CITY AND COUNTY OF SAN FRANCISCO
BOARD OF SUPERVISORS

BUDGET AND LEGISLATIVE ANALYST
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Policy Analysis Report

To: Supervisor Stephen Sherrill
From: Budget and Legislative Analyst's Office
Re: High Rise Fire Sprinkler Retrofit Ordinance Cost Estimates
Date: August 3, 2026

Summary of Requested Action

Your office requested that the Budget and Legislative Analyst prepare estimates of the costs for property owners to comply with Fire Code requirements for retrofitting existing residential high-rise buildings with automatic sprinkler systems by 2035. You also requested that we review similar requirements in other cities and fire risk factors associated with these buildings.

For further information about this report, contact Fred Brousseau, Director of Policy Analysis, at the Budget and Legislative Analyst's Office: fred.brousseau@sfgov.org

Executive Summary

- The San Francisco Board of Supervisors adopted amendments to the City's Fire Code in 2026 that requires automatic sprinkler systems to be installed in existing high-rise residential buildings. These amendments superseded the 1993 version of the Code that required sprinkler systems in newly constructed and most existing high-rise buildings, but exempted Residential Group R-3 occupancies, including apartment buildings, condominiums, certain mixed use residential structures, and qualified historical buildings, and amendments adopted in 2022 that eliminated the exemptions and required sprinkler installation in these buildings by 2028. The 2026 Code amendments extended the timeline for sprinkler installations in these buildings to 2035.
- The San Francisco Fire Department estimates that there are 129 high-rise buildings in San Francisco that will be affected by the sprinkler retrofit requirements including both rental units and condominium buildings. The Fire Code, as amended in 2026, spells out a phased approach for these buildings to comply with the retrofit requirements:
    1) Sprinkler retrofit permit applications must be submitted to the Department of Building Inspection by 2032,
    2) Water system and riser installation must occur by 2034, and
    3) Installation of the full sprinkler system must be complete by January 1, 2035.

- Based on input from the Fire Department, Public Utilities Commission, Department of Building Inspection, C-16 contractors[1], representatives of some of the 129 San Francisco buildings that would be affected by the ordinance, and referral to national fire protection standards, we prepared three cost scenarios for retrofitting a hypothetical 50-unit high-rise building in San Francisco.
- We estimate the plan review application and permitting fees required for all sprinkler retrofits would be approximately $9,939 for a sprinkler retrofit for a 50-unit building, based on the Fire Department's 2026 fee schedule and input from the Department of Building Inspection. Costs may scale with project complexity.
- Beyond permits, costs for sprinkler retrofits in high-rise residential buildings will vary depending on answers to the following key questions.
    - What type of sprinkler pipes will the owners choose to be installed in their units: exposed CPVC piping, sprinkler pipes camouflaged behind soffits or crown molding, or concealed pipes installed in walls and ceilings (in order of lowest to highest cost)?
    - Is a new or upgraded fire service line needed with capacity to ensure a sufficient water supply can be pumped from the City's water system to the building's fire protection system?
    - Does the main municipal water line connected to the property have sufficient hydraulic flow to support a new or modernized fire service line?
    - Is a new or upgraded pump needed to ensure that sufficient water can be delivered from the fire service line to the building's standpipe?
    - Is there a code compliant room in the building that can be used to house the pump for the sprinkler system or will an existing space need to be modified or a new room constructed to meet this Fire Code requirement?
    - Is a new or enhanced standpipe needed to ensure that water can be delivered to all sprinkler heads in the building?
    - Is a new or upgraded fire alarm system needed?
    - Will electrical systems need to be upgraded to support the fire alarm system?
    - Are as-built architectural renderings of the building needed for installation and construction work to be approved on hand, or will renderings need to be prepared?
    - Will asbestos mitigation be needed in conjunction with any demolition/construction work for the sprinkler installation?

[1] C-16 contractors are specialized Fire Protection contractors licensed by the California Contractors State License Board. They design, install, and/or maintain all types of fire protection and suppression systems.

- Will occupants of the affected units need to be relocated while installation work takes place in their unit?

- Estimated variable costs for the three scenarios range from $15,000 to $224,900 per unit or $750,000 to $11,245,000 for an entire hypothetical 50-unit building, as shown in Exhibit A.

Exhibit A: Estimated Range of Costs for Sprinkler Retrofits in 50-unit San Francisco Residential High-rise Buildings

Scenario	Cost elements	Total building costs	Cost per unit
1: Baseline Costs	Basic permitting and sprinkler installation costs only. No major infrastructure upgrades needed, building already partially sprinklered and adequate fire service line, standpipe, and portions of interior piping are in place. Electrical and hydraulic capacity are sufficient. Building has a fire pump and code compliant pump room. Building chooses lowest cost camouflaged sprinkler system with PVC piping (exposed pipes). Includes relocation costs for five days for installation work.	$750,000 to $867,500	$15,000 to $17,350
2. Midrange costs	Basic permitting and sprinkler installation costs + some reconfiguration and upgrading of existing core infrastructure. Fire service line capacity needs hydraulic testing, possible upgrades. Pump needs to be installed and pump room constructed. Standpipe requires modifications. Building chooses camouflaged piping, with sprinkler lines enclosed within soffits or modular crown molding. Relocation costs for five days of installation work per unit.	$1,365,000 to $1,477,500	$27,300 to $29,550

Scenario	Cost elements	Total building costs	Cost per unit
3. High Cost	Basic sprinkler installation costs + similar infrastructure upgrades as Scenario 2 + building chooses fully concealed sprinkler system (opening walls and ceilings, etc.), demolition and finish work. Asbestos abatement required. Upgrades to electrical systems needed along with significant upgrades to the pump and water distribution system throughout building. Higher costs for longer relocation period due to selection of concealed pipes.	$10,412,500 to $11,245,000	$208,250 to $224,900

- The costs of sprinkler retrofits no matter which scenario can be substantial depending on the financial position of the individual households, the building owners, or the homeowner's associations for condominium buildings. Funding for condominium retrofits is more complicated. Unlike single-family homeowners—who can independently access home equity through refinancing or home equity lines of credit—condominium owners must rely on collective decision-making and shared financing mechanisms administered through the homeowners' association (HOA).
- The absence of comparable federal and state tax incentives for sprinkler retrofits means that property owners must bear the full cost of compliance with fire safety mandates, without the benefit of external financial support commonly available for other public policy priorities. This disparity may affect the feasibility and pace of implementation, particularly for condominium buildings where financing must be coordinated across multiple owners with varying financial capacity.

Other Cities

- Other cities have enacted high-rise fire sprinkler retrofit ordinances, but implementation has been limited in several jurisdictions due to constituent pushback, particularly from condominium owners facing substantial out-of-pocket costs, as well as by broader concerns regarding housing affordability and displacement.
- Our research of selected U.S. cities finds that in recent years only the City of San Jose has implemented a sprinkler retrofit ordinance applicable to all residential high-rises and has achieved compliance. The 1985 ordinance impacted only 11 high-rises within city limits and achieved full compliance in ten years. San Antonio and Houston, Texas have also seen compliance success, though the ordinances in those cities exempt condominium units.

- Other cities that have adopted high-rise retrofit ordinances have either delayed implementation, exempted condominiums from the ordinance's provisions, or repealed the ordinance altogether, as seen in the case of the city of San Diego.
- Honolulu and the State of Florida implemented compromise approaches, where buildings with a minimum level of fire and life safety protections installed are exempted from complete retrofit requirements. In both cases, building improvements must be made to achieve a level of fire and life safety comparable to that of a fully sprinklered building, as certified by a licensed Fire Protection Engineer consistent with National Fire Protection Association (NFPA) guidance. Improvements may include a combination of partial sprinklers, smoke and fire alarms, egress modifications, emergency lighting, and other engineered or structural protection measures. These approaches can be less costly than full sprinkler retrofits, but depending on building specifics, may not result in cost savings.

Risk Factors

- Per the International Association of Fire Chiefs, high-rise fires present a distinct and elevated life safety risk due to the vertical scale of buildings, the concentration of occupants, and the complexity of evacuation and emergency response. The San Francisco Fire Department reports that this risk is particularly acute in noncombustible concrete buildings, which is the construction type of most impacted buildings in San Francisco.
- Since July 1, 2016, incident data reported by the SFFD indicate that the Department responded to 1,694 fires in occupied residential structures, 942 or 56 percent of which were in multifamily dwellings. Building height is not reported in incident data, and a Citywide inventory of buildings over 75 feet does not exist to identify incidents at high-rise structures. However, 86 incidents over the last ten years involved fires originating on the building's seventh floor or higher, of which 36 buildings were equipped with an operating wet-pipe sprinkler system and 46 had no fire suppression system present. Documented civilian injuries were equal across both building types, with two total injuries each and no fatalities in any of the incidents.

Cost Reduction Approaches

- We find that building-specific conditions—such as hydraulic capacity, existing infrastructure, and system design requirements—plays the most significant role in driving both cost variability and project feasibility. To support more effective financing strategies and ensure that future iterations of the Fire Code establish realistic and equitable compliance timelines, a more comprehensive understanding of existing building conditions is necessary. The Board of Supervisors could pursue several options to reduce uncertainty and improve the predictability of sprinkler retrofit costs.

Policy Options

The Board of Supervisors should:

1. Consider repealing the sprinkler retrofit ordinance entirely, given the financial burden it will place on property owners and tenants in buildings that are subject to the ordinance, thus maintaining the risk level for the subject buildings at the same level as they have been since they were constructed.

2. Consider modifying the sprinkler retrofit ordinance so that buildings would be allowed to attain a level of safety consistent with National Fire Protection Association (NFPA) alternative life safety system guidance as verified by a fire safety professional, and subject to agreement with this approach by the majority of building shareholders or condominium owners.

3. Assuming the sprinkler retrofit ordinance is not repealed or amended, request that the newly created Fire Code Technical Advisory Committee engage Fire Department, Department of Building Inspection, and other relevant City staff to develop profiles of each of the high-rise buildings subject to the sprinkler retrofit mandate to determine likely costs associated with retrofitting each building based on characteristics such as hydraulic sufficiency, standpipe condition, presence of some fire protection systems, presence of a fire pump, and code complaint pump room, presence of "as built" schematics, presence of asbestos, and other characteristics to more precisely identify the total cost burden of the sprinkler retrofit mandate.

4. Consider financial assistance solutions to property owners incurring undue hardship If the sprinkler retrofit ordinance remains unchanged, including low- or no-interest loans made by the City.

Project Staff: Fred Brousseau, Alex Thibodo.

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Background

Legislative History: 2022 Ordinance

In 2022, the San Francisco Board of Supervisors adopted legislation amending the Fire Code to require the installation of automatic fire sprinkler systems in existing high-rise residential buildings (File No 22-0038). The ordinance was enacted in response to documented fire risk in these buildings, including 145 fire incidents since 2011 in high-rise residential properties not previously subject to sprinkler requirements.

The legislation addressed a longstanding coverage gap in prior City policy. State law required sprinkler protection in all newly constructed high-rise buildings beginning in 1974. While a 1993 ordinance[2] required sprinkler systems in newly constructed and most existing high-rise buildings, it explicitly exempted Residential Group R-2 occupancies—including apartment buildings, condominiums, and certain mixed-use residential structures—as well as qualified historical buildings. As a result, many residential high-rises built before 1974 are not protected by automatic sprinkler systems.

The 2022 ordinance eliminated these exemptions through a phased compliance schedule, requiring affected buildings to install sprinkler systems by January 1, 2028, at which point the longstanding exemption for residential occupancies were to expire.

To facilitate implementation, the legislation established a three-step compliance framework:

- Permit Application (within 2 years): Building owners must submit professionally prepared sprinkler system plans to the Department of Building Inspection (DBI).
- Water Supply and Riser Installation (within 4 years): Buildings must connect to an approved water supply, including installation of risers and, where necessary, fire pumps.
- Full System Completion (within 6 years): Owners must complete installation of piping, sprinkler heads, and required monitoring systems.

The 2022 legislation also incorporated explicit technical flexibility provisions for Fire Code standards intended to reduce retrofit burdens. For example, certain features required in newly constructed high-rise buildings—such as redundant fire pumps or dual water supply lines—are not required for retrofit projects. Additionally, the San Francisco Fire Marshal is authorized to approve alternative methods, grant modifications, or extend deadlines where strict compliance would pose undue hardship and where an equivalent level of fire safety can be achieved.

2026 Ordinance

In March 2026, the Board of Supervisors approved a six-year extension to the enforcement schedule prescribed in the 2022 ordinance through its passage of the 2025 San Francisco Fire Code. Under this new legislation, property owners must submit permits to DBI by January 1, 2032 (a six year window rather than the two years granted under the terms of the 2022 ordinance), install the water supply and riser by January 1, 2034 (eight years instead of the previous four), and

[2] San Francisco Board of Supervisors, Ordinance 377-93, required that all high-rise buildings in the City install sprinkler systems within a 12-year period by February 2006, with the exception of R-2 buildings.

complete the full sprinkler system no later than January 1, 2035 (allowing nine years rather than six).

Impacted Buildings

The ordinance's enforcement schedule applies to the following three categories of existing residential high-rise buildings, consistent with height thresholds for high-rise buildings as defined by the International Fire Code:

1. Buildings with occupied floors more than 120 feet above the lowest level of fire department vehicle access (generally street level).
2. Buildings with occupied floors between 75 and 120 feet above fire department access that lack at least two compliant interior exit stairways, specifically those that are properly separated by fire-resistance-rated construction.
3. Buildings with occupied floors between 75 and 120 feet above fire department access that lack a compliant fire alarm system, including required smoke detection in corridors, elevator lobbies, mechanical and electrical rooms, and stairway enclosures.

At present, SFFD estimates there are approximately 129 high-rise structures in the City that could fall under the conditions set out in the sprinkler ordinance. This number is likely lower, as it is based solely on recorded building height. The City does not keep documentation of stairwells or fire alarms that, if present, may eliminate some of the 129 buildings from the sprinkler retrofit requirements. SFFD is currently compiling this data manually. Of the 129 buildings, at least 76 or 58.9 percent are at least 120 feet tall and therefore fall under the scope of this legislation.

The 129 buildings themselves are diverse in ownership, scale, and use. Of these, 51 buildings (40 percent) appear to be condominium properties, while 78 buildings (60 percent) appear to be rental apartment buildings. Unit mix and affordability vary considerably across properties, with building heights ranging from 76 to 252 feet of occupied space and unit counts spanning from fewer than 10 units to more than 150 units per building. The impacted buildings are concentrated primarily in the City's northeastern neighborhoods.

Retrofit Cost Components

Overview of Residential Sprinkler Systems

A fire sprinkler system is composed of several interconnected components that work together to deliver water from the municipal supply to the point of fire suppression within a building. At the front end of the system, a fire service line connects the building to the municipal water main and provides the primary water supply. Depending on available system pressure, a fire pump may be required in the building to generate and maintain sufficient pressure to deliver water to upper floors, particularly in high-rise buildings. Water is then conveyed vertically through a standpipe system, which serves as the backbone for distributing high-pressure water throughout the structure.

From the standpipe, water is routed through a network of interior piping that extends throughout each floor, terminating in sprinkler heads that can be located both inside residential units and in

common areas and that activate when exposed to heat from a fire. As shown in Exhibit 1 below, the system is controlled by a series of control valves, which regulate water flow and allow portions of the system to be shut off for maintenance or repairs. A monitoring alarm system is connected to detect water flow or valve tampering and to notify building occupants and, in many cases, the fire department when the system is activated.

Exhibit 1: Residential Standpipe, Valve, and Monitoring Sprinkler System

Source: Budget and Legislative Analyst.

To ensure proper operation and ongoing reliability, sprinkler systems also include test and drain assemblies, which allow operators to periodically test water flow and pressure and to safely drain the system when needed. Together, these components form an integrated life-safety system designed to detect, control, and suppress fires at their point of origin.

Retrofit Process

Property owners seeking to install or expand a system in an existing building must first obtain a plumbing or mechanical permit through the Department of Building Inspection (DBI), which is required before submission of a fire sprinkler permit application to the Fire Department (SFFD). Applicants must provide documentation on building characteristics and occupancy classification, existing suppression system plans, associated building permit numbers, and recent water meter or fixture information where applicable. Additional submittals typically include hydraulic calculations of water pressure and flow rate from a hydrant flow test, the proposed square footage of sprinkler coverage, number of sprinkler heads, and information on standpipes, fire pumps, underground water supply, and monitoring systems. Following submission, the San Francisco Fire Department conducts plan review and inspection of the proposed new installation or expansion to ensure compliance with applicable fire and building codes prior to final permit approval and sign-off. The costs for these permits and inspections for a hypothetical 10-story 50-unit building are shown in Exhibit 2. These costs would be the same for similarly sized 10-story buildings, but Fire Department fees are charged hourly and may scale with project complexity. Similarly, the DBI fees are based on the number of floors in the building and would be higher or lower with different numbers of floors.

Exhibit 2: Permitting Cost Estimate for 10-Story, 50-unit Building

Permit / Review Component	Basis for Estimate	Estimated Cost
DBI Plumbing or Mechanical Permit	$348 per floor × 10 floors	$3,480
SFFD Hydrant Flow Test	Per test (required for hydraulic calculations)	$459
Fire Sprinkler Permit (SFFD)	Project-level permit for system expansion	$6,000
Total Estimated Building Baseline Permitting Cost		**$9,939**

Source: DBI, SFFD 2026 fee schedule.

Variable Installation Costs

Although the retrofit process is procedurally consistent across buildings, the inputs required to design a compliant system—such as hydraulic capacity, existing infrastructure conditions, and system routing—vary significantly. These factors directly affect both the scope and cost of installation, limiting the reliability of standardized cost metrics such as per-unit or per-square-foot estimates. Instead, retrofit costs are best understood as a range influenced by a set of key building-specific variables, described below.

Municipal Infrastructure Capacity

According to the San Francisco Public Utilities Commission (SFPUC) and San Francisco Fire Department (SFFD), hydraulic sufficiency cannot be determined at the outset of a project and instead requires site-specific field testing conducted during the plan review phase. These tests—typically involving hydrant flow analysis and system modeling—assess whether the existing water main can provide sufficient flow and pressure to support a new or improved fire service line to the building's pressurized fire sprinkler system. As summarized in Exhibit 3 below, where capacity is found to be insufficient, required upgrades may include trenching and excavation, labor and materials for main replacement or upsizing, repaving, and associated permitting.

Where the existing municipal infrastructure is found to be insufficient to support the additional supply needed for sprinkler systems, property owners may need to fund upgrades to the public water system within the public right-of-way. These improvements are typically charged on a per-linear-foot basis and may be performed either by SFPUC crews or private contractors at the owner's expense. We estimate this work to cost approximately $400,000 per block. Such work generally involves excavation and trenching of the street, coordination with City agencies like the Municipal Transportation Agency (SFMTA) and Public Works, and restoration of the public right-of-way following installation. Because these conditions are only identified after hydraulic testing, they introduce a high-cost, low-predictability risk factor that cannot be incorporated into baseline cost estimates but may substantially increase total project costs when triggered.

Interviews with local C-16 contractors[3] indicated that insufficient municipal water capacity was not a common issue for sprinkler retrofit projects, suggesting that most buildings can be served by existing infrastructure without major upgrades. However, materials provided by one building association representing a building subject to the City's current retrofit requirements indicate that site-specific conditions—such as elevation and location within the distribution system—may still present challenges. In that case, the building association reported the potential need to connect to an alternative water main located several blocks away due to suspected flow limitations associated with the building's hillside location.

Exhibit 3: Water Main Improvement Cost Estimates*

Cost Type	Building Cost	Per Unit Cost	Trigger Condition(s)
Trenching and Excavation	$100,000	$2,000	Flow test analysis determines poor capacity to support fire service line.
Labor and Materials	$150,000	$3,000	
Repaving	$100,000	$2,000	
Permitting	50,000	$1,000	
Total	$400,000	$8,000	

Source: SFPUC

* Assumes 50 unit building

Note: Estimates above reflect line replacement per individual City block.

Building Characteristics

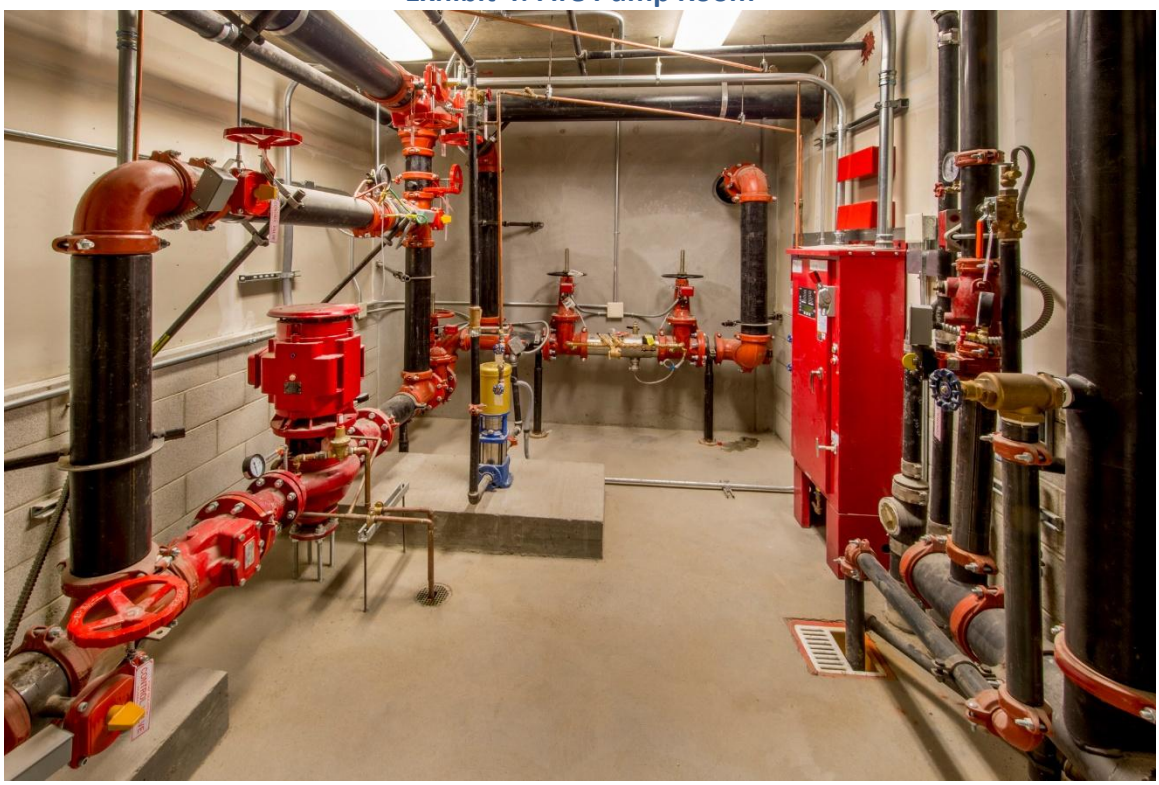
Unlike new construction, retrofit projects must work within the constraints of existing building systems, layouts, and available space. As a result, differences in baseline infrastructure—such as the presence, condition, and capacity of fire protection systems—can significantly affect both the scope of work and total project cost.

A key factor is whether the building already has a functional fire service line connecting to the municipal water system. Buildings with existing, adequately sized service lines that can pass hydraulic testing are less likely to require costly underground work or upsizing. Similarly, the presence of an existing fire pump and pump room, shown in Exhibit 4 below, can materially reduce costs. High-rise sprinkler systems typically require a pump in the building to maintain sufficient pressure at upper floors, and national fire protection standards require that pumps be housed in a dedicated, code-compliant room.[4] Where no such space exists, or where the existing pump is undersized or obsolete, property owners may need to construct a new pump room or replace the pump entirely—both of which can introduce substantial additional costs.

[3] C-16 contractors are specialty contractors licensed in California to perform work on fire protection systems. They are licensed by the California Contractors State License Board to install fire sprinkler systems, alter or retrofit existing systems, repair and maintain systems, and work on components.

[4] NFPA-20 does not prescribe square footage minimums for pump rooms. Instead, it requires that the pump room be a dedicated space for fire protection equipment, and that there is sufficient clearance around equipment to allow for operation, inspection, and maintenance. Fire engineering professionals note that the typical size for a pump room is between 100 and 200 square feet. This footprint does not scale with an increase to pump size but instead with the use of diesel pumps over electric equipment.

Exhibit 4: Fire Pump Room



Source: Getty Images.

Other building systems can also influence retrofit complexity. For example, buildings without up-to-date architectural or "as-built" schematics may require additional design and investigative work before installation can begin. Similarly, buildings lacking compliant fire alarm systems or sufficient electrical capacity to support new alarm and pump equipment may require electrical system upgrades as part of the retrofit process. In older buildings, the presence of hazardous materials such as asbestos can further increase costs by triggering abatement requirements prior to installation. Prior to renovation, buildings that may contain asbestos must be evaluated by a licensed asbestos inspector, with any planned work reviewed and approved based on the location and condition of asbestos-containing materials. Renovation activities that may disturb these materials typically require notification or permitting through the Bay Area Air Quality Management District and are generally designed to minimize disturbance, using appropriate containment measures and personal protective equipment rather than full abatement. More invasive work—such as in-wall sprinkler installation—may trigger stricter regulatory requirements and necessitate more extensive and costly asbestos mitigation procedures.[5]

These and other building-specific conditions are summarized in Exhibit 5, which presents estimated cost ranges, likelihood, and triggering conditions for key retrofit cost drivers above baseline estimation costs. Exhibit 5 does not include all potential variable costs such as additional

[5] Asbestos is commonly present in San Francisco's older housing inventory. California law and Bay Area Air Quality Management District (BAAQMD) regulate procedures when performing renovation work to asbestos-contaminated buildings.

demolition and reconstruction costs for concealed sprinkler systems and water main improvements since these cost elements are not likely to be part of all retrofit projects. However, we have included such costs in our high-cost Scenario 3 estimates below since that scenario is intended to capture costs that could be incurred only on projects with certain building characteristics.

Exhibit 5: Most Common Variable Sprinkler Retrofit Costs based on Building Characteristics for a 50 Unit Building

Cost Type	Building Cost	Per Unit Cost	Trigger Condition(s)
Pump room	$150,000 to $300,000	$3,000 to $6,000	The building does not already have an onsite space that meets NFPA standards to house an electrical or diesel pump system.
Pump (new or upgrade)	$90,000 to $175,000	$1,800 to $3,500	There is no fire pump installed or the existing fire pump is too weak or aged to meet updated needs.
As-built schematics	$10,000 to $55,000	$200 to $1,100	The building association or property owner no longer has original architectural schematics on file.
Standpipe conversions or modifications	$50,000 to $200,000	$1,000 to $4,000	The building does not have or needs a new standpipe riser and backflow prevention system.
Fire alarm	$10,000 to $20,000	$200 to $400	Monitoring fire alarm system not installed in accordance with NFPA 72 and SF Fire Code.
Electrical system	$10,000 to $500,000	$200 to $10,000	Existing electrical panels, transformers, and other infrastructure do not support the needs of a modern, NFPA-compliant fire alarm system or electric pumps.
Asbestos mitigation	$25,000 to $500,000	$500 to $10,000	Presence of asbestos requiring spot treatment or total abatement, depending on project scale.
Fire service line (new or upgrade)	$45,000 to $200,000	$900 to $4,000	No fire service line that connects to the main water line or the existing fire service line is too small or aged to pass hydraulic analysis demonstrating sufficient water pressure.
Additional design and permitting	$5,000 to $150,000	$100 to $3,000	Presence of one or more conditions that increase the complexity and scope of retrofit project work.
Total	Up to $2,100,000	Up to $42,000	

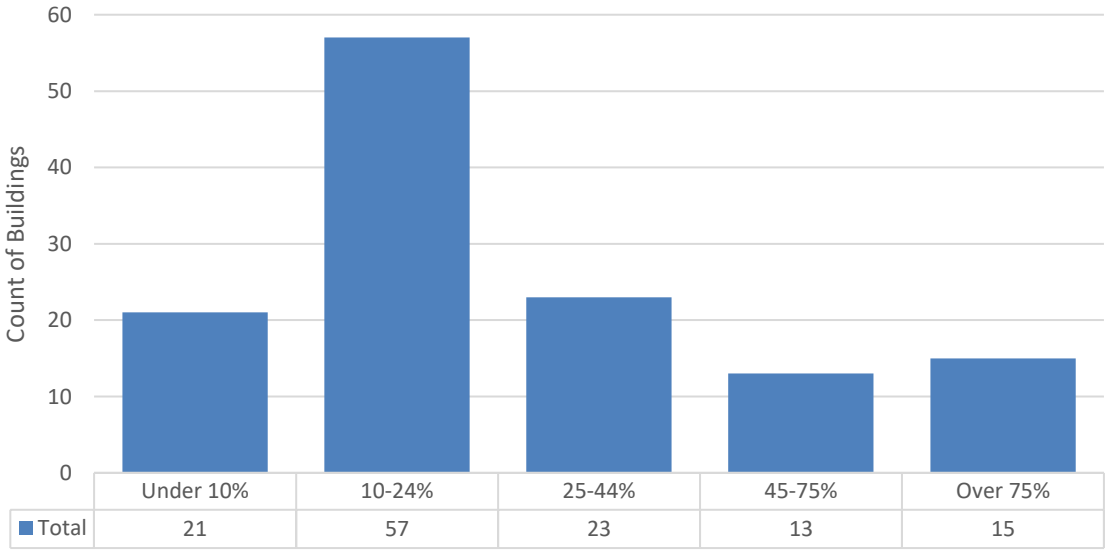
Source: BLA estimates.

Note: The above estimates are in addition to baseline sprinkler installation costs which we estimate can range from $13,500 to $40,000 per unit depending on the design and materials choices for the sprinkler pipes (e.g., exposed sprinkler heads, concealed in soffits and crown molding, and concealed in ceilings and walls).

The cost ranges shown in Exhibit 5 were developed from discussions with Bay Area C-16 fire protection contractors, actual quotes and completed retrofit projects in the Bay Area, and publicly available cost information for comparable construction work. The ranges reflect observed variation in labor, materials, building conditions, and project scope.

Notably, SFFD records of the estimated 129 impacted buildings indicated that a majority of buildings subject to the ordinance already have partial sprinkler coverage, which may mitigate some retrofit costs. Typically, these buildings have opted to install sprinkler systems in their utility rooms, garages, and, in some circumstances, along residential corridors and common space but not in each residential unit. As shown in Exhibit 6 below, 51, or 39 percent, of the 129 buildings identified as subject to the ordinance have at least a quarter of their square footage already covered by sprinkler system protection according to building inventory data compiled internally by SFFD. Existing partial systems suggest that core infrastructure—such as service lines or pump rooms—may already be in place. However, contractors also noted that even in partially sprinklered buildings, upgrades to pumps or system components are often still required to meet current code and performance standards.

Exhibit 6: Percentage of Sprinkler Coverage in 129 San Francisco Buildings Subject to Retrofitting Requirement



Source: SFFD

Design Choices

A primary driver of retrofit cost variability is the chosen approach for routing sprinkler piping within residential floors and units. As shown in Exhibit 7 below, retrofit designs fall along a spectrum of visibility and invasiveness: exposed piping, camouflaged piping, and fully concealed piping. Each approach reflects a different balance between cost, construction efficiency, and aesthetic impact. This aspect of sprinkler retrofit projects is generally responsible for the greatest share of project costs and, as detailed below, can add significantly to the total cost.

Exhibit 7: Photos of Sprinkler Systems Piping Options

Source: Google Images.
Note: From left to right, the photos above depict an exposed system, a camouflaged system using unpainted Decoshield covers, and a concealed system embedded into the ceiling.

At the lowest end of the cost spectrum, exposed sprinkler systems install Chlorinated Polyvinyl Chloride (CPVC) or metal sprinkler piping directly along ceilings or walls without attempting to conceal them. This approach minimizes labor to necessary cutting, patching, and refinishing, making it the most straightforward and least costly option. However, they result in visible piping throughout units, and it is therefore not a commonly selected option in residential units. The recommended, cost-effective retrofit approach among local C-16 contractors we interviewed is camouflaged piping, in which sprinkler lines remain technically exposed but are enclosed within soffits or modular crown molding. While more expensive than exposed systems due to added materials and schematic efforts, camouflaged piping can often be implemented with moderate levels of disruption and without extensive structural modification. As such, it is commonly used as a compromise between cost containment and resident or ownership preferences for visual integration.

At the highest end of the cost spectrum, concealed piping systems embed sprinkler lines within walls and ceilings. This approach requires opening walls and ceilings, navigating around or rerouting existing utilities, and performing substantial finish work following installation. The process requires coordination across multiple trade workers and adherence to additional permitting processes. These factors materially increase the costs of installation and introduce greater complexity and uncertainty into project scoping and pricing. Projects that pursue fully concealed piping are therefore the most sensitive to building-specific conditions. Based on interviews with local C-16 contractors and available project estimates, fully concealed sprinkler retrofits may cost approximately two to five times more per unit than exposed or camouflaged systems.

Building Profiles

To illustrate the range of potential retrofit costs under the proposed ordinance, we present three cost scenarios reflecting varying building conditions and levels of project complexity. These estimates are informed by interviews with local C-16 fire protection contractors, line-item retrofit proposals obtained from three San Francisco properties that have recently solicited installation bids, and cost estimate case studies published by the National Fire Protection Association (NFPA).

For comparability, all cost estimates have been standardized to reflect a representative high-rise residential building consisting of approximately 50 units and 14 stories. This approach allows for consistent evaluation across scenarios while acknowledging that actual project costs will vary based on building-specific characteristics. The scenarios presented include: (1) a baseline case representing a lower-bound estimate under favorable conditions, (2) a mid-range scenario reflecting the expected cost profile for a typical project, and (3) a high-cost scenario capturing conditions that introduce significant complexity or additional infrastructure requirements.

Retrofit requirements vary substantially from building to building, and individual cost drivers often compound one another. As a result, total project costs cannot be reliably estimated by summing individual line-item costs without additional information about an individual building's profile. The baseline, mid-range, and high-cost scenario estimates are based on actual Bay Area retrofit bids and project costs and are broken down by illustrating how cost drivers could combine and compound under real-world conditions.

The line-item cost components presented in the following scenarios illustrate circumstances under which individual cost categories may reasonably fall at the low, middle, or high ends of the cost ranges presented in Exhibit 5. For each line-item estimate included in the following scenarios, we exercised judgment of the anticipated complexity of the work based on the assumed building profile and chose a cost estimate from the low, middle, or high end of the observed range accordingly. For example, an electrical upgrade may involve replacing a single panel in one building or upgrading an entire electrical distribution system to support a new fire alarm system in another. Concealed piping in walls and ceilings as well as major upgrades to water utility lines also warrant high-end cost estimates due to increased architectural and engineering work, asbestos testing and mitigation, and increased time of resident relocations. Estimates also reflect observed differences in C-16 contractor quotes. For example, some contractor interviews indicated that temporary resident relocation would be necessary for exposed pipe retrofit projects while other projects under different contractors did not require relocation.

Costs not factored into the three scenarios below are potential changes in property values due to the ordinance. While fire sprinklers in a newly constructed building generally add to its appeal and value, the liability for future compliance with the sprinkler retrofit ordinance for existing buildings could be a detractor for a building or affected condominium on the market, particularly for those requiring mid- or high-cost retrofits detailed in the cost scenarios below. The aesthetic impact of newly installed sprinklers, particularly exposed sprinkler heads, could also reduce the value of affected properties.

Scenario 1: Building needing only baseline work

The baseline scenario reflects a 50 unit building with relatively favorable existing conditions that minimize the need for major infrastructure upgrades. In this case, we assume the building is already partially sprinklered, indicating that core system components—such as a fire service line, standpipe, and portions of interior piping—are already in place. The building also has usable underground utilities capable of supporting the expanded system, as well as an existing fire pump and code-compliant pump room with sufficient electrical capacity to meet system demands. The basis for estimates in this scenario is from C-16 contract work to retrofit residential high-rise units in the East Bay within the last 3 years. Excluding work to install a new fire pump, total costs per unit ranged between $12,000 and $15,000 after permitting, inspection, and installation based on actual reported costs by two contractors. We have used the higher cost per unit in this range for our baseline scenario, as detailed below.

Under this scenario, the building elects to install a camouflaged sprinkler system using PVC piping, which balances cost efficiency with aesthetic considerations by enclosing exposed piping within soffits or architectural features. Because major system components are already present and functional, project costs are limited to standard retrofit activities, including design and engineering, permitting, labor and materials for system expansion, and required testing and inspection. This scenario's $15,000 cost per unit represents a lower-bound estimate of total retrofit costs under conditions where minimal additional infrastructure investment is required. The high end of our Scenario 1 estimate accounts for potential resident relocation costs of up to five nights during installation at $450 per night which would add $2,250 to per-unit costs for a grand total of $17,350.

Exhibit 8: Scenario 1, Baseline Cost Components for 50 Unit Building

	Building Cost	Cost Per Unit (50 units)
Sprinkler installation	$675,000	$13,500
Resident relocation	$0 to $112,500	$0 to 2,250
Permitting	$75,000 to $80,000	$1,500 to $1,600
Total	**$750,000 to $867,500**	**$15,000 to $17,350**

Source: BLA estimate.

Scenario 2: Midrange costs

The scenario reflects a 50 unit building with mixed existing conditions, where some core infrastructure may be present but is not fully compliant or sufficient to support a complete sprinkler retrofit without modification. In this case, the building may have partial standpipe or fire suppression infrastructure; however, these systems may require reconfiguration, extension, or replacement to meet current code and performance standards. Similarly, while a fire service line may be present, its capacity must be verified through hydraulic testing, and upgrades may be required depending on flow and pressure results. Interior conditions—such as routing pathways for piping—may also present moderate constraints that require additional coordination or localized construction work. Other building systems may also introduce incremental cost variability.

For this Scenario 2, we assume a pump and pump room need to be installed or adapted from existing space. The building's fire service line is found insufficient following hydraulic analysis and

therefore requires trenching, excavation, replacement, and testing in addition to SFPUC permitting fees. Furthermore, the standpipe riser in the building's stairwell requires modifications to its configuration. As a result, this scenario reflects a combination of $15,000 per unit in standard retrofit costs—design, permitting, materials, labor, and testing—alongside moderate infrastructure upgrades that collectively drive total per-unit costs of $27,300 or into the mid-range of our estimates. This estimate also accounts for potential resident relocation costs of up to five nights during installation at $450 per night which if incurred would result in total per unit costs of $29,550.

Exhibit 9: Scenario 2, Midrange Cost Components for 50 Unit Building

	Building Cost	Cost Per Unit
Sprinkler installation	$750,000	$15,000
Fire service upgrade	$75,000	$1,500
Standpipe modifications and concrete coring	$100,000	$2,000
Pump room	$200,000	$4,000
New fire pump	$150,000	$3,000
Asbestos	$30,000	$600
Permitting	$60,000	$1,200
Resident relocation	$0 to $112,500	$0 to 2,250
Total	**$1,365,000 to $1,477,500**	**$27,300 to $29,550**

Source: BLA estimate.

Scenario 3: High-cost

The high-cost scenario reflects a building with similar installation conditions as the mid-range case but incorporates a more complex and invasive retrofit design. Under this scenario, the building faces comparable infrastructure considerations and elects to install a fully concealed sprinkler system. This stylistic design approach requires opening walls and ceilings, navigating or rerouting existing utilities, larger-scale asbestos abatement, and performing substantial demolition and finish work to restore interior conditions following installation. As in Scenario 2, a new fire pump and pump room are required in Scenario 3.

As a result, the scenario presented in Exhibit 10 introduces significant additional costs beyond standard sprinkler installation costs from the $15,000 per unit baseline to $40,000. The additional sprinkler installation costs cover architectural design, expanded permitting requirements, labor associated with demolition and reconstruction, and contingencies for unforeseen conditions encountered during construction. These numbers represent consensus among interviewed C-16 contractors that concealed systems inflate costs substantially by a factor of two to three times the cost of a camouflaged system. This scenario also accounts for significant upgrades to the building's electrical panels, vaults, and transformers to support the fire alarm and monitoring system. Due to the demolition work required to install concealed piping, additional asbestos testing and mitigations are accounted for. Finally, this scenario assumes significant upgrades to the pump and water distribution system throughout the building. Additional costs may arise from unforeseen building conditions, utility constraints, and contractor overhead and contingencies.

Altogether, the costs in this scenario would amount to $206,000 per unit at the low end plus resident relocation costs of between five nights and up to six weeks during installation at $450 per night, resulting in total per-unit costs of between $208,250 and $224,900.

Exhibit 10: Scenario 3, High Cost Components for 50 Unit Building

Fund Category	Building Cost	Cost Per Unit
Sprinkler installation	$2,000,000	$40,000
Added demolition, design, reconstruction for concealed system	$5,500,000	$110,000
Electrical upgrades	$500,000	$10,000
Pump upgrade	$175,000	$3,500
Pump room	$300,000	$6,000
Fire alarm	$20,000	$400
Asbestos mitigation	$300,000	$6,000
Fire service upgrade	$200,000	$4,000
Water main improvement	$400,000	$8,000
As-built schematics	$55,000	$1,100
Standpipe upgrades	$200,000	$4,000
Resident relocation	$112,500 to $945,000	$2,250 to $18,900
Permitting	$650,000	$13,000
Total	**$10,412,500 to $11,245,000**	**$208,250 to $224,900**

Source: BLA estimate.

Ordinance Challenges

Resident Disruption

Interviews and case study research indicate that the extent of resident disruption during fire sprinkler retrofit work varies significantly depending on the installation approach and contractor practices. In a retrofit case study published by the National Fire Sprinkler Association, a project in Philadelphia was completed without requiring full resident relocation; instead, occupants were temporarily displaced from their units during daytime construction hours. Similarly, a local C-16 contractor reported completing retrofit work at a high-rise assisted living facility in the East Bay without requiring residents to vacate their units.

However, other contractors indicated that more disruptive installation methods may necessitate temporary relocation. For example, installation of a camouflaged sprinkler system was estimated by one local contractor to require approximately three to five days of displacement per unit. More intensive approaches, such as fully concealed piping systems, may require significantly longer disruptions, with local estimates ranging from two to six weeks depending on the scope of work and the level of coordination required across trades.

Overall, the degree of resident displacement is highly dependent on the selected retrofit design and construction methodology, with less invasive systems allowing for occupancy during

construction and more extensive installations increasing the likelihood and duration of temporary relocation.

Using an assumed average cost of $450 per day for lodging, food, and incidentals per relocated household, we estimate a range of relocation costs from $2,250 for five nights at the low end and $18,900 for six weeks at the high end on top of all other costs identified above.

Public Financing Infrastructure Gap

For condominium properties, the ability to finance large capital improvements is inherently constrained by the structure of ownership. Unlike single-family homeowners—who can independently access home equity through refinancing or home equity lines of credit—condominium owners must rely on collective decision-making and shared financing mechanisms administered through the homeowners' association (HOA). While individual owners may hold substantial equity in their units, that equity is not readily pooled or deployable at the building level, and access to that equity can be limited by lending standards tied to the financial health of the HOA (e.g., reserve levels, delinquency rates, and insurance adequacy).

As a result, when a condominium association is faced with a major capital obligation—such as a multi-million dollar fire sprinkler retrofit—the primary financing mechanisms are limited to special assessments, increases in HOA dues, or association-level borrowing. In all cases, repayment ultimately depends on contributions from unit owners. HOA loans can spread costs over time, but still require increased dues to service debt, while special assessments impose significant upfront financial burdens that may be infeasible for some households. Reserve funds, where available, are often insufficient to cover large-scale retrofits. Consequently, condominium financing structures introduce liquidity constraints and collective action challenges, even where aggregate homeowner wealth may be substantial.

These constraints are compounded by a misalignment in the broader tax and incentive landscape, which provides limited support for fire life safety improvements relative to other types of building upgrades. At the federal and state levels, public policy has prioritized investments in energy efficiency (e.g., tax credits, rebates, and financing programs) and seismic retrofits (e.g., local grant and loan programs, resilience-focused incentives). In contrast, there are few dedicated subsidies, tax incentives, or financing programs designed to offset the cost of fire sprinkler retrofits in existing residential buildings.

The absence of comparable incentives means that property owners must bear the full cost of compliance with fire safety mandates, without the benefit of external financial support that is commonly available for other public policy priorities. This disparity may affect the feasibility and pace of implementation, particularly for condominium buildings where financing must be coordinated across multiple owners with varying financial capacity.

In contrast, financing capital improvements is generally more straightforward for owners of apartment rental properties, who have more centralized access to equity and are simultaneously able to pass through capital improvements to tenants, including for rent-controlled units. While this mechanism can facilitate cost recovery and improve project feasibility from the owner's perspective, it effectively shifts the financial burden onto renters, who may have limited capacity to absorb higher housing costs. As a result, while financing barriers are lower for rental property

owners, the downstream impacts of cost recovery mechanisms may introduce affordability challenges and potential displacement risks for tenants.

Other Jurisdictions

There are other cities that have enacted high-rise fire sprinkler retrofit ordinances but have not followed through on enforcement. In several jurisdictions, initial policy momentum has been tempered by constituent pushback, particularly from condominium owners facing substantial out-of-pocket costs, as well as by broader concerns regarding housing affordability and displacement. At the same time, uncertainty around total project costs—driven by building-specific conditions, infrastructure limitations, and variable construction requirements—has made it difficult for policymakers to establish clear timelines or compliance expectations. As a result, some cities have delayed implementation, extended compliance deadlines, or pursued alternative approaches. Exhibit 11 below includes a sample of retrofit ordinances across the United States.

Exhibit 11: Implementation Status of High Rise Retrofit Ordinances in Other Jurisdictions

Jurisdiction	Exceptions	Status
San Jose, CA	None.	All high-rise buildings are compliant with the 1983 ordinance. Only 11 buildings were affected by the ordinance.
Los Angeles, CA	Buildings erected after 1943.	In December 2024, the City Council directed the City's Chief Legislative Analyst to develop recommendations requiring all 53 remaining unsprinklered residential high-rise buildings to install a fire sprinkler suppression system. The report is pending.
San Diego, CA	None.	The 1991 ordinance was repealed in 2015 due to cost constraints following several extensions to the mandated compliance schedule.
Honolulu, HI	Buildings that have a minimum level of fire and life safety, as determined by a licensed design professional.	Buildings must either install a new fire sprinkler system by the year 2038 or make necessary upgrades to a fire alarm and safety system by 2030.
State of Florida	Timeshares, buildings with approved engineered life safety systems, buildings where each unit opens directly outdoors, and buildings with case-by-case exemptions approved by the State Fire Marshal.	The compliance schedule mandated by the 1990 state statute has been extended several times. The current deadline to achieve compliance with an operational life safety system is January 2027, with no additional extensions authorized or anticipated by the State Legislature.
Houston, TX	Condominium residential units do not require retrofitting, but common areas do.	Buildings achieved compliance with the 2017 deadline set in the 2005 ordinance. Condominiums exempted.
San Antonio, TX	Condominium residential units do not require retrofitting, but common areas do.	The 2015 ordinance requires full compliance by October 2030. The first building achieved compliance in 2018.

Source: BLA analysis.

Our research finds that in recent years only the City of San Jose, California has implemented a sprinkler retrofit ordinance applicable to all residential high-rises and has achieved compliance. The 1985 ordinance impacted only 11 high rises within city limits and achieved full compliance in ten years. San Antonio and Houston, Texas have also seen compliance success, though each of these ordinances allow exemptions for condominium units. Other cities that have adopted high-rise retrofit ordinances have either delayed implementation, exempted condominiums from the ordinance's provisions, or repealed the ordinance altogether, as seen in the case of San Diego. These observations suggest that implementation and compliance have historically been more

achievable in jurisdictions with a smaller number of affected buildings, underscoring the complexity of fire sprinkler retrofits and the challenges of applying broad mandates across large building inventories.

Separately, as of May 2026, the Pennsylvania State Senate is reviewing legislation to establish a tax credit for owners of residential high-rise structures. The proposed legislation follows safety concerns in older Philadelphia buildings and the City Council's inability to pass local retrofit mandates. If enacted, the bill would permit owners of high-rise structures to claim a tax credit equal to the owner's income tax liability, up to the cost of installation.

Alternative Life Safety Systems and Exemptions

In the cases of Honolulu, Hawaii and the State of Florida, mandates are in place to retrofit residential high-rise buildings with automatic sprinkler systems by 2030 and 2027, respectively. However, both jurisdictions allow individual condominium buildings to forgo sprinkler retrofits by implementing an alternative life safety system instead. These alternative systems, sometimes referred to as Engineered Life Safety Systems (ELSS), combine building improvements to achieve a level of fire and life safety comparable to that of a fully sprinklered building, possibly but not necessarily at lower cost than a full retrofit. Improvements may include a combination of partial sprinklers, smoke and fire alarms, egress modifications, emergency lighting, and other engineered or structural protection measures.

In both jurisdictions, individual buildings may opt out of sprinkler retrofitting mandates through a recorded majority vote of condominium owners or shareholders. A licensed Fire Protection Engineer designs and evaluates the alternative life safety system, which must achieve a minimum compliance score based on an assessment of the building relative to National Fire Protection Association (NFPA) guidance for alternative life safety systems. The assessment considers structural and safety characteristics such as building construction type (I through V), fire compartmentalization,[6] interior finishes, vertical openings, corridor conditions, fire alarm and smoke detection systems, means of egress, and fire fighter access. Characteristics of each jurisdiction's mandate are summarized in Exhibit 12 below.

[6] Fire compartmentalization is a way of assessing or designing a building into compartments where fire spread is prevented or slowed between areas. Compartments may be separated by floor, fireproofed walls or ceilings, corridors, doorways, and/or firestopping around utility structures.

Exhibit 12: Comparison of Honolulu and Florida's Retrofit Exemptions and Procedures

	Honolulu	Florida
Process for Opting Out of Full Retrofits	Condominium owners through a simple majority may vote to pursue an alternative life safety plan.	Condominium owners through a simple majority may vote to pursue an alternative life safety plan. The Florida Condominium Act provides guidance on the procedure for holding building-wide elections and issuing proper notice.
Standards	Developed by the Honolulu Residential Fire Safety Advisory Committee and Honolulu Fire Department in 2018. The advisory committee was comprised of members representing the Fire Department, Honolulu Board of Water Supply, Departments of Planning and Budget Real Property division, and the Hawaii Council of Apartment Owners. Standards are based on and expanded from the evaluation guide published by the NFPA for alternative safety systems.	State Fire Code directs local fire departments to use NFPA 101's guide and evaluation worksheets for Board and Care Occupancies.
Parameters	The worksheet evaluates 16 structural parameters to calculate fire hazard and firefighter accessibility into and throughout the building. A licensed Fire Protection Engineer shall assess the parameters based upon their inspection of the building once life safety improvements are implemented. Calculations are also performed to assess firefighter and occupant life safety risk based on the building residents' mobility and evacuation capability.	The worksheet evaluates 11 structural parameters to calculate fire hazard and firefighter accessibility into and throughout the building. A licensed Fire Protection Engineer shall assess the parameters based on an inspection of the building once life safety improvements are implemented.
Compliance	Modernizing and retrofitting an alternative system such that the building achieves an acceptable score based on National Fire Protection Association (NFPA) guidance as determined by the Honolulu Fire Department.	Modernizing and retrofitting an alternative life safety system such that the building earns a score equivalent to or greater than the life safety score achieved if the building were to retrofit an automatic sprinkler system compliant with NFPA standards.
Ongoing	Homeowner associations must provide verifiable public disclosure of the alternative system to all current and future residents.	Homeowner associations must provide the record of condominium votes to the State Fire Marshall every year during annual reporting obligations. Once the sprinklers or alternative safety system is installed, annual reporting must include the cost per unit to install the system.

Source: Florida Condominium Act, Florida Fire Prevention Code, Honolulu Fire Code, NFPA 101a, Honolulu Life Safety Evaluation Form.

Honolulu's Life Safety Evaluation Form and the NFPA 101 Guide to Alternative Life Safety Systems are each available online and would be valuable materials for San Francisco's sprinkler retrofit task force to review, if the committee were to consider recommending alternative safety systems in an amended ordinance. Fire protection engineering firms in both Honolulu and Florida similarly describe alternative life safety systems as engineering-based solutions that may provide a feasible compliance pathway for certain high-rise buildings, while cautioning that the required improvements can be comparable to or exceed the cost of installing an automatic sprinkler system. The cost-effectiveness of an alternative system depends on building-specific characteristics, the extent of existing fire protection features, and the number of compensating safety measures necessary to achieve an acceptable level of life safety.

As discussed in the following section, automatic sprinkler systems remain the most effective means of controlling and suppressing fires, and fire service professionals consistently identify complete sprinkler coverage as providing the highest level of protection for building occupants and responding firefighters. Accordingly, any ordinance establishing an alternative compliance pathway should incorporate safeguards that ensure building owners fully understand the associated tradeoffs. At a minimum, the ordinance should require an affirmative vote of affected condominium owners, public disclosure of the selected alternative life safety system to current and prospective residents, and a mechanism allowing building residents to reconsider or recast prior votes as ownership changes or new information becomes available. Alternative life safety systems should be reserved for buildings where unique structural or design characteristics make a conventional sprinkler retrofit impracticable or disproportionately costly, while still requiring a level of fire and life safety determined by the San Francisco Fire Chief to provide acceptable protection for building occupants and firefighters.

Risk Factor

Per the International Association of Fire Chiefs, high-rise fires present a distinct and elevated life safety risk due to the vertical scale of buildings, the concentration of occupants, and the complexity of evacuation and emergency response. Unlike low-rise structures, occupants in high-rise buildings may be located dozens of floors above street level, increasing reliance on stairwells and delaying direct firefighter access. In these environments, fire spread is not the only hazard—smoke movement and heat accumulation are often the primary drivers of injury and fatality. The San Francisco Fire Department reports that this risk is particularly acute in noncombustible concrete buildings, which are the construction type of most impacted buildings in San Francisco. Concrete buildings, while more resistant to structural collapse and flame propagation compared to wood frame buildings, can trap heat and smoke within enclosed spaces. As a result, temperatures can rise rapidly to lethal levels, and occupants may be overcome by smoke inhalation or oxygen depletion before flames reach them.

Since July 1, 2016, incident data reported by the SFFD indicate that the Department responded to 1,694 fires in occupied residential structures. Key findings include:

- Kitchens were the most common point of origin, accounting for 304 incidents (18 percent).

- 942 or 55 percent of incidents took place in multifamily dwellings, while 752 or 45 percent of incidents occurred in single family residences or duplexes.
- Building height is not reported in incident data, and a citywide inventory of buildings over 75 feet does not exist to identify incidents at high-rise structures. However, 86 incidents over the last ten years involved fires originating on the building's seventh floor or higher.
- Of these 86 incidents where the fire originated on the seventh floor or higher, 36 buildings were equipped with an operating wet-pipe sprinkler system and 46 had no fire suppression system present. Documented civilian injuries were equal across both building types, with two total injuries each and no fatalities in any of the incidents.
- However, the average recorded property loss for sprinklered confirmed high-rise buildings was $29,764 and $339,395 for unsprinklered confirmed high-rise buildings.

Homeowners and property owners routinely engage in cost-benefit decisions when considering life-safety improvements, but in multi-family settings, the relationship between risk and decision-making becomes more complex. In a single-family home, an owner may choose to forgo sprinkler retrofitting based on personal risk tolerance, with future buyers similarly able to assess and accept that risk. By contrast, in multi-family buildings, these decisions are made collectively, requiring alignment across many owners with varying financial capacity and risk preferences. While collective decision-making is a standard feature of shared ownership for routine repairs or amenity improvements, it becomes significantly more challenging when applied to large-scale life-safety investments such as seismic retrofits or fire sprinkler installations. As a result, absent a regulatory requirement, these types of large-scale life-safety investments are unlikely to be undertaken voluntarily and without regulatory pressure.

Cost Reduction Mechanisms

The primary barrier to fire sprinkler retrofits is overall project cost. Interviews with local C-16 contractors indicate that permitting fees typically account for 10 percent or less of total project costs. While not immaterial, permitting is not the primary cost driver; rather, uncertainty regarding building-specific conditions—such as hydraulic capacity, existing infrastructure, and system design requirements—plays a more significant role in driving both cost variability and project feasibility. To support more effective financing strategies and ensure that future iterations of the Fire Code establish realistic and equitable compliance timelines, a more comprehensive understanding of existing building conditions is necessary.

The Board of Supervisors could pursue several options to reduce uncertainty and improve the cost predictability of sprinkler retrofits. First, the Board could request the San Francisco Fire Department (SFFD) and the Public Utilities Commission (SFPUC) to coordinate or facilitate hydraulic testing for affected buildings, either through direct provision of services or through standardized guidance and cost-sharing mechanisms. Second, the Board could propose an administrative process or adopt an ordinance requiring owners of residential buildings above 75 feet to submit key building characteristics to the City. The SFFD Fire Chief in consultation with the

Technical Advisory Committee should develop a matrix of characteristics that would identify critical gaps in each building's electrical, hydraulic, and riser infrastructure by January 1, 2028.

Collectively, these measures would reduce uncertainty around retrofit scope and costs, enabling property owners to make more informed financing decisions and plan for compliance. The cost of conducting these assessments is likely to be substantially lower and more feasible in the near term than proceeding directly to full sprinkler installation under the extended ordinance. In addition, the resulting data would provide the City with a more accurate understanding of building conditions, allowing future updates to the Fire Code to more decisively determine whether to extend, modify, or scale back the ordinance based on demonstrated feasibility and cost impacts.

The City could also consider subsidizing the costs of sprinkler retrofits through low-interest loans, and/or needs-based grants. Assuming an average of 50 units per building, total Citywide costs for the 129 buildings identified as subject to the ordinance could range from $96.75 million to $1.3 billion at that high end so this would be a sizable allocation. However, the inventory of building characteristics discussed above may show that total costs could be lower depending on the number of buildings with some sprinkler infrastructure already in place and low infrastructure modification needs.

Policy Options

The Board of Supervisors should:

1. Consider repealing the sprinkler retrofit ordinance entirely, given the financial burden it will place on property owners and tenants in buildings that are subject to the ordinance, thus maintaining the risk level for the subject buildings at the same level as they have been since they were constructed.

2. Consider modifying the sprinkler retrofit ordinance so that buildings would be allowed to attain a level of safety consistent with National Fire Protection Association (NFPA) alternative life safety system guidance as verified by a fire safety professional, and subject to agreement with this approach by the majority of building shareholders or condominium owners.

3. Assuming the sprinkler retrofit ordinance is not repealed or amended, request that the newly created Fire Code Technical Advisory Committee engage Fire Department, Department of Building Inspection, and other relevant City staff to develop profiles of each of the high-rise buildings subject to the sprinkler retrofit mandate to determine likely costs associated with retrofitting each building based on characteristics such as hydraulic sufficiency, standpipe condition, presence of some fire protection systems, presence of a fire pump, and code complaint pump room, presence of "as built" schematics, presence of asbestos, and other characteristics to more precisely identify the total cost burden of the sprinkler retrofit mandate.

4. Consider financial assistance solutions to property owners incurring undue hardship If the sprinkler retrofit ordinance remains unchanged, including low- or no-interest loans made by the City.