

**TEXAS DEPARTMENT OF INSURANCE
STATE FIRE MARSHAL'S OFFICE**



**Annual Report Regarding Findings in
Conducting Inspections**

December 2012
Austin, Texas

Introduction

Texas Government Code, Section 417.0081(c), requires the State Fire Marshal's Office (SFMO) to submit an annual report on fire safety in state-owned and state-leased buildings. This report satisfies that requirement.

SFMO has been inspecting state properties for decades under the authority of Texas Government Code, Section 417. Most of this report will address the fire safety status of state-owned and state-leased buildings under the charge of the Texas Facilities Commission (TFC). This report also includes information on the inspection of state-owned buildings that are not under the control of TFC. It is SFMO's goal to ensure that all state-owned and state-leased buildings provide a safe environment for state employees and the citizens that they serve.

SFMO has recently adopted rules for administrating the new responsibilities laid out in the 2011 Sunset legislation. These rules went into effect on November 8, 2012, and include guidelines for establishing a risk based approach to scheduling inspections of TFC owned, managed, and leased facilities; the adoption of the 2012 edition of NFPA 101, *Life Safety Code*, as the inspection standard; and provisions for charging a fee for the inspection of certain private facilities.

Executive Summary

Achieving full compliance with fire and life safety standards in TFC owned and managed buildings continues to be a challenge. SFMO is currently working with TFC and SORM to educate and change the behavior of tenants who are not complying with life safety standards and TFC's tenant manual. While funding continues to be a challenge, SFMO is working with TFC to identify the facilities and deficiencies that pose the greatest risk to ensure that available funds are spent as effectively as possible.

SFMO's efforts in the inspection of spaces leased by TFC have been successful. Early coordination with local AHJs, as well as cooperation from TFC, has led to an effective process for inspecting leased buildings and enforcing the *Life Safety Code*. SFMO continues to collect the data and information it needs to develop a comprehensive risk-ranking program similar to the one used to schedule inspections for TFC-owned facilities. SFMO collects most of this data during the inspection process and will use it to more effectively schedule subsequent inspections.

It is important to note the contrast in enforcing the *Life Safety Code* in state-owned buildings versus its enforcement in TFC leased buildings. SFMO has limited enforcement authority in state-owned buildings. Privately owned buildings are subject to local building and fire ordinances and contractual obligations, whereas state-owned buildings are not. SFMO continues to work with TFC, SORM, and occupying state agencies to make the most effective use of the resources available, to ensure that state buildings are a safe environment for state employees and the public.

Historically, SFMO has regularly inspected just under three quarters of the total state building inventory. SFMO plans to begin regular inspections of all state-owned buildings. Under current conditions, if SFMO inspects residential and other high-risk facilities on a one- to three-year cycle, all other buildings would likely be inspected only once every 14 years. SFMO feels that 14 years is far too long for any building to go without an inspection. More frequent inspections have been shown to reduce fires. SFMO's goal would be to inspect all facilities no less than once every five years; however, this would require greater resources than SFMO currently has available. A five year inspection cycle would require SFMO to hire four additional inspectors.

A recurring theme throughout this report is the availability of useful data. Information on inspection findings is largely based on anecdotal information, since SFMO's current inspection database does not permit queries for detailed information on inspection findings and enforcement rates. SFMO is currently studying upgrade options for its inspections database that would enable SFMO to track detailed inspection finding information and compliance rates. An updated inspections database can also more readily provide better information, which will make the execution of SFMO's risk ranking systems more detailed and more efficient. Information on the number and types of state-owned and state-leased buildings to date has been compiled from multiple sources and has varied in detail. One of the continuing issues with scheduling inspections of TFC leased spaces on a risk-based priority is that the information currently available on these facilities is minimal, and SFMO can only collect detailed information useful for a risk analysis after inspecting the site.

TFC Owned Buildings

Procedure

Working through a memorandum of understanding (MOU) with TFC and the State Office of Risk Management (SORM), SFMO regularly inspects state-owned buildings and monitors fire safety improvements. Each agency assumes certain responsibilities through the MOU, and the agencies meet quarterly to ensure ongoing cooperation and progress.

In accordance with Texas Government Code, Section 417.0081(b), SFMO schedules periodic inspections of TFC buildings using a risk based approach. SFMO uses a Fire Risk Ranking method to assign buildings a "relative risk" value that is used to determine the frequency of inspection for individual buildings. A building's relative risk value takes into account a number of factors, including building use; occupant load; building height; fire protective systems and features; and findings from previous SFMO inspections. SFMO's risk ranking system assigns various weights to these factors to determine the relative risk value for the building. Facilities with a higher relative risk would be inspected more frequently than those with a low relative risk. SFMO also provides information from the risk ranking system to TFC and SORM to keep them up to date on which facilities need the most attention with regard to fire and life safety concerns.

SFMO coordinates with TFC building management when scheduling inspections, in order to ensure access to all building areas and necessary equipment. After the inspection is completed, SFMO provides inspection reports to TFC and SORM. SFMO may also provide a copy directly to the heads of agencies occupying the buildings. At that point it is TFC's responsibility to generate work orders to correct any findings, coordinating with occupants as necessary, or to request additional funding for repairs that may not be possible in their current budget.

Findings

The following buildings, among others, have been identified as having a high potential risk based on the SFMO's risk ranking system:

1. Lyndon B. Johnson Building
2. William P. Hobby Building
3. Department of State Health Services, Tower Building
4. William B. Travis Building
5. Robert. D Moreton Building
6. Brown-Heatly Building
7. Price Daniel Sr. Building
8. John H. Winters Building
9. Steven F. Austin Building
10. Sam Houston Building

These buildings have several common features and deficiencies that contribute to their elevated level of risk. All of these buildings, with the exception of the John H. Winters Building, are high rise structures that pose a number of unique challenges for life safety and fire protection. These buildings are also all very large buildings with high occupant loads. SFMO inspections have found numerous code violations in these buildings, including compromised fire barriers; improper locking systems that can hinder egress; and deficiencies in building fire alarms, fire sprinklers, and fire suppression systems.

The top three buildings on this list all feature notable issues that result in significantly higher levels of risk than do other state buildings. The Department of State Health Services' Tower Building is the only high rise building in the group of TFC managed facilities that lacks any fire sprinkler system coverage. Sprinkler systems are a crucial part of the overall fire protection scheme in high rise structures. There are also a number of deficiencies with regard to the building's egress facilities, including excessive dead end corridors and unsealed penetrations. The Lyndon B. Johnson Building is at an elevated level of risk because of incomplete sprinkler protection (the entire fourth floor lacks protection), compromised fire barriers, and non-compliant locking and security arrangements throughout the building that may prevent occupants from exiting the building in a timely manner. The William P. Hobby Building is at an elevated level of risk because of an aging and inadequate fire alarm system and widespread penetrations of fire barriers. SFMO understands that many of these issues have been funded and are in varying stages of corrective action.

The most prominent issues throughout state-owned buildings include the potentially unsafe use of space by building tenants. Improper use of extension cords, power strips, and food warming and cooking equipment are the most common findings. According to statistics from the National Fire Protection Association, electrical distribution and cooking equipment are identified as the source of over a third of all office property fires (Evarts 2010).

Cooking equipment is the leading cause of fires in the workplace, accounting for 25 percent of fires in office buildings. Cooking and food warming equipment should only be present in designated areas. A third of all office fires originating from cooking equipment occurred outside of a kitchen or designated cooking area. Work spaces often contain a large amount of combustibles that create potential for ignition and can contribute to the severity of a fire incident.

The second leading cause of fires in office spaces is electrical distribution equipment. Building electrical systems and equipment are designed for specific maximum loads. When the design loads are exceeded, wiring and other components can overheat and start a fire. The most common finding during SFMO inspections is interconnected power strips. Occupants typically do this to increase the number of receptacles available for use. Doing so puts strain on the building's electrical system as well as the power strips themselves. There have been a number of recent events in state buildings where an overloaded power strip has failed. Fortunately there have been no incidents involving injury or major damage to state property. Extension cords are also commonly used to provide power to appliances in areas of an office where there is no nearby receptacle. Extension cords are not designed to be under continuous electrical load and should not be used in the place of permanent wiring. When additional receptacles are needed in an area, building management should be contacted to install the proper fixtures. The use of cooking equipment and other personal electrical appliances that draw large current loads, such as personal refrigerators and space heaters, may also contribute to electrical distribution fires. Office building electrical systems are designed for a specific load that typically consists of computers, printers, and other miscellaneous office appliances. When each occupant has their own microwave, toaster, coffee pot, heater, or refrigerator, the design loads are typically exceeded and can cause stress on the building's electrical system over time.

Obtaining compliance in this area has been challenging because of lack of education on these issues, turnover in agencies, and the frequent reconfiguration of office spaces. SFMO, TFC, and SORM have been working together over the past year to develop programs to address these tenant issues. SORM has produced a video on workplace fire safety that is available for safety officers from state agencies to distribute to their staff. Often, employees are not aware of the hazards associated with misusing the electrical facilities in their workspaces. Hopefully, this video will prompt employees to evaluate their individual work areas and make changes where necessary. TFC has also recently updated its tenant manual to add further clarification on the proper use of electrical utilities, and the misuse of unauthorized appliances. SFMO will also include more detailed information on tenant-related issues in inspection reports, so that TFC can directly issue notices to the leadership of tenant agencies, informing them of fire code violation issues. TFC will copy SFMO and SORM on these notices so that SFMO can follow up directly with agency leadership, with the hope of achieving greater compliance.

Timely correction of code violations in TFC owned and managed buildings has historically been a challenge. SFMO's primary mechanism for enforcing the code is through Government Code §417.008. Generally, the SFMO does not directly enforce an order requiring remedial action. Enforcement of a Fire Marshal's Order issued in accordance with §417.008 may require assistance from the Office of the Attorney General to secure an injunction. This process is not only extremely time consuming and costly, but also impractical for correcting the majority of noncompliant conditions found in the course of a typical inspection. The SFMO has never before sought legal assistance to enforce a Fire Marshal's Order against another state agency. Additionally, TFC and occupying agencies are often limited in terms of available funds for costly corrections, and in some cases there has been confusion as to which agency is responsible for correcting certain problems (TFC or the tenant agency). As a result, there are numerous inspection findings that have remained uncorrected over several years.

TFC Leased Buildings

Updates on Challenges Foreseen in the 2011 Report

In the 2011 report, SFMO identified a number of potential challenges involved with the inspection of leased buildings.

The information currently available on state-leased buildings continues to be minimal, making it impractical to schedule inspections on a comprehensive risk based method. SFMO is currently scheduling initial inspections of the leased inventory with priority given to the spaces with the largest amount of square footage leased, and those buildings that may be located in the geographical area of other inspection priorities. As the inspections are conducted, SFMO is collecting further information on the buildings, as well as inspection findings to be incorporated into a risk based method for prioritizing further re-inspections, once the entire inventory has been inspected.

There were some initial concerns that SFMO inspectors coming into local jurisdictions with established fire code enforcement programs might create a number of issues, including conflicts between state and local inspectors, and conflicting requirements for building safety features. To date there have been no major conflicts with local code enforcement officials. There have been a few incidents where the SFMO standard of inspection has required features beyond the locally adopted codes, however these situations have all been resolved without conflict.

While the mandatory inspection of TFC leased facilities has resulted in significant additional workload, adding over 10 million square feet of inspections to SFMO's list of regularly conducted inspections, SFMO inspectors have been able to schedule these new inspection duties around existing responsibilities and other annual or ongoing inspections.

Procedure

Many buildings that are leased by TFC for state agencies contain other tenant areas as well. SFMO has limited its primary inspections to the actual space occupied by state agencies and does not inspect areas occupied by other tenants. SFMO also inspects each building's fire protection systems and means of egress features used by state agencies that may be outside of the space that they occupy, such as stairwells, corridors, and exterior exit doors.

Section 417 of the Texas Government Code directs SFMO to prioritize inspections of TFC leased facilities using a risk based methodology. Fire risk assessments, including the fire risk ranking method SFMO plans to use for prioritizing inspections of leased facilities, require detailed data and information in order to be effective. The current information available from TFC on the leased building inventory is very limited and is not conducive for use in a fire risk ranking system or other risk assessment methodologies. SFMO is currently inspecting the entire leased building inventory and collecting detailed information on each building in the process. This information will be incorporated into a database and fire risk ranking system that will be used for prioritizing future re-inspections of leased facilities. This risk ranking system will be similar to the one currently used for TFC owned and managed buildings.

TFC has agreed to advise SFMO when a lease is being renewed, an agency is seeking new quarters, or when new space is needed. This allows SFMO to inspect prospective properties before a lease is signed and will help determine a schedule for re-inspecting the buildings.

Findings

SFMO inspectors have found that routine maintenance of life safety features and equipment has been lacking in the majority of leased facilities. These features and systems include fire alarm systems, fire sprinkler systems, portable fire extinguishers, fire doors, emergency lighting facilities, and illuminated exit signs. The *Life Safety Code* requires the periodic inspection, testing, and maintenance of these systems to ensure that they will operate effectively when needed. The improper use of electrical facilities by tenants (use of extension cords, interconnected power strips, etc.) has also been widespread, similar to the challenges faced in TFC owned and managed facilities.

When noncompliant conditions are found during inspections, TFC provides a written notification to building owners that they may be in violation of the terms of their lease agreement unless the items noted in SFMO's report are satisfactorily addressed. In the event that an owner does not provide a timely response or chooses not to address the noted fire and life safety issues, TFC will issue an official notice of default and may terminate the lease if the owner continues to be uncooperative. The vast majority of owners have been cooperative and addressed any SFMO inspection findings in a timely manner; there have however been a few facilities with major life safety issues that have resulted in plans to relocate state employees to other facilities.

The Department of Family and Protective Services leased space at 17 South Chadbourne in San Angelo will be vacated by the end of the year. The facility is a six-story building and features only one means of

egress from the upper floors of the building. Building management was also not properly maintaining the building's fire sprinkler system, fire doors, and electrical facilities.

The Texas Department of Criminal Justice (TDCJ) leased space at 1220 Broadway in Lubbock has been vacated, because the owner was unwilling to address the findings outlined in SFMO's inspection report. The facility is a 20-story building with a single means of egress for the upper floors, and lacks complete fire sprinkler coverage.

TFC has also relocated TDCJ from the leased space at 701 Broadway Street in Plainview. The facility is a four story building with an unprotected vertical opening connecting all four stories, created by the sole interior exit stair.

TFC is currently working to find new space for the Office of the Attorney General (OAG) in Wichita Falls. The OAG currently occupies space in a 12-story building at 813 8th Street in Wichita Falls. The building does not have compliant means of egress from the upper floors and is also without a required fire alarm or fire sprinkler system.

The Texas State Securities Board leased space at 916 Main Street in Lubbock was not renewed when the lease expired in September 2012 as a result of findings from SFMO's inspection. The facility is a 12-story building that lacked complete fire sprinkler system coverage and had numerous issues with regard to the maintenance of fire doors and penetrations of fire walls.

TFC is in the process of locating new space in San Antonio for the Texas Department of Insurance and the Texas Department of Banking. The building currently occupied by the two agencies lacks a required fire alarm system.

With the exception of the above-mentioned facilities, enforcement of the *Life Safety Code* has been extremely successful. While SFMO's tools for enforcement are the same as they are for TFC owned and managed facilities, the private building owners have numerous additional incentives to correct noncompliant findings that are not present for TFC owned and managed facilities. Private building owners must often answer to local code officials who have a significant number of tools available to gain compliance, ranging from fines to the direct authority to condemn an unsafe building. Building owners also face a financial incentive in the form of their lease agreement. If building owners do not provide a code compliant facility, TFC may terminate the lease and the building owners would lose an important customer.

State Owned Buildings not Under the Control of TFC

Procedure

Although Section 417 of the Texas Government Code grants the SFMO authority to inspect buildings "under the charge and control of the Texas Facilities Commission," it is important to note that not all

state-owned buildings are under TFC's control. Some examples of these buildings include buildings housing the following agencies:

- Texas Department of Transportation
- Texas Department of Public Safety
- State Preservation Board
- Texas Historical Commission
- Texas Workforce Commission
- Teacher Retirement System
- Employees Retirement System
- Texas Parks and Wildlife Commission
- Texas A&M Forest Service
- State Universities
- Texas School for the Blind and Visually Impaired
- Texas School for the Deaf
- Texas Department of Criminal Justice
- Texas Juvenile Justice Department
- Texas Military Forces
- State Supported Living Centers and Hospitals
- Finance Commission of Texas
- Texas Board of Professional Engineers
- The Alamo

Buildings under the control of TFC represent only a small portion of state-owned buildings. TFC maintains 64 buildings and 18 parking garages totaling 10,868,307 square feet. Based on data collected from the General Land Office and the Texas Higher Education Coordinating Board, there are approximately 15,000 state-owned buildings totaling over 303 million square feet.

Currently, SFMO regularly inspects only a portion of these buildings, including those of state universities, state supported living centers and state hospitals, Texas Department of Criminal Justice (TDCJ), Texas Juvenile Justice Department (TJJD), and certain state preservation board facilities including the Capitol. The number of building inspected on a recurring basis is just over 11,000 buildings. Other agencies' facilities have undergone inspections on a one time basis, including the Texas Board of Professional Engineers, Department of Public Safety, Texas Historical Commission, Teacher Retirement System, and the Employees Retirement System. Some agencies have also had one-time inspections conducted in a limited number of their facilities, including the Texas Department of Transportation, Texas Workforce Commission, and the Texas Military Forces. SFMO estimates that at least 3,600 state owned buildings have never been inspected.

A 1978 study conducted by the National Fire Protection Association and the Urban Institute recommended that all public buildings be inspected on an annual basis, since more frequent fire

inspections have been shown to result in lower fire rates. This is merely a recommendation; while research shows that more frequent inspections yield better results, a best-practice inspection frequency has not been established (Hall et al. 2008). If SFMO were to inspect each state-owned building and space leased by TFC, the number of inspectors would need to be increased nearly threefold. Fire departments throughout the country face similar challenges and annual inspections of all facilities within a jurisdiction are rarely achieved.

SFMO's ultimate goal is to inspect all state owned facilities on a regular basis. In lieu of inspecting all facilities annually, SFMO proposes to use a risk-based approach for establishing a schedule for inspecting all state owned facilities. SFMO currently employs 11 inspectors who can each inspect 530 buildings per year. SFMO inspectors typically devote 60 percent of their time to state-owned and state-leased buildings, meaning that SFMO will be able to conduct approximately 3168 inspections of state-owned or leased buildings per year. SFMO has used the limited information available to propose the following schedule for the inspection of the following state-owned facilities that may pose the greatest risk:

All TDCJ and TJJJ facilities will be inspected once every three years. Detention facilities are unique, in that the fire and life safety program aims to protect occupants in place, rather than to remove them from the building. According to this schedule, SFMO would inspect 1055 buildings at detention facilities each year.

Patient contact areas of state supported living centers, state hospital facilities, and other Health and Human Services Commission facilities that serve patients will be inspected each year. These facilities provide long-term psychiatric care for patients who may not be capable of self preservation and may also need to be protected in place. SFMO estimates that this schedule would require the inspection of approximately 935 buildings each year.

University dorms will be inspected every other year, at a rate of approximately 507 buildings per year. University dorms are residential occupancies, often with high occupant loads, where occupants are transient in nature and may not be completely familiar with a building and its emergency features and procedures.

Residential facilities under the charge of Texas Parks and Wildlife will be inspected once every three years, or approximately 164 buildings per year.

TFC-leased facilities will be inspected once every seven years, once the entire inventory has undergone initial inspections; this is the typical length of a TFC lease for space occupied by state agencies. Under this schedule, SFMO will inspect approximately 114 buildings per year.

After accounting for the critical facilities listed above and other inspection duties, SFMO will be able to conduct annual inspections of approximately 649 other state-owned buildings, meaning that these buildings will be inspected once every 14 years. SFMO feels that 14 years is far too long for any building

to go without an inspection. SFMO recommends that each building (including TFC leased facilities) should be inspected at least once every five years. As previously stated, it has been shown that more frequent inspections lessen the number of fires. Fire safety inspections not only assess the safety of the building and its components, they also promote prevention efforts by providing an opportunity to educate building occupants and management on how they can contribute to a safer environment. A five-year schedule allows SFMO to stay up to date with any building renovations and will keep occupants familiar with SFMO inspectors and life safety guidelines. However, this would require greater resources than SFMO currently has available. A five-year inspection cycle would require 15 inspectors, SFMO currently employs 11 inspectors.

Findings

Of the buildings regularly inspected by SFMO the level of compliance varies. State-run universities generally do an excellent job of maintaining their facilities, from a fire and life safety standpoint. Many universities have embraced the importance of fire protection and have hired their own fire protection professionals or “university fire marshals,” who actively enforce the *Life Safety Code* on campus. There are, however, some universities that have lagged in achieving maintaining a code-compliant campus. The University of Texas at Arlington (UTA) has a number of outstanding issues that have not been addressed, several dating back to inspections conducted in 2006. UTA continues to not acknowledge *Life Safety Code* violations noted in SFMO inspections. SFMO has also noted issues related to routine maintenance of building fire protective features at Sul Ross State University and at the University of Texas at Tyler.

The state schools and hospitals have also generally done an excellent job in maintaining code-compliant campuses. These facilities care for individuals with special needs who may not always be able to care for themselves in the event of an emergency.

TDCJ facilities have had a long history of noncompliance with the *Life Safety Code*. The primary issue is that the majority of TDCJ facilities that require fire alarm systems -- 233 out of 400 facilities -- lack an operational fire alarm system. In many cases TDCJ has issued a “work order” for repairs or new systems; however there has been no further action beyond the issuance of the work order. Many of these work orders are more than 10 years old. The current SFMO administration is working aggressively to address this longstanding issue and has made changes to the administration and policies for the inspection of detention facilities.

References

Evarts, B., *U.S. Structure Fires in Office Properties*, National Fire Protection Association, 2010

Hall, et al., *Measuring Code Compliance Effectiveness for Fire-Related Portions of Codes, Final Report*, National Fire Protection Association & Fire Protection Research Foundation, 2008