typically one year) loan that finances the building of a home or real estate project. A builder or home buyer takes out a construction loan to cover the costs of the project prior to obtaining long-term financing, like a mortgage.

Requirements:

- Most lenders require a minimum 20-25% down payment for a construction loan
- Borrowers are typically required to provide the lender with a comprehensive list of construction details (a "blue book")
- Lenders typically require a strong credit history
- Lenders need to approve the contractor, and you need to have a building permit in order to get approved for the loan.

MORTGAGES

A mortgage is a type of loan used to purchase/maintain a home or property. When taking out a mortgage, the borrower is agreeing to pay the lender (usually a bank) back over time through both:

- **Principal:** The initial amount of the loan (ex: For a $250,000 mortgage, the principal would be $250,000). As you make payments, the principal balance will be reduced.
- **Interest:** An additional charge that the borrower agrees to pay the lender for the service of borrowing the money. Interest is usually represented by APR (annual percentage rate). (ex: 3.25% APR)

The property serves as collateral for the loan, meaning that if the borrower fails to make their loan payments, the lender can seize/foreclose on the property. Mortgages are not intended to fund the construction of a new home. To build, you must first get a construction loan. However, you may still need to finance via a mortgage once the building is completed unless you have enough to fund the full project upfront.

MORTGAGE TYPES

In the United States, there are many different types of mortgages. The two primary categories of mortgages are conventional loans and non-conventional loans.

CONVENTIONAL LOANS

Conventional loans are the most common type of mortgage. They are provided by private financial institutions (like banks or credit unions) and are not government backed. Conventional loans tend to be a better fit for borrowers with good credit and the capacity to pay a larger down payment. Varieties of conventional loans are distinguished in two ways: as either conforming or non-conforming, and as fixed-rate or adjustable rate.

CONFORMING LOANS

Conforming loans are mortgages with terms that meet the funding criteria of Freddie Mac and Fannie Mae, and fall within the limits (a certain dollar cap that varies year to year) set by the Federal Housing Finance Agency (FHFA). They typically are advantageous for borrowers with strong credit scores due to their lower interest rates. Some common examples of conforming loans include:

NON-CONFORMING LOANS/JUMBO LOAN

A non-conforming loan, also known as a jumbo loan, is a mortgage that exceeds the financing caps set by the FHFA. They typically have higher interest rates and down payments than their conforming counterparts, and are for more expensive homes than most borrowers would consider.

FIXED-RATE

A mortgage where the interest rate and monthly payments stay the same for the entirety of the loan.

ADJUSTABLE-RATE

A mortgage where the interest rate is fixed for an initial term, and then can be changed based on more up-to-date interest rates. The initial term's interest rate is often lower than

the going market rate. This can make adjustable-rate mortgages more affordable in the short term, but can make them less affordable long term if the interest rate rises significantly.

NON-CONVENTIONAL/GOVERNMENT-BACKED LOANS

Non-conventional loans are offered by various government agencies and programs, rather than by private financial institutions. Some examples that may be relevant to community members include:

FHA HOME LOAN

A loan designed for first-time home buyers and seniors, as well as those looking to purchase a manufactured home or fixer-upper. An FHA Home loan requires the borrower to pay a mortgage insurance premium.

USDA RURAL HOME LOAN

These loans are meant to encourage and support home ownership for low income people in rural areas. They can only be used to purchase single family homes with the intent for owner occupancy. Beyond the purchase of the home, they can also be used for removing health and safety hazards from a home, making a home more energy efficient, adapting a home to be more accessible for a disabled family member. USDA Rural Home Loans have fixed interest, and are paid back over a 33 year period.

VETERAN AFFAIRS HOME LOAN

VA Home Loans are made available to veterans. They come as either 15 or 30 year fixed mortgages, with the option of a $0 down payment. Unlike most mortgages, this type of loan can be spent on both land and home construction costs with a single loan.

CHATTEL LOANS

A chattel loan is an alternative for home types ineligible for a traditional mortgage. A chattel loan is essentially a mortgage on a moveable structure that is considered personal property, rather than real estate. The movable personal property acts as security for the loan, and the lender holds an interest in it. Chattel Loans come with much higher interest rates than traditional mortgages, and are typically for shorter periods than a traditional mortgage. Someone seeking to acquire a moveable manufactured home, tiny home on wheels, or houseboat might pursue a chattel loan. RVs are not typically financed through a chattel loan, as RV loans are usually more applicable.

ALTERNATIVE OWNERSHIP STRUCTURES

COMMUNITY LAND TRUSTS

Community land trusts are private, non-profit organizations that own land on behalf of a community. They typically focus on promoting housing access, affordability, and sustainable development. When community land trust members purchase their homes, they enter into a low-cost long-term property lease with the community land trust. In the United States, there are upwards of 250 community land trusts operating today, and many more worldwide.

Community land trusts best serve those otherwise marginalized from housing and land ownership (typically low-to-middle income folks, or racial minorities). Community land trusts help communities keep home prices affordable for low-to-middle income residents, and help to ensure that future generations of current community members will be able to afford to live in the same area. Community land trusts also help give neighborhood residents agency in the development process.

Some potential home buyers may be reluctant to buy into a community land trust if they are unfamiliar with the model. Community land trusts typically cap resale profits, which in turn caps potential equity growth for homeowners. These profit caps are in place to ensure the future affordability of the neighborhood for community members. Additionally, many homebuyers expect to actually own the land they live on, and that is technically not the case in a community land trust. That being said, community land trusts still offer many of the same benefits as owning your property individually.

MUTUAL HOUSING ASSOCIATIONS

Mutual Housing Associations are nonprofit corporations focused on developing and providing affordable housing for low to moderate income community residents. They are intended to prevent neighborhood deterioration and preserve neighborhood affordability and stability. Residents become members of the MHA and are in turn given restricted ownership of the property, with terms that require member participation and prevent real-estate speculation (residents may sell their apartment or unit, but at the same price they originally purchased it). Residents participate in ongoing operation and management of the MHA, either serving on the board of directors or working with them to make decisions about the MHA. Mutual housing associations typically own both the housing and the land together, whereas a community land trust may just own the land and not the housing on it.

DRAFT

GLOSSARY

ADU (ACCESSORY DWELLING UNIT)
A residential unit added to a site with an existing building. Sometimes referred to as a “in-law unit” or “granny flat.”

CHANGE ORDER
A written modification to a construction contract necessary when a change is made to the scope of work, contract sum, or contract timeline. AKA a "variation order"

CONDOMINIUM
A residential complex in which separate units are owned by different individuals

CROSS LAMINATED TIMBER (CLT)
An engineered wood product made of several layers of solid lumber glued together. Each cut of lumber is layered such that the grain runs perpendicular to the next, providing superior structural rigidity.

DWELLING UNIT
A single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

ENGINEERING SET
A set of documents and drawings authored by a licensed engineer to demonstrate the viability and safety of a building design. This usually includes considerations such as structural calculations and roof truss calculations.

GRANDFATHERED IN
Protected as a lawfully pre-existing nonconforming use of the land

HUD STANDARDS
Regulations for certain types of structures set by the U.S. Department of Housing and Urban Development

LEACH FIELD
The area where liquid waste flows into the ground as part of a septic system

LOT LINE OR PROPERTY LINE
The recorded boundary of a lot

PERC/PERCOLATION TEST
A "perc" or percolation test is a way of evaluating how water moves across and drains away from a property. It is most often used in preparation for the building of a septic system.

PHOTOVOLTAIC SYSTEM
An electric power system designed to supply electric power via one or more solar panels combined with an inverter and other hardware.

SETBACK
The distance by which a structure, parking area, or other development feature must be separated from a lot line easement, other structure, or development feature.

SITE PLAN
A drawing that depicts the boundary of a property, and key features on it including existing structures and proposed structures. For full requirements, check with your local building department.

TITLE 24/T-24
"Title 24" is used to refer to both the entire California Building Code and the Building Energy Efficiency Standards contained within the CBC. **In most contexts, especially colloquially, T-24 refers to the Energy Code specifically.**

LOCAL RESOURCES

Plumas County - Building Department - bit.ly/BuildingDept

Plumas County - Planning Department - bit.ly/PlanningDept

Plumas County - Environmental Health Department - https://bit.ly/EnvironDept

Plumas County GIS Interactive Web Map - bit.ly/PlumasGIS

This tool can help examine local parcels of land, and identify information including the assessor's parcel number.

ParcelQuest - bit.ly/ParcelQuest

General and Historic Property Information. If you wish to search this system via an assessor's parcel number, you can obtain that number from the Plumas County GIS Interactive Web Map first (above).

Plumas County - Single Family Permitting Requirements - bit.ly/PermitReqs

Outline of the submittal requirements for permitting a single family home in Plumas County.

Plumas County Building Department - Information on Using Pre-Approved Plans - bit.ly/UsingPreApp

Important information to be aware of when considering using pre-approved plans.

PRE-APPROVED PLAN PROVIDERS:

LBK Engineering & Design - bit.ly/LBKEngin

LBK Engineering Pre-Approved Plans can be previewed on the Dixie Fire Collaborative website (bit.ly/DixiePreAppPlans) as well as in-person at the Plumas Co unty permit center.

NST Engineering, Inc. - bit.ly/NSTEngin

NST Engineering's pre-approved plans can be viewed in-person at the Plumas County permit center.

CODES

UpCodes - bit.ly/CAUPCODES

A useful resource when seeking out further information on specific building code requirements.

FINDING A BUILDER

North State Building Industry Association - bit.ly/NSBIA

Roseville, CA | Professional Organization with a directory of building professionals throughout Northern California

The Builders Association of Northern Nevada - bit.ly/TheBANN

Reno, NV | Professional Organization with a database of contractors and builders in the region, primarily based out of Nevada

CO-HOUSING

CohoUS - bit.ly/CohoUS

The Cohousing Association of the United States

Cohousing Solutions - bit.ly/CoHoSolutions

Consultant from Nevada City, CA involved in cohousing projects in the Pacific Northwest.

FIRE PREVENTATIVE MEASURES

California State Fire Marshal - WUI Listed Products Handbook - bit.ly/CSFMWUI

A guide to home building products approved by the State Fire Marshal for WUI requirement compliance. This information is also available at this searchable database (bit.ly/BMLSearch).

CalFire - Defensible Space Plant Clearance Requirements - bit.ly/Defensible

This page further elaborates on the defensible space requirements, and how to treat the landscape in each zone.

Wildlife Prepared Certification Program - bit.ly/WPrepCP

A program recently initiated by the Insurance Institute for Business and Home Safety to provide certification to homeowners in California who successfully meet their research-backed wildfire mitigation standards.

Fire Safe Marin - Harden Your Home - bit.ly/FireSafeMarin

Further information for homeowners interested in applying fire preventative measures.

HOME FINANCE

Investopedia Dictionary - bit.ly/FinanceTerm

Useful resource for learning the meaning of particular financial terminology in thorough and simple articles

Annual Credit Report.com - bit.ly/AnnualCredit

Federally approved portal to claim a free credit history report once a year each from Experian, TransUnion, and Equifax. Primarily useful when checking to verify your credit history is accurate before applying for a loan or new line of credit.

CREDITS

OPENSCOPE STUDIO

OpenScopeStudio.com

OpenScope Studio is a full-service architectural practice based in San Francisco and Los Angeles specializing in smart solutions to complex design problems.

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