

Proposal to Amend Berkeley Fire Code Paragraph 'NN' - (B.F.C. Section 903.2.23)

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What is Paragraph 'NN' of the B.F.C.?

- ▶ Part of Berkeley's body of adopted amendments to the California Fire Code
- ▶ Contained in B.M.C. Section 19.48.020, "Amendments to the California Fire Code"
- ▶ Paragraph 'NN' establishes B.F.C. Section 903.2.23 within the current code structure (hereafter referred to as "Paragraph 'NN'")
- ▶ Currently Paragraph 'NN' requires that within the "Environmental Safety-Residential" (ESR) Land Use district (now also known as Fire Zone 3), that additions or alternations \geq \$100,000 in value trigger the installation of fire sprinklers in new structures and sprinkler retrofit in existing structures

- ▶ As Paragraph 'NN' is currently written:

NN. Section 903.2.23 Environmental Safety - Residential District [Additional subsection] Any new construction requiring a permit determined to be \$100,000 or more in construction costs or new additions to existing structures shall be required to install automatic fire sprinklers throughout the structure. For the purpose of this subsection "Environmental Safety — Residential District" shall mean those areas designated as such on the Official Zoning Map of the City of Berkeley, as it may be amended from time to time.

What changes to Paragraph 'NN' are Being Proposed?

- ▶ Paragraph 'NN' will reference Berkeley's Fire Zones 2 & 3 instead of a Zoning District
- ▶ Scope expanded to include all properties in Fire Zones 2 & 3 and applies to parcels zoned for one- and two-family dwellings
- ▶ Proposed retrofit requirements **are not limited to one- and two-family structures.** Other types of residential structures containing habitable space such as congregate or multi-family dwelling would be affected
- ▶ Revised language is intended to capture both existing and new residences and Accessory Dwelling Units (ADUs) but not smaller accessory structures or structures with no habitable space/use.
- ▶ Revised language clarifies that it applies to new construction, alterations or the conversion of space to habitable use
- ▶ Relies on the existing fire and building code definition of 'Habitable Space':
 - “**Habitable Space.** A space in a building for living, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls, storage or utility spaces and similar areas are not considered habitable spaces.”
- ▶ Uses a 3-yr construction permit window to evaluate when a \$100,000 permit trigger is reached
- ▶ Clarifies that when the paragraph triggers fire sprinkler installation that **all** related new and/or existing structures on a parcel having habitable space must retrofit sprinklers
- ▶ Creates four exceptions to the requirement
....

What changes to Paragraph 'NN' are Being Proposed?

- ▶ The four proposed exceptions within the amended Paragraph 'NN' language:
 - ▶ Detached building code Group 'U' accessory structures (such as storage sheds) that are not larger than 120 square feet in area.
 - ▶ Construction (or portions of construction) defined as repairs for maintenance purposes **OR** construction alterations intended to bring a structure into compliance with ignition resistant construction standards for wildfire exposure
 - ▶ Additions of new space to an existing structure totaling not more than 250 square feet in area used solely for mechanical or utility service of a building
 - ▶ In a case where multiple, primary free-standing dwellings exist on a single property, the requirement will be applied individually to each residence and it's related accessory structure(s)

As Proposed the Amended Paragraph 'NN' Language would read as follows-

NN. Section 903.2.23 Fire Zones 2 and 3 [Additional subsection] On any parcel zoned to allow single-family or duplex dwelling residential use, any of the following conditions shall trigger the installation of fire sprinklers throughout any new and existing primary and related accessory structures containing habitable space:

- A. The construction of a new structure containing habitable space, or
- B. The conversion of existing structures or portions of existing structures to habitable space when such structures did not previously contain formally approved habitable space, or
- C. Any alterations or additions requiring permit(s) determined to be \$100,000 or more in aggregate construction costs over a 36-month period from the date of permit issuance

For the purpose of this subsection Fire Zones 2 and 3 shall mean those areas designated as such in the Berkeley Fire Code, as it may be amended from time to time.

Exceptions: 1. Detached accessory structures of Group 'U' Occupancy with a floor area not greater than 120 square feet.

2. Construction or portions of construction defined as repairs for maintenance purposes or construction alterations intended to bring a structure into compliance with ignition resistant construction standards for wildfire exposure of the structure as set forth in the Berkeley Building Code.

3. Additions of new space that total not more than 250 square feet in area and which are used solely for mechanical or utility service of a building.

4. Where multiple, primary, free-standing dwellings exist on a given property the fire sprinkler installation requirements of this section shall be applicable to an individual primary structure and any qualified accessory structures on the property associated with the affected primary dwelling structure. Other free-standing dwelling structures on the property and their accessory structures need not retrofit fire sprinklers at that time.

History and Background of Paragraph 'NN'

- ▶ Adopted in December 2007 and went into effect January 1, 2008
- ▶ The provision has been in-force continuously since it's adoption
- ▶ Implemented largely in response to the 1991 Oakland-Berkeley Firestorm (the "Tunnel Fire")

As of October 2021, the Tunnel Fire ranks as the 3rd most destructive wildfire in CA history even **30 years after the incident** (stats incl. State, Federal and local lands)

25 confirmed deaths, >2,900 structures lost

- ▶ Additional significant Berkeley fires include:
 - 9/1923; estimate 584 structures lost
 - 9/1970; 37 structures
 - 12/1980; 5 structures



History and Background of Paragraph 'NN'

- ▶ The original goal of Paragraph 'NN':

Reduce the likelihood that a routine residential structure fire occurring in Fire Zone 3 would turn into a major wildfire incident

- ▶ A fire sprinkler system normally extinguishes or controls a structure fire before it can break out of the structure and into the surrounding vegetation or damage adjacent structures*.

*A 2017 study shows that when fire sprinklers are installed in a residential structure, flame damage is confined to the room of origin in 97% of incidents [source: "U.S. Experience with Sprinklers", National Fire Protection Association, July 2017]



Why Amend B.F.C. Paragraph 'NN'?

California's wildfire problem has become significantly worse since the initial adoption of Paragraph 'NN':

- ▶ Studies show the wildland fire problem in the western United States has become progressively worse over the past 30-40 years
- ▶ The duration of once 'seasonal' wildfire activity has extended to the point that wildfires can and do occur during most months of the year
- ▶ Since 2017 (within approximately the past four years) notable wildfire incidents have demonstrated increasing intensity and rate of spread

According to CalFire statistics twelve of the largest twenty wildfires recorded in California history have occurred since 2017

- ▶ Wildfires are becoming more difficult to suppress.

CalFire spent ~\$166M in 2001, and estimates an expenditure of \$1.13B in the 2021-2022 wildfire season

Why Amend B.F.C. Paragraph 'NN'?

The original provisions of Paragraph 'NN' have not kept up with the changing wildfire hazard and are not providing the degree of protection needed

- ▶ The original language restricts the requirements of this section to the "Environmental Safety-Residential" zoning district
- ▶ The original language was intended to address development patterns and trends which existed in 2008. It's less well suited to changing development patterns and trends and to a wider application in a more diverse built-environment such as Fire Zone 2
- ▶ The lack of a clear, comprehensive retrofit requirement for existing structures will result in an extended delay in the adoption of fire sprinkler installations
- ▶ State statutes which now govern ADU construction & conversion prohibits any requirement for fire sprinklers in new ADUs unless the existing structure is also provided with fire sprinklers
- ▶ The existing Paragraph 'NN' language is outdated and may not capture ADUs and the conversion of existing space and structures

Why Extend Paragraph 'NN' into Fire Zone 2?

Answer: Because the wildfire hazards in the two Fire Zones are now very similar

Fire Zone 3

- ▶ Recognized by CalFire as a Very High Fire Hazard Severity Zone
- ▶ Fire weather in FZ 3 is more severe than in the west end of Berkeley
- ▶ Streets = narrow, winding, steeply-graded
- ▶ Abundant vegetation intermixed with structures
- ▶ Terrain is steep (= 'slope driven' fires)
- ▶ Original parcel subdivisions created narrow lots that crowd structures
- ▶ Single road for evacuation / emergency response

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Why Extend Paragraph 'NN' into Fire Zone 2?

Berkeley Fire Department's Assessment:

While most portions of Fire Zone 2 have more than one egress or access road for evacuation and response, the existence of one or more additional road routes cannot compensate for:

- Severe fire weather
- Steep, narrow winding roads
- Steep terrain with the potential for rapidly spreading, slope-driven fires
- Narrow lots which crowd structures together
- Abundant vegetation intermixed with structures

What Benefits Can Berkeley Expect from Expanding Fire Sprinklers into Fire Zone 2?

Community Benefits

- ▶ Greatly reduced potential for the spread of structure fires to the wildland and a resulting catastrophic wildfire
- ▶ Environmental benefits-
 - ▶ ~98 % reduction in greenhouse gases generated by a structure fire in fire sprinkler equipped buildings
 - ▶ Reduced water usage for firefighting
 - ▶ Reduced water pollution and materials committed to landfills as a result of residential fires
 - ▶ Studies estimate a 1.7B pound reduction in CO2 release due to fires in one- and two-family dwellings if fire sprinklers had been universally installed over an 11 year period in the U.S.

Benefits to Individuals

- ▶ ~98% of fires are controlled by fire sprinkler systems when they are installed
- ▶ In fire sprinkler equipped buildings the fire stays in the room of fire origin → reduced threat to occupants throughout a structure
- ▶ Residential fire sprinklers are specifically designed to allow a person inside the room of fire origin at the start of a fire to survive the fire event

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Based on these benefits the Berkeley Fire Department strongly recommends the adoption of the proposed revision of this local fire sprinkler amendment

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THANKS YOU FOR YOUR TIME,
ATTENTION AND CONSIDERATION



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This concludes the presentation