

Discussion: Wildfire and Conflagration Retrofit CONCEPTS

California Wildland-Urban Interface (CWUI) Work Group



Sub-Group: WUI Retrofit

<https://osfm.fire.ca.gov/what-we-do/code-development-and-analysis/workgroups>

How do we create pathways for Property Owners to reduce their wildfire hazards in the existing and built environment?

v.11 2026-07-01 Marco@TheAHJ.org – CWUI: Retrofit Sub-Group

1

1

Wildfire and Conflagration Retrofit Concepts

HAZARD:

Wildfire and Conflagration will burn ignitable materials from:

Yard-to-Yard;
Yard-to-Structures; and,
Structure-to-Structure.

MITIGATION:

Reducing Fire Exposure Intensity and Reducing Fire Ignition potential will reduce Wildfire and Conflagration Hazards.

PERFORMANCE INTENT:

What is needed for your home to save itself?

Exterior Fire Exposure from Low and Moderate and High Intensity Fire.

v.11 2026-07-01 Marco@TheAHJ.org – CWUI: Retrofit Sub-Group

2

2

Wildfire and Conflagration Retrofit Concepts

Create pathways for property owners to reduce Wildfire Hazards

- Fire Insurance – **Is my home insurable?**
- Invest in hazard mitigation to off-set cost of insurance
- Insurance Models are evolving – Repair vs. Total loss
- Self-Insurance and alternatives to replacement of total loss
- Need for Best Practices vs. Compliance and Regulation
- How do I get credit for doing more than Code Minimum?
- What are the **Incremental Steps to retrofit my existing home?**

v.11 2026-07-01 Marco@TheAHJ.org – CWUI: Retrofit Sub-Group

3

3

Wildfire and Conflagration Retrofit Concepts

Incremental Steps to retrofit my existing home

- Can I do more in my Yard to save my existing home?
 - Reducing Fire Exposure Intensity in the Yard
 - Doing more than the minimum defensible space
- Reducing & measuring Ignition Potential and Fire Spread in the Yard
 - Increased levels of thinning and separating and ignition-free zones
- How many homes are lost to low intensity fire AFTER a wildfire passes?

v.11 2026-07-01 Marco@TheAHJ.org – CWUI: Retrofit Sub-Group

4

4

Wildfire and Conflagration Retrofit Concepts

Factors for Levels of Fire Exposure Resistance

- Ember Resistance. Remove “kindling” and all items that are easy-to-ignite, including all dead and dying vegetation.
- Fire Exposure Resistance. All vegetation maintained with standards that reduce fire intensity and fire spread. Vegetation maintained with limited height and groupings of vegetation with separation from other grouped vegetation.
- Difficult-to-ignite and difficult-to-spread. Reduced fire intensity with increased separation distances. No vegetation within 10-feet of windows, doors, and other nonrated openings into the structure.
- No Fire Exposure. Nothing-to-ignite within 5-feet of structures. Easy to maintain.

v.11 2026-07-01 Marco@TheAHJ.org – CWUI: Retrofit Sub-Group

5

5

Wildfire and Conflagration Retrofit Concepts

Create pathways for property owners to reduce Wildfire Hazards

Improve Property Owner Community Infrastructure related to Wildfire and Conflagration Retrofit:

- Best Practices for **HOA Retrofit and Maintenance**
- Landscape Contractor Training Certification
- Landscape Architect Training Certification
- Documentation / Verification of Annual Maintenance

v.11 2026-07-01 Marco@TheAHJ.org – CWUI: Retrofit Sub-Group

6

6

Wildfire and Conflagration Retrofit Concepts

Blind Spots in Residential Code and Building Code

Yard to Yard - Yard to Structure - Structure to Structure

- Exterior Fire Exposure from YARD (*No hazard assumed in the yard*)
- Exterior Fire Exposure from neighboring STRUCTURES
- CODE – Fire Separation Distance between structures fails in wind driven conflagration (*Resource draw-down – must save itself*)
- Code Exceptions for structures when “NO” permit is required

v.11 2026-07-01 Marco@TheAHJ.org – CWUI: Retrofit Sub-Group

7

7

Wildfire and Conflagration Retrofit Concepts

How do we create Best Practices and Standards?

Simplistic Solutions to Complicated and Complex Systems

Complicated systems are predictable and solvable.

Complex systems are not predictable and emergent.

Exterior Fire Exposure Hazards are not easily predictable

How do we measure Fire Intensity and Exposure Time ?

v.11 2026-07-01 Marco@TheAHJ.org – CWUI: Retrofit Sub-Group

8

8

Wildfire and Conflagration Retrofit Concepts

How do we create Best Practices and Standards?

EXTERIOR FIRE EXPOSURE HAZARD Classifications

Onsite and Offsite Lot/Parcel specific vs. Area (Fire Hazard Severity Zones)

Light Hazard

Ordinary Hazard

Extra Hazard

Target Hazard

v.11 2026-07-01 Marco@TheAHJ.org – CWUI: Retrofit Sub-Group

9

9

Wildfire and Conflagration Retrofit Concepts

How do we create Best Practices and Standards?

EXTERIOR FIRE EXPOSURE MITIGATION Classifications

Onsite and Offsite (Lot specific vs. Fire Hazard Severity Zones)

Limited Hazard Mitigation *(less than code minimum)*

Full Code Mitigation

Extra Hazard Mitigation *(greater than code minimum)*

v.11 2026-07-01 Marco@TheAHJ.org – CWUI: Retrofit Sub-Group

10

10

Wildfire and Conflagration Retrofit Concepts

How do we create Best Practices and Standards?

NEXT STEPS – Understanding Exterior Fire Exposure Factors

Identify PERFORMANCE INTENT for each mitigation component

Ember Exposure Resistance – Vertical (falling brands) and horizontal wind-driven embers

Exterior Fire Exposure Resistance

Direct Flame Contact – Radiant Heat – Convective Heat

Fire Exposure Intensity of the Yard

-Ignition Potential of the Yard: *Easy to Ignite or Difficult to Ignite*

-Fire Spread Potential of the Yard: *Easy to Spread or Difficult to Spread*

-No Fire Exposure in the Yard: *Nothing to ignite / No fire spread*

v.11 2026-07-01 Marco@TheAHJ.org – CWUI: Retrofit Sub-Group

11

11

Wildfire and Conflagration Retrofit Concepts

How do we create Best Practices and Standards?

NEXT STEPS – Understanding Exterior Fire Exposure Factors

Applying METHODS OF JUDGEMENT

- *Low-tech and repeatable process*
- *Aim for Accuracy over Precision*
- *Field Test Indicators vs. Proof of passing an engineered test*

Understanding Performance Intent of reference Test Standards

v.11 2026-07-01 Marco@TheAHJ.org – CWUI: Retrofit Sub-Group

12

12

Wildfire and Conflagration Retrofit Concepts

NEXT STEPS – Documenting Level of Mitigation

Explore - How do property owners establish their level of Fire Exposure Mitigation?

CONCEPT: Define a New Certificate of Occupancy with New Types of Construction

Adding new levels of Exterior Fire Exposure to Types of Construction.

Exterior Wall Covering -AND- Concealed Wall Components

Wildfire (yard exposure mitigation) Exposure (structure to structure)

Type II Non-combustible exterior wall components

Type III Ignition resistant exterior wall components

Type V Limited use of any material used by the code

v.11 2026-07-01 Marco@TheAHJ.org – CWUI: Retrofit Sub-Group

13

13

Wildfire and Conflagration Retrofit Concepts

How do we create Best Practices and Standards?

NEXT STEPS – Documenting & Verifying Periodic Maintenance

How do property owners prove structure and yard maintenance for Insurance and code compliance?

(Maintenance is the potential failure of W & C Retrofit)

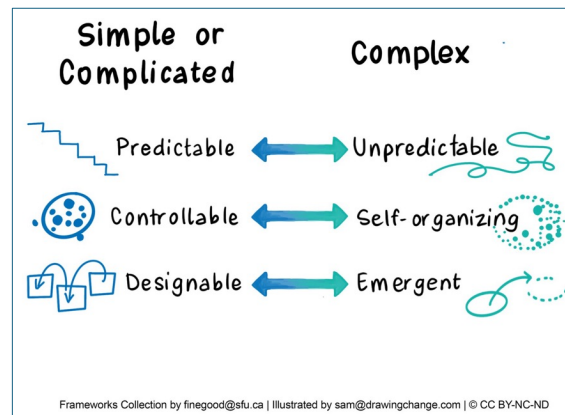
v.11 2026-07-01 Marco@TheAHJ.org – CWUI: Retrofit Sub-Group

14

14

Wildfire and Conflagration Retrofit Concepts

Creating Simplistic Solutions



v.11 2026-07-01 Marco@TheAHJ.org – CWUI: Retrofit Sub-Group

15

15

Wildfire and Conflagration Retrofit Concepts

Wildfire and Conflagration Retrofit Sub-Group

YOUR PARTICIPATION – Marco@TheAHJ.org

- Email input to establish a *FRAMEWORK* and *SCOPE* of Proposed End Results (for approval by the CWUI Work Group)
- Teams Meetings to incorporate concepts into a Best Practices Guideline and future Standard
- Improve Property Owner Community Infrastructure related to Wildfire and Conflagration Retrofit

v.11 2026-07-01 Marco@TheAHJ.org – CWUI: Retrofit Sub-Group

16

16