

**STATE BUILDING CODE COUNCIL
(SBCC)**

INVESTIGATIVE COMMITTEE'S REPORT ON FIRE

SPRINKLER IMPLEMENTATION IN

NEW ONE- AND TWO-FAMILY DWELLINGS

Report Dated:
June 25, 2013

Contents

Introduction	1
Members of the Committee.....	1
Executive Summary	2
Scope of Work	3
Water Purveyor.....	4
Water Delivery Infrastructure	6
Land Use Planning	6
Infrastructure Costs and Financing	7
Vertical Systems	9
Contractor/Industry Costs	11
Certified Fire Sprinkler Designers/Installers.....	12
Fire Sprinkler Incentives	12
Residential Fire Sprinkler Considerations	13
Legislation.....	14
Education and Training	16
Liability Issues	18
Sustainability.....	18
Stakeholder Issues Pros/Cons.....	19
Conclusion and Recommendations	21

Appendix A23
Appendix B27
Appendix C28
Appendix D29
Appendix E33
Appendix F.....34

Introduction

This report is the result of an investigative committee's (Committee) collaborative effort. The Committee, which was formed by the SBCC to identify various issues relating to infrastructure and vertical fire sprinkler system requirements for the installation of automatic fire sprinklers in new one- and two-family dwellings, is comprised of a broad range of stakeholders.

All model building codes in the United States (U.S.) require that residential fire sprinkler systems be installed in new one- and two-family dwellings.¹ As such, the SBCC began reviewing the International Building Code (IBC) and the International Residential Code (IRC), 2012 Editions and bypassed the 2009 Editions.

The SBCC believed that a comprehensive review for and against implementing such a requirement was necessary. Supporters of fire sprinklers believe that requiring residential fire sprinklers in new one- and two-family dwellings will dramatically reduce fire fatalities, injuries, and property loss for future generations. Opponents cite the added cost and its subsequent impact on home prices and the public's dissatisfaction with government mandates. All stakeholders were invited to participate on this Committee.

House Resolution (HR) 47, House Draft (HD) 1 (see Appendix A), which was adopted during 2011 Regular Session, requested that the SBCC adopt the requirement to install automatic fire sprinklers in new one- and two-family dwellings in compliance with the latest editions of nationally recognized safety codes; clarify the definition of one- and two-family dwellings; and address issues of accessibility and availability of water to all dwellings. A report of its findings, recommendations, and actions taken relating to this Resolution will be submitted to the Legislature no later than 20 days before the 2015 Regular Session convenes.

The Committee held monthly meetings at the Honolulu Fire Department (HFD) Headquarters between January 25, 2010, and March 25, 2013. Those who were unable to travel to the HFD were included via teleconference.

Members of the Committee*

Socrates Bratakos, Committee Chair, State Fire Council (SFC), HFD
Shannon Alivado, General Contractors Association of Hawaii
Gantry Andrade, Hawaii Fire Department (HCFD)
Bill Brizee, American Institute of Architects
Daryl Date, Kauai Fire Department
Ray Bizal, National Fire Protection Association (NFPA)
John Graham, Blazemasters Fire Protection
Garon Hamasaki, Honolulu Board of Water Supply (BWS)
Mel Harano, Society of Fire Protection Engineers Hawaii (SFPE)

¹ The IBC and the IRC, 2009 Editions and NFPA 5000, 2012 Edition require fire sprinklers in new one- and two-family dwellings.

Tim Hiu, Honolulu Department of Planning and Permitting (DPP)
Jeff Hudson, NFPA
Derick Kam, SFPE
David Kamakea, United Association of Plumbers and Pipefitters, Local 675 (UA 675)
Justin Kessler, BWS
Bruce Lecair, National Fire Sprinkler Association
Kimo Marion, BWS
Gladys Marrone, Building Industry Association (BIA)
Harold McDermott, UA 675
Karen Nakamura, BIA
Robert Peirreira, HCFD
Lloyd Rogers, SFC
Greg Serikaku, Plumbing and Mechanical Contractors Association
Chuck Shima, UA 675
Dean Shimizu, BWS
Mark Tanner, Lubrizol Corporation (representing BlazeMaster CPVC Fire Sprinkler Systems)
Michael Vairin, Brookfield Homes

* Participants who attended two or fewer meetings are listed in Appendix B

Executive Summary

Fire sprinklers in Hawaii's new one- and two-family dwellings are not required. They are installed voluntarily or as an alternative to more costly fire department access road or water supply.

The residential fire sprinkler permit approval process is similar in each county; however, water standards vary slightly. There are basically two fire sprinkler system types utilized in residential applications: a stand-alone fire sprinkler system, which is separate from the domestic water system, and a multipurpose fire sprinkler system, which is a combined domestic/fire sprinkler system. The stand-alone fire sprinkler system is more common and familiar to contractors and code enforcers.

The cost of fire sprinkler design, plans review, and special inspections is estimated at \$2,250-\$3,250. The charge for a one-inch water meter by county water purveyors ranges from \$2,300 to \$26,400 and greatly impacts the system's overall cost. Estimates from Honolulu-based fire sprinkler contractors for a residential system were approximately \$4-\$5 per square foot. Maui County reported an installation cost of \$1.65 per square foot.

At \$4.50 per square foot, a fire sprinkler system in a 1,500-square foot home would cost \$6,750. If the home's cost were calculated at \$200 per square foot, a 1,500-square foot home would cost \$300,000, and the fire sprinkler system would be 2.25% of the total cost. Where the water supply from a municipal or private agency is inadequate or