

OFFICE OF THE CITY AUDITOR

City and County of Honolulu
State of Hawai'i



Audit of the Honolulu Fire Department's Fire Code Inspection Program for High-Rise Residential Buildings

A Report to the
Mayor
and the
City Council of
Honolulu

Report No. 10-01
April 2010

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Submitted by

THE CITY AUDITOR
CITY AND COUNTY
OF HONOLULU
STATE OF HAWAII

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Foreword

This is a report of our Audit of the Honolulu Fire Department's Fire Code Inspection Program for High-Rise Residential Buildings. This audit was conducted pursuant to the authority of the Office of the City Auditor, as provided in the Revised Charter of Honolulu. The city auditor determined that this audit is warranted due to concerns about the department's ability to ensure compliance with mandated fire code inspections conducted every two years for high-rise residential buildings; to monitor problems with inspection record keeping; and to report pertinent data on the number of fire inspections completed within the two-year cycle.

We wish to express our appreciation for the cooperation and assistance of the management and staff of the Honolulu Fire Department and others who we contacted during this audit.

Susan Hall
Audit Manager

EXECUTIVE SUMMARY

Audit of the Honolulu Fire Department's Fire Code Inspection Program for High-Rise Residential Buildings

Report No. 10-01, April 2010

This is a report of our Audit of the Honolulu Fire Department's Fire Code Inspection Program for High-Rise Residential Buildings. The audit was conducted pursuant to the authority of the Office of the City Auditor to self-initiate audits and is included in the OCA's Proposed Annual Work Plan for FY2008-09 as communicated to the mayor and the Honolulu City Council on June 13, 2008. The city auditor has determined that this audit is warranted due to concerns about the department's ability to ensure compliance with mandated fire code inspections every two years of buildings and facilities which include residential high-rise buildings; monitor problems with inspection record keeping; and report pertinent data on number of fire code inspections completed within the two-year cycle. Some of these concerns, reported in the local newspaper media on recent fires in high-rise residential buildings, included the department's failure to conduct several scheduled inspections, the inability of two computer systems to track fire inspection reports, and the lack of a comprehensive database of all high-rise residential buildings on O'ahu.

Background

The Honolulu Fire Department is the primary fire protection agency for the City and County of Honolulu, serving the entire island of O'ahu consisting of a land area of approximately 600 square miles with a population of approximately 900,000 residents within a mix of communities consisting of high- and low-rise buildings and single-family homes. The department's fire code inspection program encompasses fire code compliance inspections of all buildings, premises, and public thoroughfares within the City and County of Honolulu, with statutory exceptions that exclude state-owned airport facilities and the interior of private residences. High-rise residential buildings comprise one category of the many types of building occupancies on O'ahu that are subject to fire code inspections under the oversight and management of the Honolulu Fire Department. For

the purposes of this audit, we focused on residential high-rise condominium and apartment buildings having four or more stories or 75 feet or more in height.

State law requires the owner or person in charge of a building, structure or premises to construct, keep and make the building safe from loss of life or injury to persons or property by fire. Fire code inspections are conducted to protect persons and property from fire loss, and to provide information on the protections and safeguards to render the building and premises safe in accordance with state and local regulations and fire codes.

Hawai'i Revised Statutes Section 132-6(b) establishes the time frame or frequency of inspections of buildings and facilities that include high-rise residential buildings as every two years or as often as deemed practicable or necessary within the jurisdiction of the county fire chief. This section also specifies that inspections of all public schools are required at least once each year. These statutory requirements became effective July 20, 1998.

Our review focused on the department's fire inspection program for the period of time from July 1, 2005 to December 31, 2008 and assessed the effectiveness of the Honolulu Fire Department's fire code inspection program relevant to high-rise residential buildings.

Summary of Findings

Finding 1: The Department's Fire Inspection Database for High-Rise Residential Buildings is Incomplete, Inaccurate and Cannot Effectively Track Compliance with State Law.

- We found that the Honolulu Fire Department invested considerable time and resources in various database records management systems to automate fire inspection report data yet it still cannot comply with the statutory requirement for routine fire inspections. Two previous computer systems to automate fire inspection report data failed to deliver promised capabilities.
- The current Fire Inspection Database (FID) is designed to benefit from efficiencies derived from shared information from existing city databases to comply with the statutory time frame for fire code inspections and meet fire inspection program objectives. We found the inventory of high-rise residential buildings is incomplete and inaccurate. The

department cannot confirm that all high-rise residential buildings are inspected within the statutory two-year time frame because it must first identify all such buildings and occupancies on O'ahu. During our fieldwork, a list of residential high-rise buildings was created from existing city databases and when compared with its own records, the Fire Prevention Bureau (FPB) found that 39 percent of these buildings had not been inspected in the two-year statutory time frame.

- We found that inspections conducted by the FPB Plans Checking Section to ensure compliance with applicable fire codes for new buildings and major renovations are not automatically added to the Fire Inspection Database.
- We also found that efforts to gather current building occupancy information from existing city databases, while efficient, cannot be fully relied upon due to inherent errors and inconsistencies among those databases, to construct a complete and accurate database for all high-rise residential buildings. Unreliable data, an incomplete inventory of buildings and inconsistencies in scheduling may also contribute to missed fire code inspections.
- The current Fire Inspection Database that utilizes existing city resources from the fire department and the Department of Information Technology appears workable. This database is evolving as inspectors and supervisors offer suggestions for improvements to maximize the operational and reporting needs of the fire inspection program. Until the department has a complete and accurate list of all high-rise residential buildings on O'ahu, the fire inspection program will not be able to effectively track and confirm compliance with state law.

Finding 2: The Department Lacks a Systematic Approach in the Collection of Fire Inspection Data and Information Needed to Assess Program Effectiveness.

- We found that a systematic approach in the collection of fire inspection data is lacking. Each code jurisdiction has adopted its own approach to tracking and scheduling fire code inspections. Inspections are prioritized by risk level in accordance with the department's Risk Assessment Plan adopted in May 2000. We found that the National Fire

Protection Association researchers recommend inspections by geographic areas combined with a systematic street-by-street or block-by-block check-off. This system has been found to locate unused or unnoticed buildings that may have been missed in previous inspection cycles.

- Due to the limitations of the Fire Inspection Database, fire inspectors must cross-check the information in the database with other information in original paper inspection reports, individual spreadsheets and maps to track and schedule fire code inspections. Our survey of a random sample of 100 high-rise residential buildings found that 39 percent had not been inspected in a two-year statutory time frame and five buildings were not on the captains' list.
- Current data collection and reporting provides limited analysis and does not assess program effectiveness. We found that the Fire Inspection Database is currently configured to include only basic information from fire inspection reports, but data and descriptive information useful for assessing program performance and effectiveness are not searchable in the database. Therefore, potentially useful information such as violations cited and corrected is not well organized to be accessible for review and analysis in the Fire Inspection Database. The Fire Protection Research Foundation recently proposed fire inspection program effectiveness measures.
- As part of this audit, OCA surveyed building managers at a random sample of 100 high-rise residential buildings. Responses to the survey affirm the education and safety benefits from periodic fire code inspections. Some responses to our survey indicated possible confusion about fire inspections performed by FPB inspectors, local fire stations and commercial inspection companies.

Recommendations and Response

We recommend that the Honolulu Fire Department ensure that the Fire Prevention Bureau:

1. Completes the Fire Inspection Database and addresses the following:
 - a. establishes a process to include fire inspection data prepared by the bureau's Plans Checking Section for new buildings and major building renovations,

- b. establishes a systematic approach, such as the National Fire Protection Association's recommendation for block-to-block or street-to-street schedule, for all FPB code jurisdictions to verify that the Fire Inspection Database has a complete and accurate inventory of high-rise residential buildings and other occupancies on O'ahu,
 - c. has sufficient resources and inter-agency assistance to confirm that the Fire Inspection Database has a complete and verified count of all high-rise residential buildings, and
 - d. ensures that procedures for consistent, complete and accurate data entry, ongoing error testing and verification, are established and implemented for the Fire Inspection Database;
2. Identifies and establishes meaningful measures of program effectiveness and incorporates requisite data gathering into the Fire Inspection Database and online reports for the fire inspection program; and
 3. Clarifies for building/property managers the purposes of inspections conducted by the Fire Prevention Bureau and local fire companies under the Company Inspection Program, and the testing of fire prevention systems by commercial inspection companies and how often these should take place.

In his response and on behalf of the department, the fire chief provided information addressing the audit's recommendations and estimated completion dates. The department noted disagreement with Recommendation 1.b. indicating a geographic approach is in place for the FPB code jurisdictions to verify that the FID has a complete and accurate inventory of occupancies on O'ahu. We stand by the information provided to us during our fieldwork. We acknowledge the reasons why the total number of occupancies can change, however, since we found errors, omissions, inconsistencies, and five buildings that were missing from the bureau's lists and databases, resulting in an inaccurate inventory, our main point in the recommendation for a systematic approach to ensure a complete and verified total in the FID remains. Moreover, until the total number of high-rise residential buildings and other occupancies is verified, the department cannot report compliance with the statutory inspection requirement with any greater degree of certainty. We are encouraged by the department's plans to ensure continuous improvement of the inspection database for ease of use, data validity, reporting and analysis scheduled for implementation by

January 2011. We note that the department's response also included additional information many of which were outside the time frame and/or scope of this audit, for these we offer no comment. Finally, we appreciate the clarifying information and comments provided by the department and no substantive changes were made to the final report.

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Chapter 1

Introduction

This audit was conducted pursuant to the Office of the City Auditor's (OCA) authority to self-initiate audits, as provided in the Revised Charter of Honolulu, and is included in the OCA's Proposed Annual Work Plan for FY2008-09 as communicated to the mayor and the Honolulu City Council on June 13, 2008. The city auditor determined that an audit of the Honolulu Fire Department's fire code inspection program for high-rise residential buildings is warranted due to concerns about the department's ability to: ensure compliance with mandated fire code inspections every two years of buildings and facilities which include residential high-rise buildings; monitor problems with inspection record keeping; and report pertinent data on the number of fire code inspections completed within the two-year cycle. Some of these concerns, reported in the local newspaper media on recent fires in high-rise residential buildings, included the department's failure to conduct several scheduled inspections, the inability of two computer systems to track fire inspection reports, and the lack of a comprehensive database of all high-rise residential buildings on O'ahu.

Background

The Honolulu Fire Department (HFD) is the primary fire protection agency for the City and County of Honolulu, serving the entire island of O'ahu consisting of a land area of approximately 600 square miles with a population of approximately 900,000 residents within a mix of communities consisting of high- and low-rise buildings and single-family homes. The department strives to provide quality, professional fire and non-fire emergency services that are efficient and effective for the entire island.

State law requires the owner or person in charge of a building, structure or premises to construct, keep and make the building safe from loss of life or injury to persons or property by fire. Fire code inspections are conducted to protect persons and property from fire loss, and to provide information on the protections and safeguards to render the building and premises safe in accordance with state and local regulations and fire codes. Hawai'i Revised Statutes (HRS) Section 132-6(b) establishes the frequency of inspections of buildings that include high-rise residential

buildings as every two years or as often as deemed practicable or necessary within the jurisdiction of the county fire chief.

The fire inspection program is managed under the direction of the battalion chief for the department's Fire Prevention Bureau who is responsible for ensuring compliance with applicable state and local fire protection laws and regulations. Residential high-rise building fire inspections are the responsibility of the Fire Prevention Bureau since these are larger, complex occupancies.

The Honolulu Fire Department has been accredited by the *Commission on Fire Accreditation International* (CFAI) since 2000. Accreditation is reviewed every five years within a process that includes submission of self-assessment documents to the commission and successfully completing an on-site peer assessment. In 2005, the department earned another five-year accreditation. This CFAI report noted that HRS Sections 132-5 and 132-6 require fire inspections of certain occupancies on a two-year cycle and recommended that the department implement a plan to ensure its ability to meet the mandated inspections.

In addition, the department has established goals for the fire inspection program in its Master Strategic Plan 2008-2012. This plan is reviewed semiannually to ensure that the needs of the department and the community are met. It also identifies significant trends and challenges projected over five years.

Organization

Sections 6-1001 to 6-1007 of the Revised Charter of Honolulu, establish the Honolulu Fire Department as the primary agency to oversee a system in the city of fire protection and prevention and emergency rescue. The department is composed of the Honolulu Fire Chief, department staff and the Honolulu Fire Commission.

The Honolulu Fire Chief is the administrative head of the department and is appointed by the Honolulu Fire Commission. The fire chief manages the operations and administration of the Honolulu Fire Department in accordance with the powers, duties and functions provided in the city charter to:

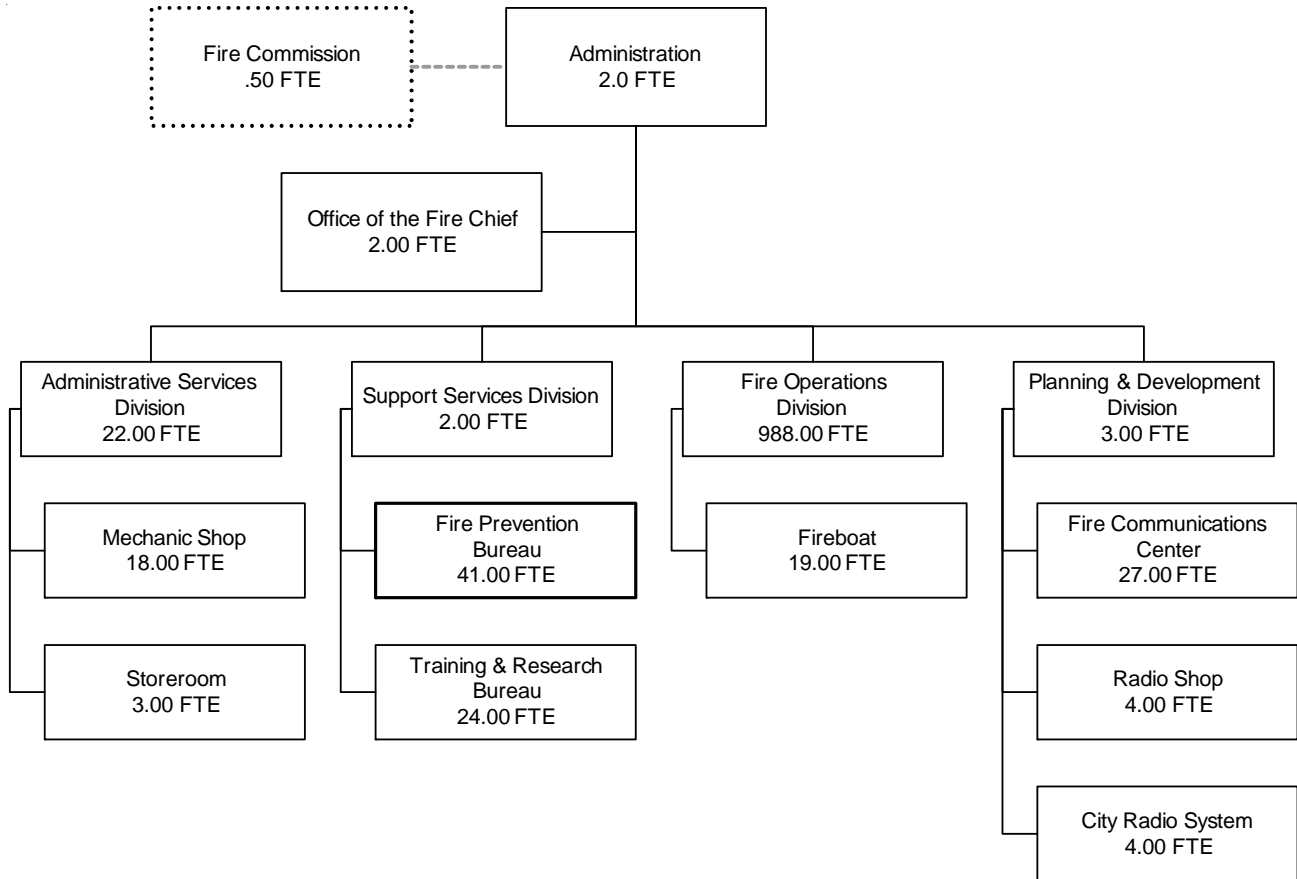
- a) perform fire fighting and rescue work in order to save lives and property from fires and from emergencies arising on the sea and hazardous terrain;
- b) train, equip, maintain and supervise a force of fire fighting and rescue personnel;

- c) monitor the construction and occupancy standards of buildings for the purpose of fire prevention;
- d) provide educational programs related to fire prevention;
- e) appoint the deputy fire chief and the private secretaries to the fire chief and the deputy fire chief; and
- f) perform such other duties as may be required by law.

The department was comprised of 1,097 uniformed personnel and 61 civilians totaling 1,158 employees in FY2007-08.

The department is organized into four divisions: Administrative Services, Fire Operations, Support Services, and Planning and Development. Each division is under the direction of an Assistant Chief. The department has assigned fire code inspection responsibilities to the Support Services Division. The Support Services Division is comprised of two bureaus: Training and Research, and Fire Prevention. A Battalion Chief heads each of these bureaus. The organization chart for the Honolulu Fire Department is presented in Exhibit 1.1.

**Exhibit 1.1
Honolulu Fire Department Organization Chart, FY2007-08**



Note: FTE = Full Time Equivalent

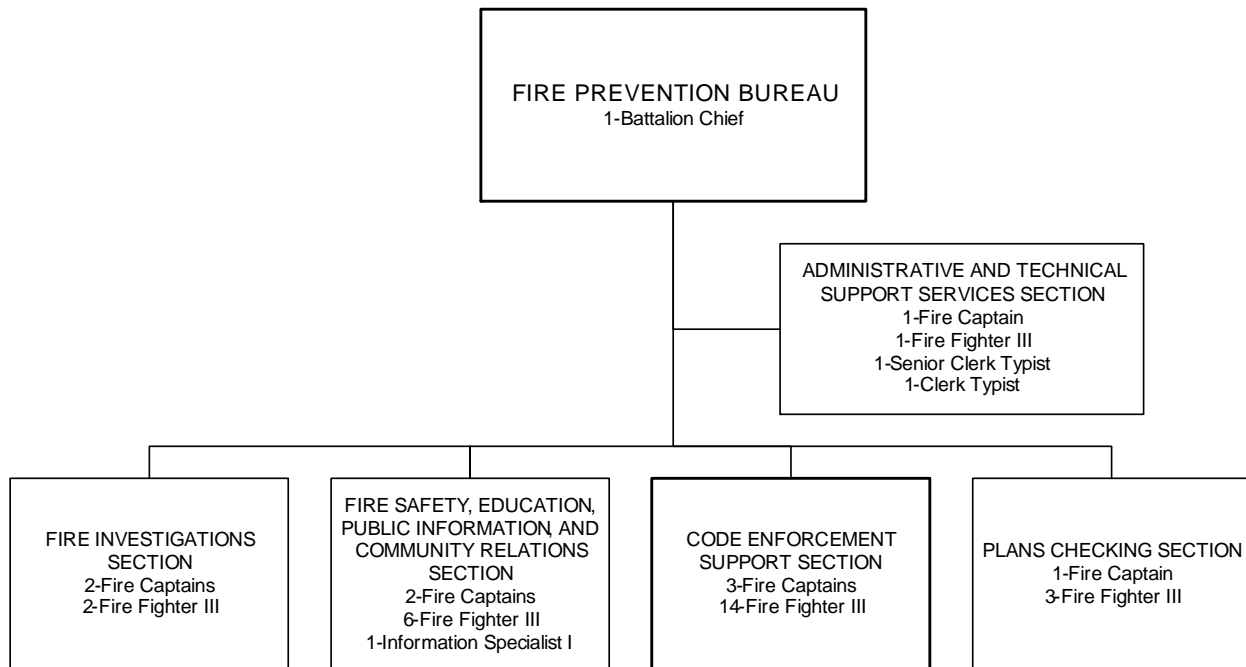
Source: Honolulu Fire Department

The mission of the department's Fire Prevention Bureau (FPB) is to promote fire and life safety programs that assist the Honolulu Fire Department in accomplishing its mission of mitigating the loss of life, property and damage to the environment. The department is responsible for enforcing all applicable statutes, regulations, and codes and provides fire prevention and public fire safety education programs. The fire chief fulfills these responsibilities through the efforts of the FPB. The bureau's battalion chief is responsible for reviewing and adopting fire codes, rules and laws, conducting fire code compliance inspections, reviewing building construction fire plans, investigating fires to determine origin and cause, and providing fire and life safety education to the community. As shown in Exhibit 1.2, the bureau is organized into five sections:

1. Administrative and Technical Support Services
2. Fire Investigations
3. Fire Safety, Education, Public Information and Community Relations (education section)
4. Code Enforcement Support
5. Plans Checking

Each section has a supervisory Fire Captain(s) who are responsible for daily assignments and scheduling personnel assigned to their respective section. All uniformed bureau personnel below the rank of Captain are Fire Fighter III's.

Exhibit 1.2
Fire Prevention Bureau Organization Chart, FY2007-08



Source: Honolulu Fire Department

Legal requirements

HRS Chapter 132, *Fire Protection*, sets forth the powers, duties and responsibilities for fire code inspections in Hawai'i. It requires the owner or person in charge of the building, structure or premises to construct, keep and make the building safe from loss of life or injury to persons or property by fire. Inspections are conducted for the purpose ascertaining and causing to be corrected any conditions liable to cause fire or any violation of law, ordinance, rule or order relating to fire hazard or to the prevention of fires. HRS Section 132-5 states that inspections be conducted for all buildings, premises and public thoroughfares, except the interiors of private dwellings.

HRS Section 132-6(b) establishes the time frame or frequency of inspections of buildings and facilities that include high-rise residential buildings as every two years or as often as deemed practicable or necessary within the jurisdiction of the county fire chief. This section also specifies that inspections of all public schools are required at least once each year. These requirements became effective July 20, 1998.

Department accreditation

The Honolulu Fire Department has been accredited by the *Commission on Fire Accreditation International* (CFAI) since 2000. The CFAI accreditation process provides an internationally recognized benchmark system to measure the delivery of fire and emergency services. The accreditation process utilizes a self-assessment model to assist in improving the agency and service delivery to communities. Accreditation is valid for five years. To maintain its accreditation status, the department submits revised self-assessment documents to the commission and an on-site peer assessment must be successfully completed.

In June 2005, a CFAI Peer Assessment Team of five members conducted their site visit of the department. In preparation for the on-site visit, each team member received the Honolulu Fire Department's Self-Assessment Manual. The July 2005 *Accreditation Report* concluded that the Honolulu Fire Department demonstrated that all core competencies and applicable criteria had been met. The peer assessment team provided further discussion on its findings and recommendations, including two recommendations related to the fire inspection program. The two CFAI recommendations and the fire department's annual status updates are in italics as follows:

1. The State of Hawai'i Revised Statutes Sections 132-5 and 132-6 requires fire inspections of certain occupancies on a two-year cycle. The Department should implement its new

plan to ensure the Department's ability to meet the mandated inspections.

2006 Update: The implementation of the Public One Stop Service Program will eventually develop a complete database describing the various types and quantities of occupancies within the City. The Department's Fiscal Year 2007 budget request included additional Fire Inspectors.

2007 Update: The Fire Prevention Bureau conducts weekly meetings specifically to develop and implement a strategic plan to address this issue. One component that will provide more documentation and better accountability is the implementation of a Departmentwide database that will eventually result in a complete inventory describing the various types and quantities of occupancies within the City. This is the first step towards ensuring the meeting of this mandate. The Department's Fiscal Year 2008 budget request for additional Fire Inspectors was denied.

2008 Update: The HFD launched its Fire Inspection Database in October 2007 to document fire inspections conducted by the Fire Prevention Bureau and Fire Operations personnel since July 1, 2007. The Department is working with the City Geographic Information Systems on data sharing to identify the total inventory of buildings, parcels, and occupancies requiring inspections through the Honolulu Online System for Emergency Services. The Department's Fiscal Year 2009 budget request for additional Fire Inspectors was denied.

2. The Department is unsure how many properties within the jurisdiction require periodic fire inspections. The Department should research the data through other departments such as, building department, property appraiser, tax collector etc. This data is needed to determine the workload requirements for the Fire Prevention Bureau to meet the state requirement for biannual fire inspection of certain property types.

2006 Update: The implementation of the Public One Stop Service project will eventually develop a complete database describing the various types and quantities of occupancies within the City.

2007 Update: The Fire Prevention Bureau conducts weekly meetings specifically to develop and implement a strategic plan to address the biannual fire inspections. One component that will provide more documentation and better accountability is the implementation of a Departmentwide database that will eventually result in a complete inventory describing the various

types and quantities of occupancies within the City. This is the first step towards ensuring the meeting of this mandate. The Department's Fiscal Year 2008 budget request for additional Fire Inspectors was denied.

2008 Update: The HFD launched its Fire Inspection Database in October 2007 to document fire inspections conducted by the Fire Prevention Bureau and Fire Operations personnel since July 1, 2007. The Department is also working with the City Geographic Information Systems on data sharing to identify the total inventory of buildings, parcels, and occupancies requiring inspections through the Honolulu Online System for Emergency Services. The Fire Prevention Bureau is conducting fire inspections according to the Standards of Response Coverage risk matrix by prioritizing occupancies with the highest risk to the community.

The CFAI peer assessment team commented further that the department's Fire Prevention/Life Safety Program needed to determine the total number of commercial and multi-family dwellings and observed,

This would assist the inspection program to determine the actual number of inspections needing to be completed according to the currently mandated state law.

The team also noted that it concurred with the department's Fire Prevention/Life Safety Program criterion report of the self-study, its appraisal, and action plan.

Fire code inspection program

Fire inspections for the island of O'ahu are required by state law and are conducted in accordance with the State Fire Code as adopted in Section 20.1.1 of the Fire Code of the City and County of Honolulu. The city's fire code inspection program is managed under the direction of the battalion chief for the Fire Prevention Bureau who is responsible for ensuring compliance with applicable fire protection laws, codes and agency objectives. The department's fire code inspection program encompasses fire code compliance inspections of all buildings, structures, premises, and public thoroughfares within the City and County of Honolulu, with certain statutory exceptions such as the interior of private residences. High-rise residential buildings, comprise one category of the many types of building occupancies that are subject to fire code inspections by the Honolulu Fire Department every two years in compliance with state law.

According to the department, a *high-rise* building is defined as having four or more stories or 75 feet or more in height. Buildings classified as *residential* occupancies are those in which sleeping accommodations are provided for normal residential purposes and include all buildings designed to provide sleeping accommodations, such as condominiums, apartments, dormitories, and hotels. For the purposes of this audit, we focused on residential high-rise condominium and apartment buildings having four or more stories or 75 feet or more in height, but we excluded other residential occupancies such as high-rise hotels and dormitories, and also *low-rise* residential buildings having three stories or fewer, or less than 75 feet in height.

The Fire Prevention Bureau's fire inspection program responsibilities also include:

- assisting with fire plans from HFD fire companies,
- assisting the bureau's administrative support section with the testing of fire protection appliances performed by commercial inspection companies for compliance with the fire code,
- performing night inspections relating to life safety hazards upon request by other agencies and approved by the fire chief,
- assisting the bureau's education section with the training in fire evacuation and drills or other educational projects approved by the bureau's battalion chief or the fire chief, and
- ensuring compliance with all fire codes in the issuance of the *Certificate of Occupancy* by the Department of Planning and Permitting.

High-rise residential building fire code inspection responsibilities

The Fire Prevention Bureau develops and conducts the fire inspection program with resources from the bureau and local fire stations. Within the bureau, the Code Enforcement Support Section is divided into three sections – Codes East, Codes West and Codes Central. The geographic responsibilities for fire code inspections in Codes East, West and Central include properties within jurisdictions as color-coded in Exhibit 1.3. Each section is headed by a fire captain who directs the inspections within their assigned jurisdiction.

The Fire Prevention Bureau has established fire code inspection guidelines, forms, quick reference field guides on applicable fire codes, occupancy classifications, building construction types, service testing for fire protection systems and other information relating to activity taking place to determine type of occupancy to guide inspections of high-rise residential buildings and all other occupancies.

Residential buildings that are four stories or more as well as those that require more in-depth inspections regardless of height are the responsibility of the Fire Prevention Bureau.

To engage maximum effort from all departmental personnel on fire prevention efforts, the department created the Company Inspection Program and guidelines in 2005. Under this program, local fire companies conduct fire code inspections for residential buildings that are three stories or fewer, and inspections to update fire preplans of all occupancies in their district annually. Company fire inspections are to be systematically scheduled to ensure thorough and complete inspection coverage. Fire station personnel remain in-service to answer fire calls while conducting inspections within their assigned jurisdiction.

Exhibit 1.3**Geographic Boundaries of the Three Fire Prevention Bureau Code Inspection Areas and the Location of O'ahu's Forty-Two Fire Stations, FY2007-08**

Source: Honolulu Fire Department

Risk Assessment Plan

To assist the fire code inspection program workload, the HFD Risk Assessment Plan was adopted in May 2000. Fire-related risks for various occupancy categories were prioritized after reviewing historical fire data. The Risk Assessment Plan reflects the department's evaluation of fire-related incidents based on consequence to life, property, and environment in relation to the probability of the event occurring. The risk matrix model assigns weights to three specific risk factors: Life (60 percent), Property (25 percent), and Environmental Implications (15 percent).

The Risk Assessment Plan references fire risk inherent in various buildings and structures. A quick reference chart as shown in Exhibit 1.4 is used by the code enforcement captains and inspectors to prioritize fire inspection program building

inspections based on risk level by occupancy-type designations from maximum to low.

Exhibit 1.4

Honolulu Fire Department: Fire-Related Risk Assessment by Occupancy Category

	Occupancy or Type of Incident	Risk Level			
		Maximum	High	Moderate	Low
A1	Assembly, Division 1: A building or portion of a building having an assembly room with an occupant load of 1,000 or more and a legitimate stage.	A-1			
A2	Assembly, Division 2: A building or portion of a building having an assembly room with an occupant load less than 1,000 and a legitimate stage.	A-2			
A2.1	Assembly, Division 2.1: A building or portion of building having an assembly room with an occupant load of 300 or more without a legitimate stage.	A-2.1			
A3	Assembly, Division 3: A building or portion of building having an assembly room with an occupant load of less than 300 without a legitimate stage.	A-3			
A4	Assembly, Division 4: Stadiums, reviewing stands, and amusement park structures not included within other group occupancies.	A-4			
B	Business: High-rise office building (4 or more stories in height)	B			
B	Business: Universities, colleges, government facilities		B		
B	All other business occupancies		B		
E1	Education, Division 1: Any building used for educational purposes through the 12th grade with 50 or more persons.		E-1		
E2	Education, Division 2: Any building used for educational purposes through the 12th grade with less than 50 persons.		E-2		
E3	Education, Division 3: Any building or portion thereof used for day-care purposes for more than six persons.		E-3		
F1	Factory, Division 1: Moderate-hazard factory and industrial occupancies.		F-1		
F2	Factory, Division 2: Low-hazard factory and industrial occupancies.			F-2	
H1	Hazardous, Division 1: Occupancies with a quantity of material in the building which present a high explosion hazard.	H-1			
H2	Hazardous, Division 2: Occupancies with a quantity of material in the building which present a moderate explosion hazard or a hazard from accelerated burning.	H-2			
H3	Hazardous, Division 3: Occupancies with a quantity of material in the building which present a high fire or physical hazard.	H-3			
H4	Hazardous, Division 4: Repair garages.		H-4		
H5	Hazardous, Division 5: Aircraft repair hangars.		H-5		
H6	Hazardous, Division 6: Semiconductor fabrication facilities and comparable research and development areas.		H-6		
H7	Hazardous, Division 7: Occupancies having excessive quantities of health hazard materials.	H-7			
I1.1	Institution, Division 1.1: Centers for full-time care of children under the age of six, hospitals, sanitariums, nursing homes with non-ambulatory patients.	I-1.1			
I1.2	Institution, Division 1.2: Outpatient ambulatory health-care centers.	I-1.2			
I2	Institution, Division 2: Nursing homes for ambulatory patients and children six years and older.	I-2			
I3	Institution, Division 3: Mental hospitals, mental sanitariums, jails, prisons, reformatories and buildings where personal liberties of inmates are similarly restrained.	I-3			
M	Mercantile: Retail store - Major shopping centers, department stores.	M			
M	Mercantile: Mercantile occupancies with a high-rise.	M			
M	Mercantile: Stand alone retail store.			M	
M	Mercantile: Retail store or mall not exceeding 2 stories in height.			M	
R1	Residential, Division 1: Hotels, condos, apartments, dormitories - 4 or more stories	R-1			
R2	Residential, Division 2: Dwellings, lodging houses.			R-2	
R3	Residential, Division 3: Nursing care facilities.			R-3	
S1	Storage, Division 1: Moderate hazard storage.				S-1
S2	Storage, Division 2: Low-hazard storage.				S-2
S3	Storage, Division 3: Repair garages - not requiring open flame or welding.			S-3	
S4	Storage, Division 4: Open parking garages.				S-4
S5	Storage, Division 5: Aircraft hangars - not requiring open flame or welding.			S-5	

Source: Honolulu Fire Department

Fire inspections have since been prioritized based on the department's Risk Assessment Plan in the expectation that buildings having *potentially high impact on life-safety for occupants, and fire fighters, and economic and environmental implications as well as a higher probability of a fire occurring in comparison to other occupancy types* will have a greater certainty for inspection. Risk levels are rated from maximum to low in four levels: 1 = Maximum, 2 = High, 3 = Moderate, and 4 = Low.

Pursuant to the HFD Risk Assessment Plan, residential high-rise buildings are classified within the "R-1" occupancy which also includes hotels, apartments and dormitories; while the residential buildings such as care homes, special treatment facilities, and single family dwellings are classified as "R-3" occupancies. In relation to the risk of fire-related incidents for assessing the risk level of buildings, a residential high-rise building has a Level 1 or maximum risk classification; and thus, receives priority for inspections within assigned jurisdictions. Annually, the department reports inspection program activity data by occupancy classifications and by risk level among other activities.

Strategic planning goals

The Honolulu Fire Department Master Strategic Plan 2008-2012, dated February 2008, identifies significant trends, challenges and planning goals for the department, and is discussed with fire fighters through their battalion chiefs and fire captains to ensure that the needs of the department and the community are met. Challenges that pertain to the fire inspection program include short- and long-term goals to:

- implement a plan to meet the two-year cycle of fire inspection requirements for identified properties as mandated by Sections 132-5 and 132-6, HRS,
- identify data collection and analysis of the department's core values and statutory requirements,
- continue to work with the departments of information technology, corporation counsel, human resources and other city agencies to determine relevant data needs,
- establish performance goals for each program and measure the outcomes rather than the outputs, and
- initiate legislation to impose penalties to assist the enforcement component of the fire inspection program.

Audit Objectives

The objectives of the audit were to:

1. Assess the effectiveness of the Honolulu Fire Department's fire code inspection program for high-rise residential buildings.
2. Make recommendations as appropriate.

Scope and Methodology

The time frame for this audit was from July 1, 2005 to December 31, 2008 which corresponds to the date of the department's five-year accreditation and report issued by the Commission on Fire Accreditation International for the Honolulu Fire Department and the fire inspection program's current operational status.

For this audit, we reviewed applicable provisions in the HRS, Hawai'i Administrative Rules (HAR), the Revised Charter of Honolulu, the Revised Ordinances of Honolulu (ROH), and the Fire Code of the City and County of Honolulu which incorporates by reference the State Fire Code. This audit focused on assessing the department's effectiveness in conducting high-rise residential building fire code inspections pursuant to HRS Chapter 132, *Fire Protection*, specifically, Sections 132-5 and 132-6.

The Honolulu Fire Department's fire code inspection program encompasses fire code compliance inspections of all buildings, structures, premises, and public thoroughfares within the City and County of Honolulu, with certain statutory exceptions including state-owned airport facilities and the interior of private residences. High-rise residential buildings comprise one category of the many types of building occupancies that are subject to fire code inspections by the Honolulu Fire Department every two years in compliance with state law. For the purposes of this audit, we focused on residential high-rise condominium and apartment buildings having four or more stories or 75 feet or more in height, for which the Fire Prevention Bureau is directly responsible for conducting fire code inspections. The scope of this audit excluded inspections of other residential occupancies such as high-rise hotels and dormitories; and *low-rise* residential buildings having three stories or fewer or less than 75 feet in height which receive fire code inspections by local fire companies under the department's Company Inspection Program.

We reviewed documents pertinent to the department's fire code inspection program and the accuracy and completeness of the

inventory of high-rise residential buildings and fire inspection data related to compliance with state law. In addition, we reviewed inspection-related departmental policies and procedures, directives and memoranda, long-term and master strategic plans, accreditation reports and operation manuals, inspection field guides, and prior and current inspection-related database contracts and service manuals. We also reviewed information from the National Fire Protection Association and the Fire Protection Research Foundation and conducted Internet searches for media coverage and background information.

In addition to document reviews, we were granted access to the department's Intranet to review data accessibility and department-wide systems connectivity related to the Fire Prevention Bureau and the fire code inspection program. We interviewed city officials and employees of the Honolulu Fire Department, Department of Planning and Permitting, Department of Information Technology, Department of Budget and Fiscal Services and a representative from the Commission on Fire Accreditation International.

We distributed a questionnaire to survey building managers at a random sample of 100 high-rise residential buildings on O'ahu to obtain feedback regarding fire code inspections and the two-year inspection requirement. Lastly, we attended two high-rise residential building fire code inspections conducted by inspectors from the Fire Prevention Bureau.

This audit was conducted in accordance with generally accepted government auditing standards (GAGAS). Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Chapter 2

The Honolulu Fire Department's Fire Inspection Program for High-Rise Residential Buildings Falls Short of Expectations, Due Primarily to an Inaccurate Database and the Lack of a Systematic Approach to Collect Data and Information Needed to Assess Compliance with State Law and Program Effectiveness

As required in state law, fire code inspections are conducted in accordance with the State Fire Code as adopted in the Fire Code of the City and County of Honolulu. Through periodic fire code compliance inspections, the Honolulu Fire Department seeks to eliminate and correct fire hazards to create a safer community. State law requires the owner or person in charge of the building, structure or premises to construct, keep and make the building safe from loss of life or injury to persons or property by fire. Enacted in 1998, Hawai'i Revised Statutes (HRS) Section 132-6(b) establishes the frequency of fire code inspection of occupancies that include high-rise residential buildings at every two years or as often as deemed practicable or necessary within the jurisdiction of each county fire chief.

Since earning accreditation in 2005, the department has pursued a series of computer systems to automate fire inspection report data. Two systems failed to meet the operational requirements of the fire inspection program as promised, but the present Fire Inspection Database currently under implementation appears workable. Therefore, the department reports that its fire inspection program still lacks a complete and accurate inventory of all high-rise residential buildings on O'ahu. As a result, the Honolulu Fire Department is unable to comply with the statutory time frame for fire code inspections.

The Fire Inspection Database is designed to benefit from efficiencies derived from shared information to comply with applicable statutory requirements and meet fire inspection program objectives. However, the department's efforts to gather current building occupancy information from existing city department databases, while efficient, cannot be fully relied upon, due to inherent errors and inconsistencies among those databases, to construct a complete and accurate database of all high-rise residential buildings. We found that the department lacks a

systematic approach in the collection of fire inspection data. Unreliable data, an incomplete inventory of buildings and inconsistencies in scheduling fire inspections may also contribute to missed inspections. During our fieldwork for this audit, a list of residential high-rise buildings was created from city databases and when compared to its own records, the Fire Prevention Bureau found that 39 percent of these buildings had not been inspected in the two-year statutory time frame. Moreover, five buildings were missing from the bureau's existing lists. Until the Fire Inspection Database has a complete and accurate list of all high-rise residential buildings on O'ahu, the fire inspection program will not be able to effectively track and confirm compliance with state law.

Current reporting provides limited analysis and does not assess program effectiveness. We found that the Fire Inspection Database is currently configured to include only basic information from fire inspection reports, but data and descriptive information useful for assessing program performance and effectiveness are not searchable in the database.

During our survey and site visits, we found evidence that the Fire Prevention Bureau's fire code inspection program for high-rise residential buildings is accomplishing the discovery and correction of fire hazards and conditions that pose a threat to life and property. In addition, our survey found that the approach and efforts of the bureau's fire inspectors to educate high-rise residential building managers about fire safety and preventing hazardous conditions in their buildings led owners and managers to rate their experience with the bureau's fire code inspections with overwhelming satisfaction.

Summary of Findings

1. The department's Fire Inspection Database for high-rise residential buildings is incomplete, inaccurate and cannot effectively track compliance with state law.
2. The department lacks a systematic approach in the collection of fire inspection data and information needed to assess program effectiveness.

The Department's Fire Inspection Database for High-Rise Residential Buildings is Incomplete, Inaccurate and Cannot Effectively Track Compliance with State Law

The Honolulu Fire Department's Fire Inspection Database (FID) is a data collection system developed for the Fire Prevention Bureau's fire inspection program. It is the most recent effort to collect, maintain, track, and analyze fire inspection report data. The FID is currently under implementation and contains information from completed inspections from July 1, 2007 to the present. This effort was preceded by two failed attempts to implement a fire inspection data collection system suitable for the fire inspection program.

Efforts to establish a comprehensive inventory of all buildings, necessary to verify program compliance, have been hampered by a cumbersome paper-based filing system, an incomplete inventory of buildings on O'ahu, and uncertainty about the possibility and extent that buildings are missing from the bureau's inventory. Moreover, we found that completed fire inspection reports are filed according to the real property tax assessment coding (tax map key) system for identifying land parcels, not by the building's actual street address. This cumbersome and complicated paper-based inspection record keeping system in combination with inaccurate and incomplete information on all residential high-rise buildings in the bureau's lists and FID hampers the department's ability to effectively track compliance with the time frame for fire inspections specified in state law.

Two previous computer systems failed to deliver promised capabilities

Two initiatives to automate fire inspection reports preceded the Fire Inspection Database currently under implementation. Both attempted to implement effective data collection for fire inspection reports that the department could easily access, as well as improve data analysis and reporting capacity to measure program effectiveness. The Fire Prevention Bureau pursued enhancements to the department-wide Fire Records Management System (FireRMS) and the city's Public One Stop Service (POSSE) automated permit tracking system. The department procured consultant services to implement these computer system enhancements and purchased mobile and wireless equipment to advance the fire inspection program. However, both of these efforts consumed time and resources without delivering the promised capabilities. While these systems were suitable for the agencies' original purposes, the enhancements could not be adapted to meet the operational requirements to integrate with the functions of the fire inspection program. Despite our efforts to confirm those system costs applicable to the

fire inspection program, the Honolulu Fire Department and the Department of Budget and Fiscal Services could only provide documentation for overall contract costs.

In July 2001, Fire Prevention Bureau inspectors began entering fire inspection data into the SunPro FireRMS *Occupancy Module*, the final deliverable under the contract with American Tritech to provide a Computer-Aided Dispatch System and an Integrated Records Management System or the FireRMS for the Honolulu Fire Department executed in November 1998 for \$1,011,688. Under this contract, the Fire Prevention Bureau would have a dedicated occupancy module for fire inspection reports at an approximate cost of \$189,000. However, we were unable to verify the occupancy module's cost because the contract documents were not retained or were destroyed when the record retention date was reached according to both the fire and budget and fiscal services departments.

In July 2003, contract employees began entering data from paper fire inspection reports into the SunPro FireRMS occupancy module, which would serve as the department's fire inspection and pre-plan recordkeeping system. Eventually the department would have a complete inventory of all fire inspections and enable management to analyze inspection progress and assess staffing needs. However, with an estimated 50 percent of inspection report data entry completed, various problems and dissatisfaction with the system led the department to halt the contract employees' work in July 2004. Problems noted by the bureau included unreliable data retrieval, inability to track and record fire inspections, limited and inflexible reporting capabilities, and cumbersome data entry requirements for inspectors which ultimately led the department to terminate the SunPro occupancy module project in fall 2004.

The second initiative started in February 2005, as an amendment to an existing city contract for Computronix to develop and implement an Occupancy Inspection Program database application compatible with the city's POSSE system for \$81,627. POSSE is the city Department of Planning and Permitting's automated permit tracking management system. In June 2005, the department purchased 20 Hewlett-Packard tablet computers for 20 FPB Inspectors, as well as wireless data services, and 10 mobile printers for remote access to the POSSE/inspection database system at a cost of \$63,975. Notebook computers would reduce the time expended for inspection recordkeeping thereby increasing inspectors' availability to conduct additional inspections, and generate *real time* inspection information for the

department. This project was the initial phase of accessing occupancy information from the DPP POSSE system as well as documenting fire inspections. Implemented in October 2005, and after numerous issues with connectivity and data entry, the wireless system via POSSE for bureau inspectors was ended in March 2006. Inspectors returned to hard-copy inspection forms and inputting data into spreadsheet logs. Exhibit 2.1 provides a brief chronology of the Honolulu Fire Department's efforts to automate data and reports for the fire inspection program.

Exhibit 2.1

Brief Chronology of Initiatives to Automate Fire Inspection Report Data Through 2008

<i>Provider of Service</i>	<i>Estimated Start Date</i>	<i>Description of Service Provided</i>	<i>Estimated Cost</i>
American Tritech/SunPro	11/19/1998	Provide a Computer Aided Dispatch System and an Integrated Records Management System for HFD. <ul style="list-style-type: none"> Occupancy Module for fire inspection reports began in July 2001. Contract employees hired to enter fire inspection report data into the SunPro FireRMS Occupancy Module in July 2003. 	\$1,011,688*
Computronix (USA), Inc.	2/2005	Develop a database application to integrate remote fire inspection data for HFD's Occupancy Inspections with the POSSE system.	\$81,627*
Hewlett-Packard and AT&T	6/16/2005	Acquire tablet computers, wireless data services mobile printers for remote access to the POSSE/inspection database system.	\$63,975*
City and County of Honolulu, Department of Information Technology	9/7/2006	Assist HFD team with defining system requirements, design and development of a new Fire Inspection Database application to integrate with the department's Honolulu Online System for Emergency Services master database design.	n/a

*These are estimated costs because documents with actual costs were not retained or were destroyed.

Source: Honolulu Fire Department

The Fire Inspection Database's inventory of high-rise residential buildings is incomplete and inaccurate

The Honolulu Fire Department cannot confirm that all high-rise residential buildings are inspected within the statutory two-year time frame because the database inventory is incomplete and inaccurate. During our review, we found various inaccuracies and errors in the Fire Inspection Database. In addition, we found that fire inspections for new buildings and renovations are not automatically added to the Fire Inspection Database.

Current Fire Inspection Database design and development utilizes existing city resources

Developed with in-house resources between the department and the Department of Information Technology (DIT), the Fire Inspection Database application is evolving as inspectors and supervisors offer suggestions for improvements to meet the fire inspection program's operational needs. Work on the FID began in September 2006, when the department obtained DIT's agreement to develop an inspection database application for the Fire Prevention Bureau. Under this agreement, DIT would assist the department's project team with defining system requirements, design and develop a new fire inspection application, and where possible, allow the application to be part of the fire department's master database of property and structures in the geographic information system (GIS) application known as the Honolulu Online System for Emergency Services. The FID User Manual, finalized in December 2007, instructs inspectors on how to access and use the online intranet-based database and notes that this database *provides fire personnel the ability to plan, evaluate, and quantify fire inspection information gathered from routine inspections required under Chapter 132 of the Hawai'i Revised Statutes*. At the time of our fieldwork, the departments were working under a second DIT Request for Service dated September 23, 2008 requesting that the FID generate: 1) a report for each battalion per platoon; 2) a summary report to enable viewing of each battalion on the same screen, and 3) a report total based on each occupancy type for the first-in area of each fire station.

Future FID project phases include research and development and application improvements such as integration of landscape information in a GIS format and mapping capabilities.

Database includes all completed fire inspection reports since July 2007

Bureau inspectors and fire operations personnel launched the Fire Inspection Database in October 2007 which includes completed fire inspections from July 1, 2007 to the present. Data entered into the FID is obtained from the hand-written fire inspection reports. While it is intended to be the primary database for Codes East, Central and West, the code enforcement captains reported that it is being used primarily to check current inspection status and for compiling activity counts for the department's annual report. Currently, basic data from inspection reports is entered into the FID. However, the captains noted that the original paper

inspection reports must also be reviewed to research a building's complete fire inspection history.

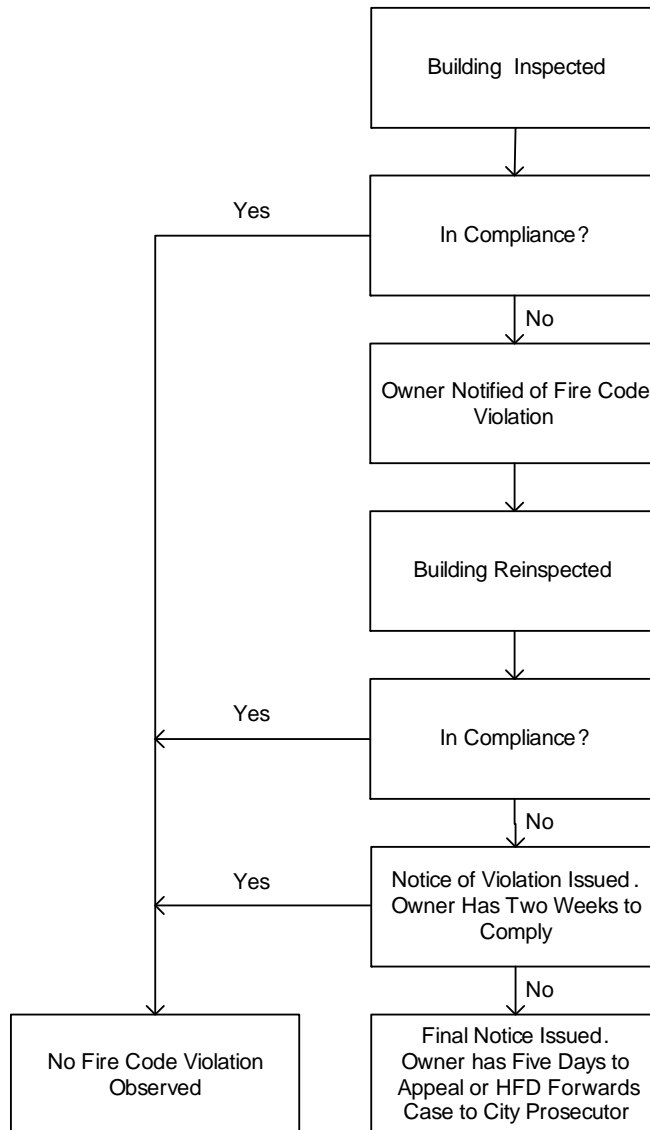
All fire code inspections are completed on a two-page carbon inspection report form HFD-16, *Honolulu Fire Department Fire Inspection Report*. The completed fire inspection report identifies a *Satisfactory* or *Unsatisfactory* inspection. Information on deficiencies during an unsatisfactory inspection describe the violation or hazard and the required correction is noted in the report. Usually a two-week reinspection date is given. This official form is signed and dated by both the inspector and the building's owner/agent upon completion of an inspection and the carbon copy of form HFD-16 is provided to the owner/agent before the inspector leaves the premises. If upon reinspection, the inspector finds all violations have been corrected, the inspector will check the applicable satisfactory column, the reinspection date and initial the particular violation(s) corrected.

However, if on the return reinspection, the fire inspector finds no acceptable correction to the violation(s) cited, the sequence for unsatisfactory inspections is as follows:

1. A *Notice of Violation* is issued by the Honolulu Fire Department to the building's owner/agent or responsible person. An additional two weeks is given for compliance on all remaining violations on the fire inspection report.
2. A *Final Notice* is issued to the owner/agent or responsible person, who has five days in which to appeal or the matter will be referred to the city prosecutor for further action.

Exhibit 2.2 provides an overview of the fire inspection process. Exceptions may be provided for valid attempts by the owner/agent to correct unsatisfactory condition(s) and in such cases, the fire inspector may grant an extension to correct the unsatisfactory condition upon consultation and approval of the code enforcement captain.

Exhibit 2.2
Brief Overview of the Honolulu Fire Department's Fire Inspection Process

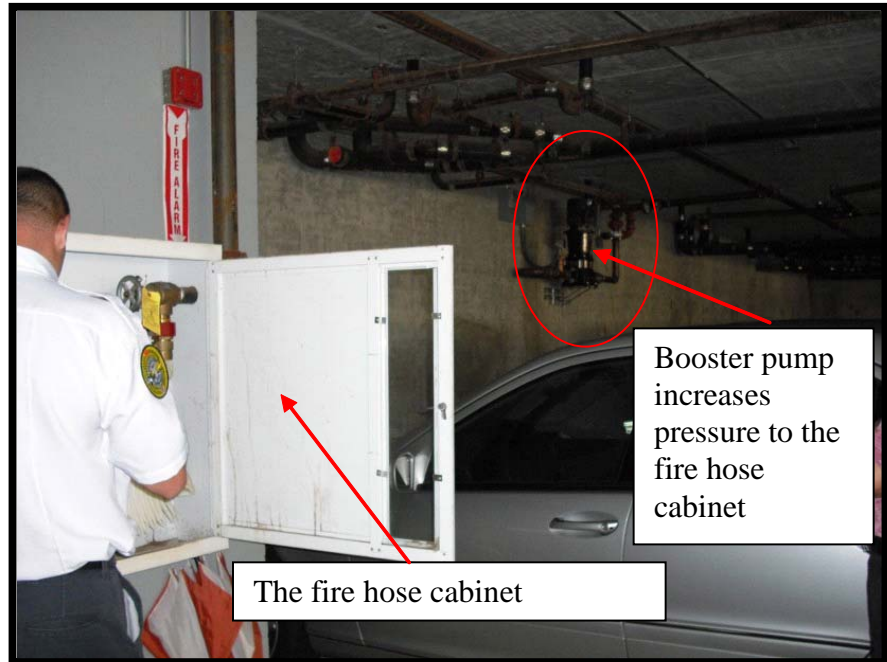


Source: Honolulu Fire Department

The photo in Exhibit 2.3 shows a code enforcement inspector conducting a reinspection of a water booster pump installed to increase the water pressure for a condominium's fire suppression system.

Exhibit 2.3

Photo of a Reinspection of a Condominium's Water Booster Pump Installation



Source: Honolulu Fire Department

Data inaccuracies include errors in street addresses, building name, and other property information

During our fieldwork, we observed the accessibility of various features, sorting capabilities, inspection report tracking and reports that can be generated from the Fire Inspection Database. For example, the captains readily generated a list of all current *R-1 Residential* occupancy inspections sorted by Satisfactory/Unsatisfactory inspection status and tax map key (TMK) number for their respective code jurisdiction. We also observed a variety of errors in reports generated by the Fire Inspection Database including discrepancies associated with building address numbers, building names, and TMK numbers. For parcels that have been inspected, the captains noted that comparing field notes with database records can reveal various errors or inconsistencies that need reconciling to correct address number, street name, building name, occupancy designation, or two addresses with the same TMK number. Both the bureau and Department of Planning and Permitting staffs explained that a TMK number and address is not a consistent one-to-one match

per single building. This complicates efforts in the development of a systematic means for maintaining a comprehensive list of buildings to inspect since a TMK number may have more than one building situated on a particular site. Therefore, efforts to establish a comprehensive inventory of buildings in the Fire Inspection Database cannot rely upon TMK numbers without further review and verification for accuracy.

Inspections for new buildings and major renovations are not automatically added to the database

The Fire Prevention Bureau's Plans Checking Section reviews and approves all new building and major renovation plans to ensure compliance with all applicable fire codes. This section, consisting of a supervisory captain and three inspectors, is situated in the Department of Planning and Permitting's (DPP) Building Code Inspection Branch. These inspectors enter fire code compliance inspection data directly into DPP's POSSE database system, the city's automated permit tracking and management system.

During our fieldwork, we found another possible reason why the Fire Inspection Database may not have a complete and accurate list of all high-rise residential buildings. According to the plans checking captain, the fire code compliance and inspection functions and responsibilities conducted by the plans checking and codes enforcement sections are similar. Existing buildings already subject to fire code inspections are assigned to the Code Enforcement Support Section, while buildings that are new or under construction and major renovations are assigned to the Plans Checking Section. However, we also found an unexpected difference. Plans checking only enters fire inspection data for new or renovated buildings into DPP's POSSE system and has not been entering this data into their own department's Fire Inspection Database. Moreover, the captain informed us that they were unaware of the Fire Inspection Database and explained that the plans checking review is the first and most detailed fire code inspection of new buildings and major building renovation projects. Upon passing this initial fire code inspection, their review should establish the date for the building's next fire code inspection; and furthermore, integrating inspection information from the plans checking review would greatly enhance any inspection tool.

Inspection database cannot effectively track compliance with state law

At the beginning of our audit, the Fire Prevention Bureau's battalion chief explained that compliance with the two-year statutory time frame for fire inspections by the department of all buildings, structures and premises, including high-rise residential buildings, is probably not being met because the department must identify all such properties on O'ahu. While the department has undertaken a verification of all such properties on O'ahu, the most recent inventory was completed nearly a decade ago. A comparison of a recent list of high-rise residential buildings with the bureau's fire inspection records revealed that 39 percent have not been inspected within the two-year statutory time frame; thus, reinforcing the importance of completing the Fire Inspection Database.

The bureau last confirmed its inventory of all building occupancies in 1999

Fire Prevention Bureau records show that in 1999, it completed block-to-block fire inspections which focused on *target areas* in an effort to confirm for its records, a complete and accurate inventory of occupancies within its jurisdiction, excluding single family and duplex dwellings. This inventory was conducted over a three year period which began in September 1996. During this time, the fire code inspection program consisted of two code sections, East and West. To accomplish the block-to-block inspections and complete an inventory of occupancies, the two sections did not do other related types of inspections such as complaints, referrals or night inspections. The bureau continued to schedule fire inspections using the block-to-block method through 2003. In February 2003, the Fire Prevention Bureau was reorganized into three code enforcement sections and fire inspections for buildings in the city were prioritized to inspect high-risk occupancies first, based upon HFD's Risk Assessment Plan.

Cross-checking the bureau's building inventory with city databases revealed inconsistencies

At the beginning of our audit fieldwork, the bureau's battalion chief described efforts to identify whether existing city databases had data corresponding to building and occupancy data used by the fire inspection program. Working with GIS staff in the Department of Planning and Permitting, the bureau requested a database of all commercial structures and buildings from which it might be possible to extract a list of high-rise residential buildings on O'ahu.

To assist our plans to survey owners/building managers of high-rise residential buildings, we met with departmental staffs from the Department of Budget and Fiscal Services' Real Property Assessment Division and DPP's Honolulu Land Information System who were familiar with the bureau's database requirements. The combined efforts of these agencies began a process to accurately count the number, types and locations of parcels by occupancies. The first list of high-rise residential building parcels revealed that hotels needed to be excluded from this list for the purposes of our survey. In addition, we also observed various errors, inconsistencies and missing entries that needed reconciling to provide correct address numbers, street names, building names, and TMK numbers. A subsequent list identified 646 parcels of high-rise residential buildings having four or more stories. In December 2008 a fairly accurate list of current high-rise residential buildings on O'ahu was generated from the city's Real Property Assessment database. As a result, each of the collaborating agencies has a list that serves as a basis for future data sharing, as well as an understanding of the refinements needed to reduce errors and inconsistencies when assisting the bureau with updated lists of high-rise residential buildings and other occupancies.

The list of 646 high-rise residential buildings, was subsequently reviewed by the bureau's code enforcement captains to compare and identify inspection status over a two-year period with their inspection records. They found that 61 percent of high-rise residential buildings on the December 2008 list were inspected within the two-year statutory time frame, but 39 percent were not.

The Department Lacks a Systematic Approach in the Collection of Fire Inspection Data and Information Needed to Assess Program Effectiveness

Through periodic fire code compliance inspections, the Honolulu Fire Department seeks to eliminate and correct hazards, as well as reduce the likelihood and severity of fires that do occur, to create a safer community. According to the Fire Protection Research Foundation, fire code inspections reinforce compliance with state and local fire-related regulations and fire codes, while conducting periodic inspections, maintaining a complete and accurate list of building properties, and using fire personnel from all company fire stations for inspections are characteristics associated with effective fire inspection programs. Emphasis has been placed on efficiently obtaining current electronic information on buildings from other city databases. However, a systematic approach to verify the database's accuracy and completeness, as well as data maintenance practices to correct errors, omissions and

inconsistencies in the database have not been established. Aware of the limitations of the Fire Inspection Database currently under implementation, fire inspectors must cross-check the database information with paper inspection reports, spreadsheets and maps to track and schedule fire code inspections. During the current implementation phase, basic information from fire inspection reports such as building name, address, and tax map key number can be tracked electronically, however, data on the types of violations found by fire code category cannot be searched within the database. The Fire Inspection Database has been designed to provide information for bureau personnel to plan, evaluate and quantify inspection information; however, we found that the Master Strategic Plan's goal of reporting outcomes in addition to program impact and effectiveness has yet to be accomplished. Lastly, building and property managers of high-rise residential buildings responding to our survey reported nearly unanimous satisfaction with their fire code inspections, attesting to the Fire Prevention Bureau's efforts and the educational value of routine fire code inspections.

A systematic approach in the collection of fire inspection data is lacking

According to the National Fire Protection Association (NFPA), cities that defined fire inspectors' duties in terms of geographic areas instead of particular buildings to be covered appeared to be more successful in inspecting all buildings. In its report, *Fire Code Inspections and Fire Prevention: What Methods Lead to Success?*, the NFPA notes that an area approach, providing systematic coverage for entire city blocks or streets with each inspection cycle, provides an opportunity to locate buildings that were not previously inspected because the building was either unused or unnoticed.

Alternatively, when inspectors' assignments were generated from a computer listing of previous years' property inspections, even with updates from records on new business openings, properties were sometimes missed. If a business was missed when it opened or when the initial property listing was made, it was likely to be missed in succeeding inspection periods. Thus, NFPA researchers recommend that fire departments assign inspections by geographic areas combined with a systematic street-by-street or block-by-block check-off.

Periodic inspections are tracked manually and electronically

At the beginning of our fieldwork, the Fire Prevention Bureau explained that it is unable to confirm compliance with the statutory requirement to conduct fire code inspections every two

years for buildings, including high-rise residential buildings, because it cannot confirm that its inventory of buildings is complete and accurate. Fire inspection reports and related information are maintained in the bureau's paper files organized by the real property tax assessment coding system or tax map key number and electronic files in the Fire Inspection Database capture basic inspection data from completed reports from July 1, 2007 to the present. In response to the fragmented paper and electronic sources of fire inspection report information, the bureau's code enforcement captains have developed separate approaches to manage their inspection workloads best suited for their inspection team, code jurisdiction and their other responsibilities and priority assignments. In addition, the captains reference the risk level by occupancy matrix to prioritize inspections of occupancies with the highest risk to the community.

We found that each of the supervisory captains in the Code Enforcement Support Section track and schedule fire code inspections in a different manner using both manual and electronic means. One captain uses maps to assign block-to-block fire inspections and uses the Fire Inspection Database as this code's primary reference for current inspections. Also, the bureau's fire inspection report files are reviewed to research a building's inspection history and status.

Two captains have developed their own spreadsheets to manage and schedule fire inspections in their respective code jurisdictions. Each explained that their spreadsheets differ, but both are useful to their inspectors for quick reference, providing information for tracking such as tax map key number, addresses, building name, inspection status, inspection date, and satisfactory or unsatisfactory inspection rating. However, both captains also noted that because their spreadsheets do not have data on all buildings that require inspections or information on violations cited, a building's hard-copy file is also reviewed for previous fire inspection report data and other related information. The code enforcement inspectors are responsible for entering the bureau's fire inspection report data into the Fire Inspection Database.

Despite these efforts to cross-check and verify various sources of inspection report data, an incomplete database of all high-rise residential buildings and inspection scheduling methods may also contribute to missed inspections.

Methods for scheduling fire inspections and an inaccurate inventory may contribute to missed inspections

Our survey of a random sample of 100 high-rise residential buildings was consistent with the captains' review as we also found that 39 percent of high-rise residential buildings have not been inspected within the two-year statutory time frame. In addition, among our random sample were five high-rise residential buildings that were not on the captains' lists. We could not identify the number of missed inspections from our sample attributed to each of the bureau's three codes jurisdictions, and therefore could not compare whether the use of maps or which of the spreadsheets had a better outcome in accomplishing timely inspections at the time of our survey. However, we note that only one code jurisdiction uses a block-to-block approach to managing inspections similar to the NFPA's recommended geographic area and a block-by-block approach, and has the goal of having a complete inventory of all buildings in that code jurisdiction so that all buildings inspected will have a record in the Fire Inspection Database.

In contrast, the spreadsheet approach is described as an individual process that works for the code jurisdiction team. Using their spreadsheet to track inspection status, the scheduling process tends to be based on what was done last, new inspections and the risk level, such as the R-1 residential occupancy category that includes high-rise residential buildings, followed by commercial buildings, and so forth.

With each code jurisdiction having its own approach combined with the need to access hard copy and electronic data to track and manage fire inspections, and the inherent limitations underscore the importance of completing the Fire Inspection Database and ensuring that it has a complete and accurate list of all high-rise residential buildings on O'ahu. Without a complete and accurate list of all high-rise residential buildings on O'ahu, the bureau cannot reliably report the extent to which fire inspections are conducted within the statutory time frame. The identification of five high-rise residential buildings in our random sample that were missing from the captains' lists indicates that additional buildings might have missed inspections as well. The NFPA's recommended area approach and proceeding systematically, block-by-block or street-by-street within each of the three code jurisdictions would provide assurance that all current high-rise residential buildings would be verified as inspected especially if a building was missing from existing lists, spreadsheets or the Fire Inspection Database.

Current reporting does not assess fire inspection program effectiveness

Developing goals, objectives and performance measures enable fire departments to analyze the impact, efficiency and effectiveness of their fire prevention programs. In July 2005, the department's self-assessment update prepared for the Commission on Fire Accreditation International (CFAI) reported that their code enforcement program is in alignment with the department's mission statement. However, it also noted that data identifying the number of occupancies inspected within a two-year period cannot be retrieved electronically, thus program effectiveness has been based on a subjective assessment. Currently, the Fire Prevention Bureau's statistical reporting provides limited analysis of its fire inspection program, partly due to the lack of specified data fields in the online fire inspection report and current implementation phase of the Fire Inspection Database. While the department has identified the elements of an effective fire inspection program, performance measures beyond the current reporting of annual and year-to-year totals have yet to be established.

At the time of our fieldwork, Phase 1 of the Fire Inspection Database was completed, so that inspection totals can be compiled from fire inspection reports for the Honolulu Fire Department's annual report. Currently in Phase 2, the database provides the bureau with the ability to quantify inspection data in a recurring format that is submitted for the department's annual report. Data from fire inspection reports entered into the FID consists of basic information including building name and address, tax map key number, number of floors, date of inspection, inspector name, supervisory approvals, fire protection systems, and type of building construction. In addition, there is a *Comment* field providing space to enter narrative inspection information that may be useful for the inspector or captain reviewing the inspection report, such as a discrepancy between a TMK number and address. We also observed that inspectors listed violations and descriptive information in the comment field of the online fire inspection reports. However, data gathering related to inspection program effectiveness was not incorporated into the database's configuration at the time of our fieldwork.

Inspection statistics provide limited analysis of program effectiveness

According to the Fire Prevention Bureau, an effective fire prevention inspection program:

1. reduces the risks of hazards;
2. provides for improved fire-safe structures;
3. reduces fire exposure when a fire occurs;
4. minimizes fire deaths and injuries;
5. reduces hazards for fire fighters when a fire occurs;
6. controls inherent hazards that cannot be eliminated;
7. minimizes property loss;
8. minimizes fire insurance costs;
9. increases community awareness of fire safety;
10. familiarizes fire fighters with fire protection equipment;
11. provides preplanning for rescue or protection of high-risk options;
12. promotes good housekeeping practices;
13. promotes a safe living and working environment; and
14. helps control unsafe actions of employees.

However, the bureau's data gathering and statistical reporting focuses on total counts such as various inspections conducted, but does not assess or measure program effectiveness. The department's procedures require only the reporting of various totals such as the number of occupancy inspections and reinspections, Residential R-1, inspections by risk category, and referrals to the Fire Prevention Bureau. Exhibit 2.4 presents select fire inspection program statistics from HFD's annual reports for FY2005-06 to FY2007-08.

As currently configured, data pertaining to the types of violations cited are not captured in searchable data fields in the FID. While

the annual compilation of statistics from fire inspection reports provide information on inspection activity, the reporting of total counts or number of transactions completed from year to year does not provide data necessary to evaluate the effectiveness of the fire inspection program as identified by the bureau. To maximize the benefits of the Fire Inspection Database, both pertinent performance measures and the requisite data gathering need to be identified and incorporated so that the bureau can access and expand its analysis of the data within its fire inspection reports.

Exhibit 2.4

Selected Fire Prevention Bureau Statistics Inclusive of Residential (R-1) Buildings, FY2005-06 to FY2007-08

	<i>FY2005-06</i>	<i>FY2006-07</i>	<i>FY2007-08</i>
Occupancy Inspections			
Residential "R-1"	310	632	726
Company Inspection Program			
Total Inspections	189,103	181,592	63,949
Plans Checking			
Plans Approved	1,312	1,312	1,930
Fire Investigations			
Structure Fire Investigations	112	117	105
Inspection by Risk Category			
Maximum	1,530	3,762	2,440
High/Special	472	377	592
Moderate/Special	291	197	176
Low	230	76	82
Total Inspection by Risk Category	2,523	4,412	3,290
Other Activities			
Notice of Fire Hazards*	25	1	0
Night Inspections	107	243	99
Referrals to FPB	400	374	315
Re-inspections	2,666	4,061	3,060
Notice of Violations	1,402	2,182	929
Order to Comply**	67	1	1
Final Notice	96	183	158
Total Other Activities	4,763	7,045	4,562

*Note: Discontinued issuance in FY2007-08

**Note: Discontinued issuance in October 2005

Source: Honolulu Fire Department

The Fire Protection Research Foundation recently proposed fire inspection program effectiveness measures

Measures to evaluate the effectiveness of fire prevention efforts, specifically for building inspections that enforce fire-related codes and standards have evolved over the past 30 years. A recent study, *Measuring Code Compliance Effectiveness for Fire-Related Portions of Codes*, published by the National Fire Protection Association and the Fire Protection Research Foundation, proposes program effectiveness measurements for fire code inspections. The study reviewed fire industry inspection practices across the country and assessed fire inspections according to the following categories – inspections of newly constructed buildings, inspections of existing buildings undergoing renovations, and inspections of existing buildings for routine safety checks. Additionally, the study recognized wide variations in inspection practices, who performs inspections, how inspections are conducted, the frequency of inspections, and enforcement styles such as deterrence or consultant-like approaches. Regardless of the chosen inspection practices, the foundation notes that *the intended outcomes remain the same: corrected conditions of hazards that pose a threat to life and property, based on legally adopted code requirements, and motivated owners and building managers that are educated as to hazards and proper methods for prevention.*

The report notes that conducting regular fire code inspections of every inspectable property, maintaining a complete and accurate list, and using fire station companies to conduct a large share of fire inspections are all characteristics associated with fire inspection program effectiveness.

Inspection program effectiveness measures were organized into three areas that evaluate program processes, impacts and outcomes:

- *Process* type evaluations measure the quantity and quality of inspection service or related activity delivered to the target population;
- *Impact* type evaluations measure the presence of hazards in the target population; and
- *Outcome* type evaluations measure fire loss within the target population.

The report further explains that process type evaluations provide a mechanism for testing whether a program is reaching the target

population which further underscores the importance of ensuring the completeness and accuracy of information in the current database and the necessity for continued monitoring of data for accuracy and reliability. Inspection data linked to program outcomes provide a mechanism for reviewing information that determines how well a program achieves its goals such as reducing fire loss while impact data and evaluations provide information in terms of successes. We believe the proposed measures provide a useful framework to evaluate the performance and effectiveness of a fire inspection program and related fire prevention activities.

Survey affirms education and safety benefits from periodic fire code inspections of O'ahu's high-rise residential buildings

The Office of the City Auditor sent a questionnaire to building/property managers at a random sample of high-rise residential buildings to obtain their input regarding the fire code inspections for their buildings conducted by the Honolulu Fire Department. One part of the questionnaire provided a rating system regarding their satisfaction with the Honolulu Fire Department's fire code inspections conducted for their high-rise residential building ranging from "1" being *very satisfied* to "4" being *very dissatisfied* for the following three inspection-related elements:

1. Timeliness of inspection(s) within the two-year timeframe.
2. Information received from fire code inspectors to resolve violations.
3. Amount of time allotted to comply with recommended corrective actions.

Respondents expressed nearly unanimous satisfaction with timeliness, information to resolve violations and the amount of time allotted to comply with the recommended corrective actions regarding their experience with fire code inspections at their high-rise buildings. Of the responses from building managers, 57 out of 64, or 89 percent, selected *very satisfied* or *satisfied* with the timeliness of inspections. Regarding the information they received to resolve violations, 59 out of 64, or 92 percent, noted *very satisfied* or *satisfied*. Similarly, 58 out of 64, or 91 percent, were satisfied with the time allotted to comply with the recommended corrective actions. Interestingly, all 3 of the respondents from buildings that had *unsatisfactory* fire inspections rated their inspection experiences as *satisfied* or *very satisfied*. Those who did not submit responses to this portion of the survey indicated that they were not present when the last fire inspection was conducted or that they were too new to comment.

Among the comments provided by building managers, were those that convey the value of fire hazards education resulting from the fire inspectors' efforts:

- *My inspector has been prompt; explained any violations needing correction; returned for reinspection on date promised.*
- *I had to clean out flammable items from electrical room; (electrical) panels have to be accessible.*
- *Inspector is very thoughtful and takes his time to fully explain not only the violation but what needs to be done to correct it.*
- *Inspectors were very courteous, polite, informative, and allowed reasonable, ample time (was given) for my corrective actions to comply with the regulations.*
- *(The inspector informed me that the) exit door should not be locked from the inside and that a key was needed. (The manager had a) locksmith fix the lock and appreciated the thorough review by HFD fire inspectors.*
- *Inspectors have been very courteous, very helpful in explaining violations and reasonable in their expectations concerning compliance.*
- *The inspector was very courteous and professional. He was very informative and knowledgeable. He gave clear and precise instructions regarding safety issues and provided helpful ideas to encourage our community to comply with safety requirement(s).*
- *(The inspector) provided written detail with multiple options. There were two major corrections needed; (the inspector) gave ample time as complications were encountered and followed up regularly to ensure progress was being made.*

Our final observation from the survey pertains to responses from eight building managers which indicated possible confusion about inspections conducted by the Fire Prevention Bureau required every two years, inspections conducted annually by local fire stations under the Company Inspection Program, and the annual testing of a building's fire protection equipment, e.g. fire alarms, etc. by commercial inspection companies. Ensuring that building managers understand the purposes and frequency of fire code and related inspections and testing warrants consideration.

The OCA survey of building managers and the fire inspections we attended affirm that routine inspections by HFD's Fire Prevention Bureau inspectors are beneficial and have an impact on risk reduction through the discovery and correction of fire hazards that pose a threat to life and property. The knowledge gained by building managers regarding fire safety issues during the walk-through of their high-rise building and the sharing of information reinforces the educational objective of the fire inspection program.

Conclusion

While the Honolulu Fire Department has invested considerable time and resources in various database/records management systems since earning accreditation in 2005, it still cannot comply with the statutory inspection requirement. The department cannot confirm that it has a complete and accurate inventory of high-rise residential buildings and other occupancies, and therefore cannot confirm that all required inspections are being completed within the statutory time frame. The present Fire Inspection Database appears workable, though it is currently in implementation and all pertinent information from all of the inspection reports are not in the database.

We found that a cumbersome and complicated paper-based inspection record-keeping system in combination with inaccurate and incomplete information on all residential high-rise buildings in the Fire Inspection Database hampers the department's ability to effectively track routine inspections within the specified statutory time frame. The list generated in December 2008 with the assistance of the Fire Prevention Bureau, the Department of Planning and Permitting and the Department of Budget and Fiscal Services for our survey of high-rise residential building/property managers yielded a useable list and useful information related to refining future lists of high-rise residential buildings and other occupancies. However, when the bureau's captains reviewed this list of 646 high-rise residential buildings with their records, they found that 39 percent had not been inspected within the two-year statutory time frame; and we also found that among our random sample, five buildings were missing from the captains' existing lists. We found that a decade has passed since the Honolulu Fire Department last confirmed it had a complete and accurate list of building occupancies. A consistent, systematic approach such as the National Fire Protection Association's recommendation for a block-to-block or street-by-street system, currently used in one code jurisdiction, warrants consideration for adoption by all three Fire Prevention Bureau code jurisdictions to

confirm that the Fire Inspection Database has a complete and accurate inventory of high-rise residential buildings and other occupancies on O'ahu.

As currently configured, potentially useful information such as comments on violations cited and data pertaining to types of violations cited are not captured in searchable data fields in the FID. While the annual compilation of statistics from fire inspection reports provide information on inspection activity, the reporting of total counts or number of transactions completed from year to year does not provide data necessary to evaluate the effectiveness of the fire inspection program as identified by the bureau. To maximize the benefits of the Fire Inspection Database, both pertinent performance measures and the requisite data gathering need to be identified and incorporated so that the bureau can access and expand its analysis of the data within its fire inspection program reports.

The main purpose for conducting fire inspections for compliance with fire codes is to discover and correct conditions that pose threats to life and property, and to motivate owners and building managers to prevent future hazards. Survey responses from building and property managers indicated nearly unanimous satisfaction with the fire inspections conducted by the Fire Prevention Bureau's code enforcement inspectors regarding timeliness, the information they received to resolve violations, and the amount of time allotted to comply with the recommended corrective actions. The favorable responses attest to the bureau's fire inspection efforts and the educational value of routine fire code inspections.

Recommendations

The Honolulu Fire Department should ensure that the Fire Prevention Bureau:

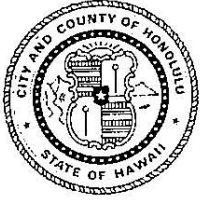
1. Completes the Fire Inspection Database and addresses the following:
 - a. establishes a process to include fire inspection data prepared by the bureau's Plans Checking Section for new buildings and major building renovations,

- b. establishes a systematic approach such as the National Fire Protection Association's recommendation for block-to-block or street-by-street schedule for all FPB code jurisdictions to verify that the Fire Inspection Database has a complete and accurate inventory of high-rise residential buildings and other occupancies on O'ahu,
 - c. has sufficient resources and inter-agency assistance to confirm that the Fire Inspection Database has a complete and verified count of all high-rise residential buildings, and
 - d. ensures that procedures for consistent, complete and accurate data entry, ongoing error testing and verification, are established and implemented for the Fire Inspection Database;
2. Identifies and establishes meaningful measures of program effectiveness and incorporates requisite data gathering into the Fire Inspection Database and online reports for the fire inspection program; and
3. Clarifies for building/property managers the purposes of inspections conducted by the Fire Prevention Bureau and local fire companies under the Company Inspection Program, and the testing of fire prevention systems by commercial inspection companies and how often these should take place.

Response of Affected Agency

Comments on Agency Response

We delivered copies of the confidential draft report to the Honolulu Fire Department on March 29, 2010 for review and comment. A copy of the transmittal letter is included as Attachment 1. On April 6, the department submitted its written response and we have incorporated the department's response as Attachment 2. In his response and on behalf of the department, the fire chief provided information on the audit's recommendations and estimated completion dates. Overall, the department agreed with the majority of the report's recommendations. The department noted its disagreement with recommendation 1.b. The department's disagreement is that it has a geographic approach in place and is used by the Fire Prevention Bureau code jurisdictions to verify these occupancies. We stand by the information provided to us during our fieldwork. We acknowledge the reasons why the total number of high-rise residential buildings and occupancies can change, however, since we found errors, omissions, inconsistencies, and the identification of five buildings missing from the bureau's lists and databases, resulting in an inaccurate inventory, our main point in the recommendation for the department to establish a systematic approach to maintain a complete and verified total in the Fire Inspection Database remains. We are encouraged by the department's agreement with the remaining recommendations as it reports efforts are underway to ensure continuous improvement of the inspection database for ease of use, data validity, reporting and analysis scheduled for implementation by January 2011. We note that the department's response also included additional information, many of these were outside the time frame and/or scope of this audit, for which we offer no comment. Finally, we appreciate the clarifying information and comments provided by the department and no substantive changes were made to the final report.



LESLIE I. TANAKA, CPA
CITY AUDITOR

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CITY AND COUNTY OF HONOLULU
1001 KAMOKILA BOULEVARD, SUITE 216, KAPOLEI, HAWAII 96707 / PHONE: (808) 768-3134 / FAX: (808) 768-3135

March 29, 2010

COPY

Fire Chief Kenneth G. Silva
Honolulu Fire Department
626 South Street
Honolulu, Hawai'i 96813

Dear Chief Silva:

Enclosed for your review are two copies (numbers 12 and 13) of our confidential draft audit report, *Audit of the Honolulu Fire Department's Fire Code Inspection Program for High-Rise Residential Buildings*. If you choose to submit a written response to our draft report, your comments will generally be included in the final report. However, we request that your response address each audit recommendation as follows:

1. Whether you agree or disagree with the audit recommendation,
2. If you agree with the recommendation, please detail your corrective action plan, and
3. The date you expect to implement your corrective action plan.

Please submit your response to my office no later than 12:00 noon on Tuesday, April 13, 2010.

For your information, the mayor, managing director, and each councilmember have also been provided copies of this **confidential** draft report.

Finally, since this report is confidential, still in draft form, and changes may be made to it, access to this draft report should be restricted to those assisting you in preparing your response. Public release of the final report will be made by my office after the report is published in its final form.

Sincerely,

A handwritten signature in cursive script, appearing to read "Susan Hall", is written in black ink.

Susan Hall
Audit Manager

Enclosures

HONOLULU FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

636 South Street
 Honolulu, Hawaii 96813-5007
 Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd

MUFI HANNEMANN
 MAYOR



KENNETH G. SILVA
 FIRE CHIEF

ROLLAND J. HARVEST
 DEPUTY FIRE CHIEF

April 6, 2010

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C & C OF HONOLULU
 CITY AUDITOR

Ms. Susan Hall, Audit Manager
 Office of the City Auditor
 City and County of Honolulu
 1001 Kamokila Boulevard, Suite 216
 Kapolei, Hawaii 96707

Dear Ms. Hall:

Subject: Audit of the Honolulu Fire Department's (HFD) Fire Code Inspection Program
 for High-Rise Residential Buildings

In response to your letter dated March 29, 2010, regarding the above-mentioned subject, the following is our response to the recommendations listed on pages 41 and 42:

1. *The HFD should ensure that the Fire Prevention Bureau (FPB) completes the Fire Inspection Database (FID):*

The HFD conceptually agrees with the recommendation to "complete" the FID; however, total completion of the FID may not be achieved, as it is a continuous process that is contingent on two primary factors: a) the constantly changing inventory of buildings and occupancies on Oahu, as new construction and renovations to existing buildings occur and b) the ongoing and collaborative efforts between the HFD the Department of Information Technology (DIT).

The FID is currently in its second iteration since its inception in late 2007. Improvements, such as ease of use, additional information to increase data validity, and enhanced reporting features and analytics, are scheduled for implementation in January 2011. These improvements are more precisely aligned with the HFD's Master Strategic Plan, will facilitate an increased compliance with Chapter 132-6 of the Hawaii Revised Statutes (HRS) and the Revised Ordinances of Honolulu, and are responsive to external feedback from organizations such as the Commission on Fire Accreditation International.

- a. *establishes a process to include fire inspection data prepared by the bureau's Plans Checking Section for new buildings and major building renovations,*

The HFD agrees with the above-mentioned recommendation. Our short-term solution is to enter fire inspection data for new or renovated buildings into the FID upon approval of the Certificate of Occupancy. This could be deployed as early as July 2010.

Our long-term solution is to develop a connection between the Department of Planning and Permitting's (DPP) Public One-Stop Service system and the FID in order that fire inspection data for new and renovated buildings automatically populates the FID. This will address potential problems, such as data duplication and redundant tasks.

In addition, this solution could be leveraged to provide the same information to our fire suppression personnel via Honolulu Online System for Emergency Services (HOSES) alerts, thereby increasing awareness of new construction or renovations for the respective fire company's areas. This will require further discussion and planning.

- b. *establishes a systematic approach such as the National Fire Protection Association's recommendation for block-to-block or street-by-street schedule for all FPB code jurisdiction to verify that the FID has a complete and accurate inventory of high-rise residential buildings and other occupancies on Oahu,*

The HFD disagrees with this recommendation, as a geographic approach is in place for FPB code jurisdictions to verify that the FID has a complete and accurate inventory of occupancies on Oahu. According to three Fire Captains in our Codes sections, the schedule varies from block-to-block and street-by-street according to geographic density and occupancy type. The exception to this approach is when high-risk occupancy types require frequent inspections, such as public schools, institutions, and assemblies with a capacity of 300 or more.

The mandated annual inspection of schools is conducted in cooperation with the State of Hawaii, Department of Education. During October and November, the HFD concentrates on the inspection of these schools and completes them prior to reverting to the geographical approach. This is achievable because the inventory of schools is well-established by both agencies, and no schools are overlooked.

- c. *has sufficient resources and interagency assistance to confirm that the FID has a complete and verified count of all high-rise residential buildings, and*

The HFD agrees with this recommendation; however, additional funding is difficult to obtain due to forecasted budgetary constraints on City and state agencies that could potentially assist the HFD. One option is to seek alternative funding through the U.S. Department of Homeland Security's Homeland Security Grant Program (HSGP), which the HFD has been successful in acquiring to finance other programs and initiatives.

The HFD also intends to seek other HSGP grant opportunities in September 2010 and will continue to work with the DPP, the DIT, and the Department of Budget and Fiscal Services in sharing relevant data that is useful for these processes and other safety measures for the community. Compliance with the recommendation for interagency assistance may involve data sharing with an existing data repository or geographic information system, which could be implemented as early as January 2011.

- d. *ensures that procedures for consistent, complete and accurate data entry, ongoing error testing and verification, are established and implemented for the FID;*

The HFD has multiple procedures in place to ensure consistent, complete, and accurate data entry and ongoing error testing and verification for the FID. Entries made by fire companies are verified by the Company Commander, and Battalion Chiefs (BC) provide managerial oversight to achieve Departmental goals. The FPB conducts weekly administrative and monthly staff meetings to discuss and review these issues as required.

The FPB BC and Captains evaluate the compliance, accuracy, and efficiency of data entry on an ongoing basis. Corrections and improvements are made through Departmental training, notification, and management oversight. The FPB also works with the DIT to implement desired upgrades to the system, one of which was established on July 1, 2009. The next upgrade is scheduled for implementation in January 2011.

- 2. Identifies and establishes meaningful measures of program effectiveness and incorporates requisite data gathering into the FID and online reports for the fire inspection program; and*

The HFD agrees with this recommendation and intends to spatially display FID information on the HOSES map. The capability to view parcels on the HOSES map with completed inspections, inspection violations, and inspections due based on a defined cycle should facilitate compliance with this recommendation. This capability should be deployed to HOSES by January 2011.

These same cycles will be included in the updated FID as reports or queries of historical inspections completed in previous years. Efforts have also commenced to enhance the FID's reporting capability, which will provide information on conformity with inspection key performance indicators.

The FPB is redesigning fire inspection forms and the FID so that required and collected information on the fire inspection report (FIR) is entered into searchable data fields in the FID. This will allow effective analysis of the prevention programs and efficient targeting of work efforts. The HFD envisions that this process will eliminate duplicate entries by merging these tasks as technology and funding become available. January 2011 is the targeted date for completion of this capability.

- 3. Clarifies for building/property managers the purposes of inspections conducted by the FPB and local fire companies under the Company Inspection Program, and the testing of fire prevention systems by commercial inspection companies and how often these should take place.*

The HFD agrees with this recommendation and provides explanations to property owners and managers at the time of visits. Local fire companies conduct preplan efforts to gain familiarity with the properties and potential fire hazards or complications to emergency operations. Fire Inspectors schedule appointments to inform responsible parties that fire code compliance inspections are being conducted on the maintenance and testing operations of third-party fire protection companies in addition to providing information to high-rise managers of the inspection process. The HFD intends to update its website to improve clarity regarding the purposes and frequency of inspections by July 2010.

In conclusion, the Fire Code Inspection Program for high-rise residential buildings is only a single component of the holistic and comprehensive strategy the HFD engages in

to address high-rise residential building fire safety. The following is a list of remaining components to ensure fire safety in residential high-rise buildings:

- Fire Inspection Timeline. Through the State Fire Council (SFC), the HFD proposed legislation to revise Chapter 132, HRS in 2009. This legislation passed and revised the requirements for the fire inspection cycle from a maximum of two to five years at the Fire Chief's discretion.
- State Fire Code Adoption. Through the SFC, the HFD adopted the State Fire Code (National Fire Protection Association 1, Uniform Fire Code, 2006 edition) with amendments. Following a public hearing, Governor Linda Lingle enacted the first statewide code effective January 1, 2010. The adoption process for the State Fire Code includes selecting an international model code, developing amendments suitable for Hawaii, and holding a public hearing. This process is repeated to include applicable adjustments to the code for the City and County of Honolulu.
- Legislation for High-Rise Retrofit Sprinklers. The HFD continues to support legislative bills to facilitate the enactment of retrofitting fire sprinklers for high-rise residential buildings.
- Fire Company Preplanning Program. If a fire company observes a potential fire code violation within a high-rise building, the violation is brought to the responsible party's attention and referred to the FPB.
- Fire Protection Company Oversight. The FPB provides oversight of fire protection companies regarding multiple systems, including built-in fire protection and extinguishment systems, fire alarm systems, and fire hydrants. This includes testing and licensing for approval to conduct this work, witnessing of tests, and auditing of inspection and maintenance by these third-party companies.
- HOSES Upgrades. Upgrades are planned for implementation this month and will include spatial display of risk by parcel based on occupancy type.
- FID Upgrades in Progress. In addition to the updates listed in item 1, features and data fields that mirror information captured by FIRs are expected to be added.

Ms. Susan Hall
Page 6
April 6, 2010

- Interagency Data Sharing. The HFD remains committed to seeking partnerships with other agencies toward the development of a complete, islandwide high-rise building inventory.
- Public Education. This includes public information messages via the media or neighborhood board meetings, the HFD's website, the Fire Fighter's Safety Guide, the Smoke Alarms For Everyone program, and other forms of public education and communication. HFD personnel continually use opportunities to interact with the public and disseminate messages regarding fire prevention for high-rise residential buildings and other fire safety measures.

Thank you for this opportunity to provide comments. Should you have any questions, please call BC Socrates Bratakos of our FPB at 723-7151.

Sincerely,



KENNETH G. SILVA
Fire Chief

KGS/SB:cn

cc: The Honorable Mufi Hannemann, Mayor
Kirk Caldwell, Managing Director
The Honorable Todd Apo, Chair
The Honorable Nestor Garcia, Vice Chair
The Honorable Ikaika Anderson, Councilmember
The Honorable Romy Cachola, Councilmember
The Honorable Donovan Dela Cruz, Councilmember
The Honorable Charles Djou, Councilmember
The Honorable Ann Kobayashi, Councilmember
The Honorable Gary Okino, Councilmember
The Honorable Rod Tam, Councilmember