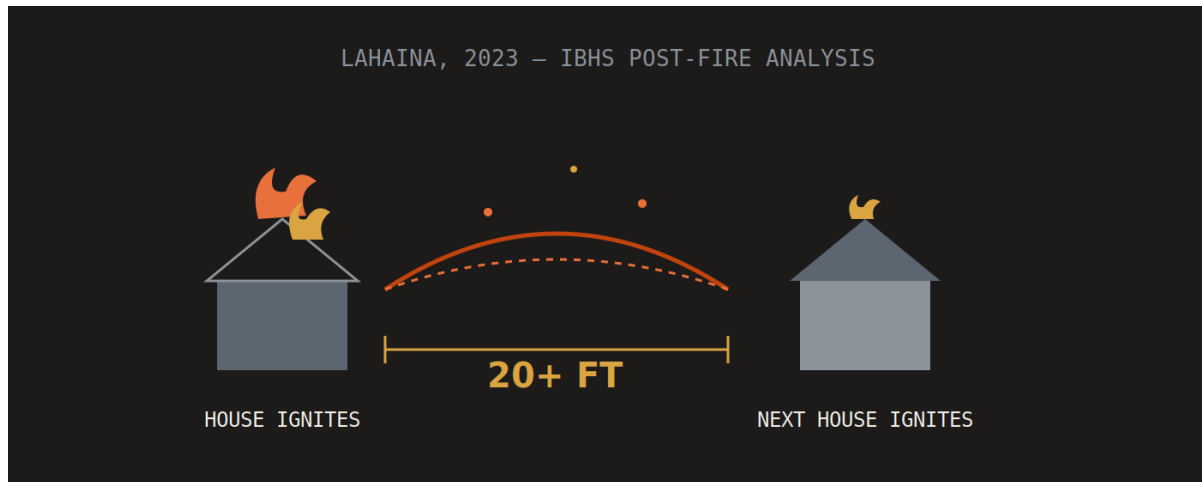


What Happens When One Burning House Ignites the Next?

The wildfire doesn't have to destroy a neighborhood one house at a time. Under the wrong conditions, the houses can help destroy one another.



IBHS post-fire analysis of the 2023 Lahaina fire found flames from burning homes often extended more than 20 feet.

We tend to think of a house fire as an individual event.

One house burns. The fire department responds. The surrounding houses are protected. The fire is contained.

Wildfire can be very different.

When a wildfire enters a densely developed community under extreme conditions, the buildings themselves can become part of the fire.

One house ignites.
That house produces intense heat, flames and embers.
The next house ignites.
Now there are two burning structures.
Then three.
Then ten.

The fire has acquired a new source of fuel. And the process can accelerate.

This is structure-to-structure fire spread.

It is one of the most important—and least understood by the general public—aspects of modern wildfire.

THE HOUSE BECOMES THE FUEL

In a forest, wildfire moves through vegetation. In a neighborhood, fire can move through structures and the materials between them.

A burning house produces:

- Flames
- Radiant heat
- Embers
- Burning debris

Those products of combustion can expose nearby houses. If a neighboring house ignites, it becomes another source of heat, flame and embers.

The fire is no longer simply moving through the landscape. It is moving through the built environment.

IBHS has studied this phenomenon for years. Its research shows that structure spacing and housing density can significantly influence how fires spread in the wildland-urban interface. Under extreme wildfire conditions, closely spaced structures can create a domino effect in which one burning building contributes to the ignition of another.

That leads to an uncomfortable conclusion:

THE MORE COMBUSTIBLE HOUSES WE PUT CLOSE TOGETHER, THE MORE OPPORTUNITY FIRE HAS TO BECOME SELF-SUSTAINING WITHIN THE NEIGHBORHOOD.

THE 20-FOOT QUESTION

Research from the 2023 Lahaina fire provides an extraordinary illustration.

IBHS found that flames from burning homes often extended more than 20 feet, rapidly igniting homes at closer distances downwind.

Twenty feet.

That is not a theoretical distance on a map. In many modern subdivisions, twenty feet can be less than the distance between neighboring structures.

Now add wind. Add embers. Add radiant heat. Add combustible fences. Add landscaping. Add vehicles. Add sheds and accessory structures.

The space between two homes can become a very complicated fire environment.

And that is why simply asking whether a house is "fire resistant" may not be enough.

The distance between the houses matters.

CONNECTIVE FUELS: THE THINGS WE DON'T THINK OF AS FUEL

One of the most interesting concepts in wildfire research is connective fuel.

A connective fuel is something that can help carry fire from one burning source to another.

It may be vegetation. It may be a fence. It may be a deck. It may be a shed. It may be a vehicle. It may be another structure.

IBHS specifically identified vegetation, secondary buildings and vehicles as connective fuels in its analysis of the Lahaina conflagration.

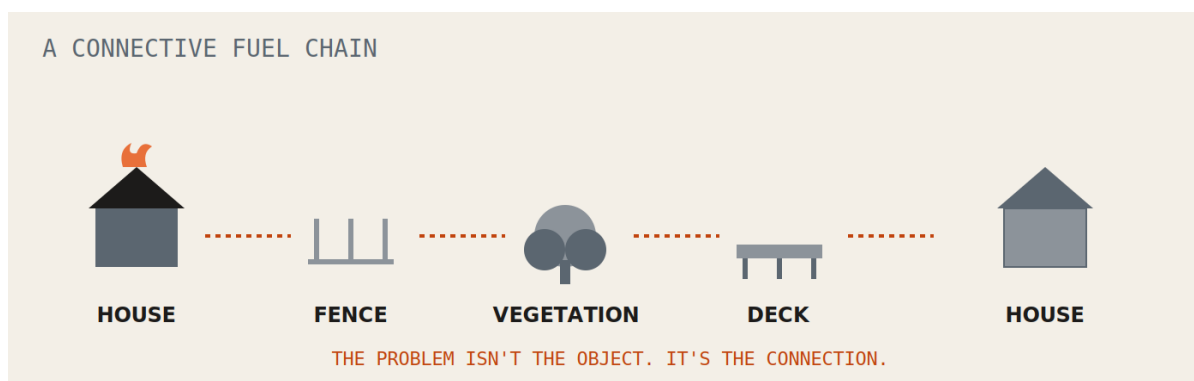


Fig. 1 — The individual objects aren't necessarily the problem. The problem is the connection they create between one burning source and the next.

This gives us a different way to look at a neighborhood. Imagine:

HOUSE → FENCE → VEGETATION → DECK → HOUSE.

or

HOUSE → BURNING VEHICLE → NEIGHBORING HOUSE.

or

HOUSE → SHED → HOUSE.

A NEIGHBORHOOD CAN BECOME A FUEL NETWORK

This is the big idea behind structure-to-structure fire spread.

Consider a subdivision of 200 homes. Each home is a potential ignition point.

IF EVERY HOME IS PROTECTED The probability of a cascading fire may be reduced.	IF ONLY SOME HOMES ARE PROTECTED The unprotected homes can remain weak links.
IF COMBUSTIBLE MATERIALS CONNECT HOMES The pathways between them remain.	IF STRUCTURES ARE CLOSELY SPACED Radiant heat and flame exposure can become more intense.

The result is a system. And systems behave differently from individual components.

IBHS has described this directly: community wildfire risk depends on the interaction of structure spacing, connective fuels, home hardening and external fuel management.

That is why the neighborhood has to become part of the fire-resilience equation.

THE WEAKEST HOUSE MAY MATTER TO EVERYONE

Imagine a neighborhood in which 99 homes are exceptionally well hardened.

But one house has:

- A combustible deck
- A wood fence connected to the neighboring property

- Vegetation against the structure
- Vulnerable vents
- Combustible material stored outside

That house may represent a potential ignition point. And if it ignites, the fire does not care whether the other 99 homes were built carefully.

This does not mean one house will inevitably ignite the neighborhood. Wildfire behavior is influenced by wind, slope, fuel moisture, topography, fire intensity and many other factors.

But it does mean that every vulnerable structure can represent another potential pathway.

COMMUNITIES CAN BE ONLY AS STRONG AS THEIR WEAKEST LINKS WHEN WILDFIRE CREATES CONFLAGRATION CONDITIONS.

 *Suggested photo — an aerial or street-level photo of homes with visible variation in defensible space (one well-maintained lot next to one with vegetation against the structure).*

WHAT IF THE NEIGHBORHOOD ITSELF WERE DESIGNED AS A FIREBREAK?

This is where the idea becomes exciting.

A traditional firebreak attempts to interrupt the continuity of vegetation. What if a subdivision could do something similar?

Instead of asking:

"HOW DO WE PROTECT EACH INDIVIDUAL HOUSE?"

we could ask

"HOW DO WE PREVENT THE FIRE FROM FINDING ITS NEXT HOUSE?"

That changes the design conversation. It means considering:

- Structure spacing — how far apart are homes? Where possible, greater spacing can reduce the intensity of structure-to-structure exposure. Existing subdivisions often cannot change their spacing; new subdivisions can at least consider it.
- Connective fuels — can fences, vegetation, sheds and other structures create pathways between homes? If so, can those pathways be interrupted?
- Building materials — if a house catches fire, how much combustible material does it contribute? Could noncombustible or more fire-resistant materials reduce that contribution?
- Ember exposure — could vents, roof systems, eaves and openings be designed to reduce ember entry?
- Zone 0 — could the first five feet around each house be maintained as a noncombustible zone?

THE HOUSE ON THE EDGE MAY BE THE MOST IMPORTANT HOUSE IN THE NEIGHBORHOOD

There is another interesting implication.

Not every house has the same role in a wildfire. A house at the edge of a subdivision may face wildfire coming directly from grassland, brush or forest.

If that house ignites, it can potentially expose the houses behind it. That makes the homes along the community's perimeter particularly important.

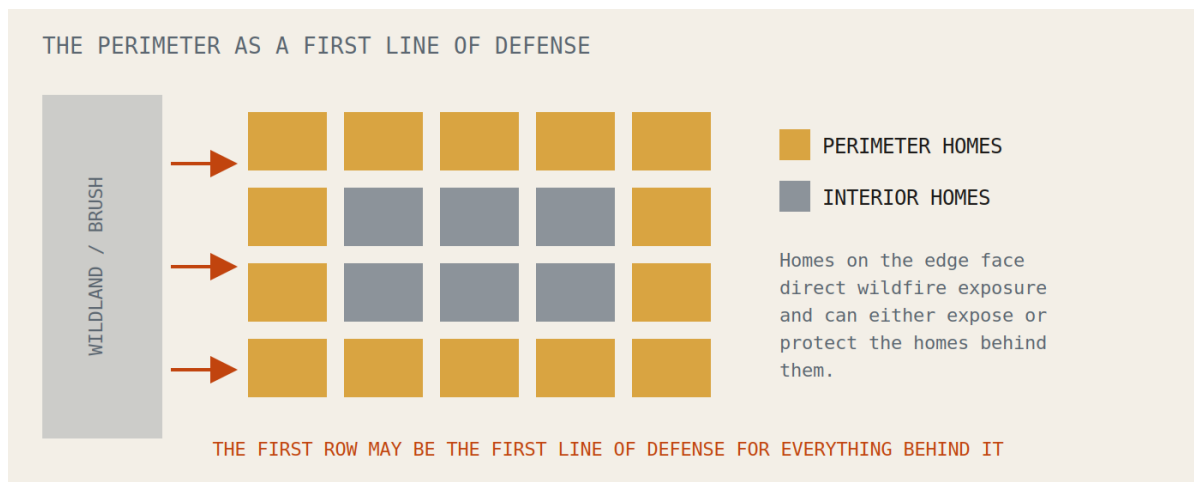


Fig. 2 — IBHS's Lahaina research noted that homes on the periphery of communities can serve as a first line of defense against spreading grassfires.

When those homes are constructed with resilient materials and provided with adequate defensible space, they can reduce the hazard to homes deeper inside the community.

THE FIRST ROW OF HOMES MAY BE THE FIRST LINE OF DEFENSE FOR EVERYTHING BEHIND IT.

Instead of thinking of those houses simply as properties on the edge, perhaps we should think of them as part of the community's fire defense system.

WHAT HAPPENS WHEN EVERY HOUSE IS BUILT DIFFERENTLY?

This is another challenge.

A subdivision may contain homes built under different codes, at different times and with different materials.

One home may have a Class A roof. Another may have a vulnerable roof. One may have ember-resistant vents. Another may not. One may have a noncombustible Zone 0. Another may have vegetation and combustible materials against the house.

The result is a patchwork of risk.

New development offers a different possibility. A developer can establish a community-wide wildfire standard before the first house is built.

That is precisely the direction IBHS is now taking. Its Wildfire Prepared Neighborhood program extends wildfire mitigation from individual parcels to the community scale and is designed to reduce the potential for structure-to-structure fire spread.

THE SUBDIVISION AS A PASSIVE FIREBREAK

This may be the most provocative idea in this article.

IBHS describes its Wildfire Prepared Neighborhood concept using four community-level principles:



Fig. 3 — The neighborhood is no longer simply a collection of houses. It becomes part of the fire-defense strategy.

Think about what that means.

The neighborhood becomes part of the fire-defense strategy.

That is a fundamental change in how we think about development.

WHERE THE NONCOMBUSTIBLE HOME FITS

This brings us directly back to Article #3.

A noncombustible home is not the entire solution. But it can remove significant combustible fuel from the building system.

Cold-formed steel framing does not provide the same combustible structural fuel as wood framing. Noncombustible sheathing can reduce combustible material in the envelope. Mineral-wool insulation can reduce combustible insulation. Ember-resistant vents can reduce one pathway into the building. Appropriate windows and doors can reduce vulnerability at openings. A wildfire-appropriate roof system can reduce another ignition pathway. And a noncombustible Zone 0 can reduce combustible fuel immediately surrounding the structure.

Each measure addresses a different part of the problem. Together, they become a system.

WHAT ABOUT SMALLER LOTS?

This is where the issue becomes particularly important for the future of housing.

Smaller lots can make housing more affordable. Higher density can make communities more efficient. More homes per acre can help address housing shortages.

Those are legitimate objectives.

But density can also change wildfire behavior. IBHS specifically identifies housing density and structure spacing as important variables in structure-to-structure fire spread.

The answer does not necessarily have to be:

BUILD FEWER HOUSES.

it could instead be

BUILD SMARTER HOUSES.

If homes are going to be closer together, perhaps the buildings themselves need to contribute less combustible fuel. Perhaps the spaces between them need to be designed differently. Perhaps fences and landscaping need to be reconsidered. Perhaps the neighborhood needs to be evaluated as a single fire system.

That is the challenge.

THE FUTURE SUBDIVISION MAY NEED A WILDFIRE PLAN

Imagine a future development plan that contains more than streets, lots and drainage. Imagine it also identifies:

- Fire pathways
- Connective fuels
- Structure spacing
- Noncombustible zones
- Perimeter protection
- Ember exposure
- Building materials
- Emergency access
- Water infrastructure

Now wildfire resilience becomes part of the development plan.

Not an afterthought. Not a retrofit.

A design parameter.

THE OPPORTUNITY BELONGS TO NEW CONSTRUCTION

We cannot easily change the spacing of an existing subdivision. We cannot move hundreds of houses. We cannot remove every combustible fence.

But new construction is different.

A developer can make decisions before the first lot is sold. An architect can design around wildfire exposure. An engineer can select structural systems. A builder can specify noncombustible materials. A landscape designer can eliminate connective fuels. A community can establish a wildfire-resilience standard. And insurers can potentially evaluate the resulting risk.

That is why new construction may represent one of the most important opportunities in wildfire resilience.

 Suggested photo — a new subdivision site plan or a FrameUpNow development rendering showing spacing and defensible space considerations.

ONE HOUSE CAN CHANGE THE FATE OF ANOTHER

This is the central lesson.

A wildfire is not necessarily a series of independent house fires. Under extreme conditions, it can become a network of interacting structures and fuels.

One house ignites.
The house becomes a source of heat and embers.
The next house ignites.
The second house becomes another source.

And the neighborhood begins to participate in its own destruction.

But the opposite can also be true.

If homes are harder to ignite... if connective fuels are removed... if vulnerable openings are protected... if spacing is considered... if the perimeter is protected... if structures contain less combustible fuel...

Then the neighborhood may become harder for fire to cross.

The goal is not perfection.

The goal is to break enough links in the chain that the fire cannot easily become a neighborhood-wide event.

THE QUESTION WE SHOULD ASK BEFORE BUILDING THE NEXT SUBDIVISION

For decades, developers have asked:

- How many homes can we build?
- How efficiently can we build them?
- How much will they cost?

Those questions will remain important.

But in wildfire-prone regions, perhaps another question belongs on the development plan:

"HOW WILL FIRE MOVE THROUGH THIS NEIGHBORHOOD?"

That question could influence everything from lot layout to landscaping to building materials. And perhaps the most important question of all is:

"WHAT CAN WE DO TO MAKE SURE THAT ONE BURNING HOUSE DOES NOT BECOME THE NEXT BURNING HOUSE?"

THE SUBDIVISION OF THE FUTURE

We cannot stop every wildfire. We cannot guarantee that every house will survive. We cannot eliminate risk.

But we can design differently.

We can reduce combustible fuel. We can interrupt connective pathways. We can protect vulnerable openings. We can harden homes. We can consider structure spacing. We can design the neighborhood as a system.

And we can begin treating the built environment not simply as something that wildfire threatens—but as something that can either amplify or reduce the fire.

That may be the most important shift of all.

THE QUESTION ISN'T SIMPLY WHETHER ONE HOUSE CAN SURVIVE.

THE QUESTION IS WHETHER THE NEIGHBORHOOD CAN PREVENT ONE BURNING HOUSE FROM BECOMING THE NEXT.

And that is why the future of wildfire-resilient housing may begin not with the individual house, but with the space between houses.

FRAMEUPNOW SIDEBAR

ONE HOUSE CAN BECOME THE NEXT HOUSE'S FIRE

A wildfire enters a subdivision. One house ignites. That house produces heat, flames and embers. A neighboring house catches fire. Now there are two burning houses. Then three.

The fire has acquired new fuel.

This is structure-to-structure fire spread—and it is one reason wildfire resilience cannot stop at the property line.

The space between houses matters. · The fence matters. · The deck matters. · The landscaping matters. · The roof matters. · The vents matter. · The construction of the house matters.

A subdivision can either create pathways for fire—or interrupt them.

Perhaps the most important question for the next generation of development is not "how many houses can we put on this land?" but:

"HOW DO WE KEEP ONE BURNING HOUSE FROM BECOMING THE NEXT BURNING HOUSE?"

FrameUpNow®

APPENDIX: SEO SCHEMA MARKUP

The two schema.org JSON-LD blocks below are already embedded in the HTML file for this post (inside `<script type="application/ld+json">` tags in the `<head>`). They're reproduced here for reference, for whoever implements this on the CMS side, or if this post is rebuilt on a different platform.

1. ARTICLE SCHEMA

Identifies the piece as an article, names FrameUpNow as author and publisher, and marks it as part 4 of the five-part "Non-Combustible Home" series (via CreativeWorkSeries), linking it to parts 1–3.

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{
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  "description": "Structure-to-structure fire spread is one of the most important and least understood aspects of modern wildfire. This is the fourth in a five-part series on non-combustible home design, examining connective fuels, the 20-foot flame reach documented in the 2023 Lahaina fire, and how IBHS's Wildfire Prepared Neighborhood standard treats the community itself as part of the fire-defense system.",
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2. FAQ SCHEMA

Surfaces five question/answer pairs drawn directly from the article's own claims. This is what can trigger expandable FAQ rich results in Google Search.

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source to another, such as vegetation, fences, decks, sheds, and vehicles. IBHS specifically
identified vegetation, secondary buildings, and vehicles as connective fuels in its analysis of
the Lahaina conflagration."
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grassland, brush, or forest. IBHS's Lahaina research noted that homes on the periphery of
communities can serve as a first line of defense against spreading grassfires, and when built
with resilient materials and adequate defensible space, can reduce the hazard to homes deeper
inside the community."
    }
  }
]
}

```

Note: update the datePublished, dateModified, and mainEntityOfPage URL fields to match the live posting date and final URL before publishing.

PUBLISHING NOTES

Suggested metadata for the CMS and search listing. Review and adjust to match house style before scheduling the post live.

SUGGESTED TITLE	What Happens When One Burning House Ignites the Next?
META DESCRIPTION	Structure-to-structure fire spread is one of the least understood parts of wildfire. FrameUpNow examines connective fuels, the Lahaina fire's 20-foot flame reach, and IBHS's Wildfire Prepared Neighborhood standard.
URL SLUG	/blog/structure-to-structure-fire-spread
FOCUS KEYWORD	structure-to-structure fire spread
SECONDARY KEYWORDS	connective fuels, Lahaina fire, IBHS Wildfire Prepared Neighborhood, conflagration, structure spacing, defensible space, wildland-urban interface
TAGS	FrameUpNow, Non-Combustible Home Series, structure-to-structure fire spread, connective fuels, Lahaina fire, IBHS Wildfire Prepared Neighborhood, wildland-urban interface

EDITORIAL NOTES

- Schema.org Article and FAQPage JSON-LD markup is complete in the appendix above and mirrors the HTML file's <head> tags.
- Publishing metadata above (title, meta description, slug, keywords, tags) is ready for the CMS — confirm the URL slug matches your actual site structure before publishing.
- Flagged for review: four section headings (“The House Becomes the Fuel,” “A Neighborhood Can Become a Fuel Network,” “Where the Noncombustible Home Fits,” and “One House Can Change the Fate of Another”) link out to Bing Copilot search queries rather than a direct source — recommend replacing with real citations or removing before publishing. The alsyedconstruction.com link on “The Opportunity Belongs to New Construction” looks like a legitimate source and is fine to keep.
- Remember to update datePublished, dateModified, and the mainEntityOfPage URL in the schema block to match the live posting date and final URL.