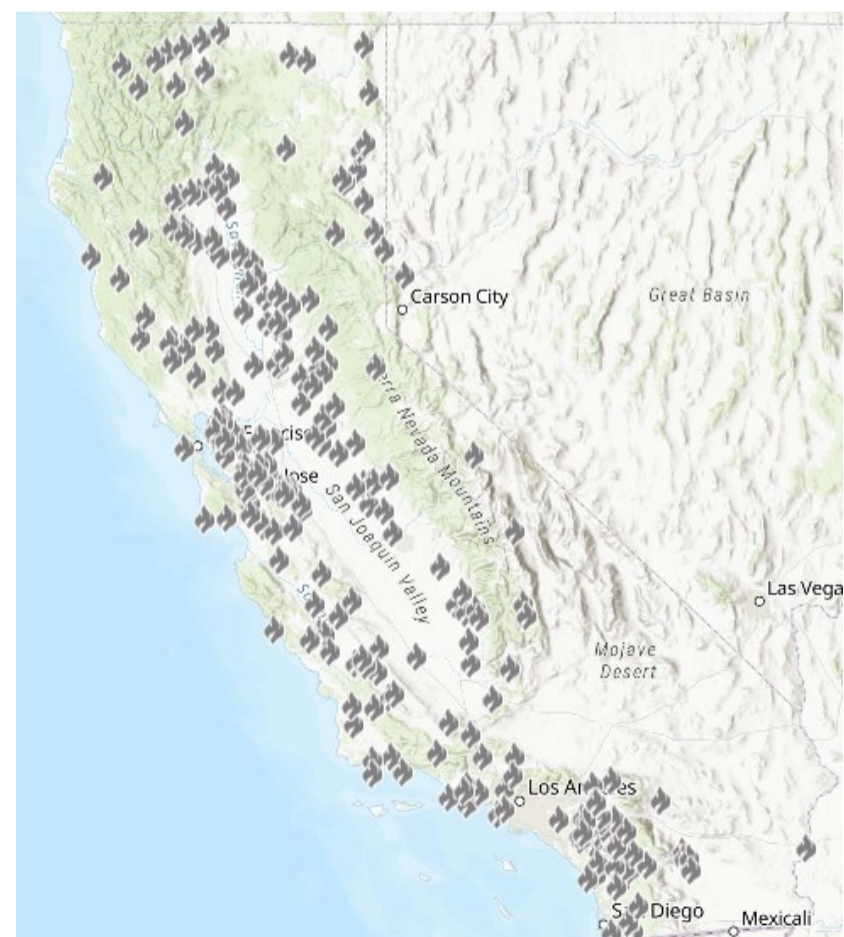
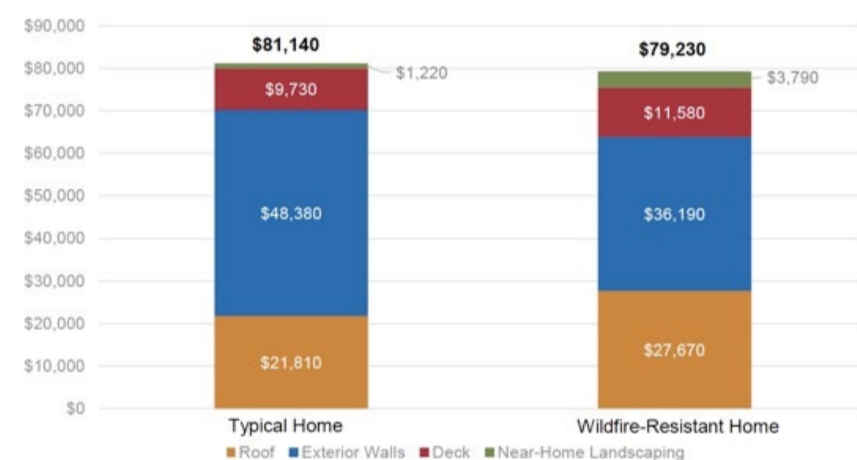
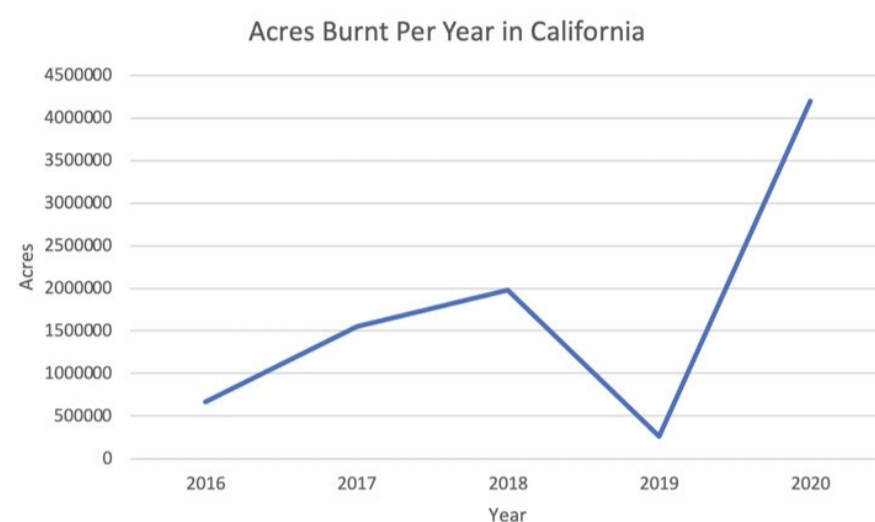


Background

Although wildfires have always been a concern in California, they have increased dramatically over the last decade both in regularity and destruction. This trend has been especially evident in 2020, which has seen significantly more fire damage than the preceding five years. The chart below shows the trend of wildfires in California over the last five years in terms of acres.



The Enduring Threats of California Wildfires: How Construction Companies Must Adapt

Connor Welch

California Polytechnic State University
San Luis Obispo, CA

California wildfires are among the most pervasive and commonly occurring natural threats to the state. Especially considering their incremental increase in frequency and destruction, there is a crucial need for modernized policies aimed at both preventative measures as well as viable responses. My project will analyze how the exponentially growing prominence of California wildfires has affected the landscape of the construction business, revealing the need for modernized protocols that could aid in prevention. These factors include the full scope of short- and long-term economic damages inflicted by wildfires, fluctuations in labor and material prices, and resulting disruptions in project deadlines. Additionally, this paper will analyze the cost benefit of existing fire-retardant materials already implemented in the construction industry. Through meticulous analysis of these factors, this paper will propose considerations that both government agencies and construction companies in California should adapt in order to preemptively mitigate the detrimental consequences posed by fires.

Key Words: California wildfires, prevention, building materials, labor costs, fire regulations, risk assessment

Conclusions

COVID-19 Project Impacts

The construction industry has the unique challenge of building in an unpredictable environment that must be balanced between development and the safety of the communities. In California, builders must be proactively aware of looming disasters that have devastated the state in recent years. These factors include the catastrophic fire seasons that have become more common and impactful to communities. In order to mitigate these eminent risks, owners and contractors must work together in the design, building and occupation of the project. When designing new buildings, governing bodies must enact straight forward design requirements and codes that lower the risk to all surrounding areas. These codes also must lay out materials that are considered to be fire resistant or materials that resist ignition. While constructing the project builders need to be required to follow all safety measures that are put in to ensure safety for the workers as well as the surrounding area. This includes any precautionary measures as well as having reactionary steps in case an issue arises. Ultimately, standardized codes and enforced building procedures on both the bureaucratic and construction company side will result in less fluctuations in materials and labor prices that cause extreme disruption throughout the industry. Once a project is completed and handed over to the owner, it is the responsibility of the owner to maintain a safe property that is free of unprotected fire hazards.

Analysis

Currently, many builders do not have specific strategies to properly plan and execute constructing buildings in these high-risk areas, though they may be required to follow stricter building codes to protect occupants. California also does not enforce statewide construction codes to prepare for fires since areas are impacted so disparately. This makes developing in these areas a higher risk to develop both for owners and builders. In some cases, fire breaks are utilized around a development during construction for the protection of the project from wildfires and the surrounding area from fires that may be started on a construction site. Construction site fires are a common cause of wildfires: more than 4,8000 fires (Appel 2013) are started a year on a construction site. These fires can quickly spread as seen on the California Polytechnic State University campus in the spring of 2018 when a metal grinder sent sparks onto dry brush, igniting a small hillside fire that required evacuations.

Methodology

For my research I have combined qualitative and quantitative data with an emphasis on key industry reports from both fire agencies and construction firms. By accessing data from annual reports detailing varying metrics of wildfires in California, like annual number of fires, acreage burned, and high-risk areas, I will extrapolate what policies could be most effective in mitigating proper responses. These reports will also include environmental and ecological data that can evaluate how these factors are affecting wildfires to date as well as forecasting their impact in the future.

To analyze the economic impact of wildfires throughout California, I have collected data and insights from several reports that examine varying fiscal consequences posed by wildfires. These reports account for much more complex considerations than the immediate costs associated with direct damage control. They extend economic analysis into urban development, community impact, business disruption, and environmental costs associated with disturbed ecosystems. By presenting a full view of short- and long-term costs caused by wildfires, I have been able to comprehensively propose adequate industry and localized standards and code reforms.