



**Texas Department of Insurance**

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April 29, 2005

Dr. James Gaertner  
President  
Sam Houston State University  
P.O. Box 2026  
Huntsville, Texas 77341

Re: Fire Safety Inspection RRO000000005301A

Dear President Gaertner:

Pursuant to 417.08 Tex. Gov. Code and 28 TAC 34.303, a fire safety inspection of the Sam Houston State University was completed on November 17, 2004. A copy of the State Fire Marshal's Office report is attached.

This inspection report includes non-residential and residential buildings.

The State Fire Marshal's Fire Safety Inspection Services Division will be working with Sam Houston State University's Health and Safety Department to establish priorities, timelines and re-inspection schedules.

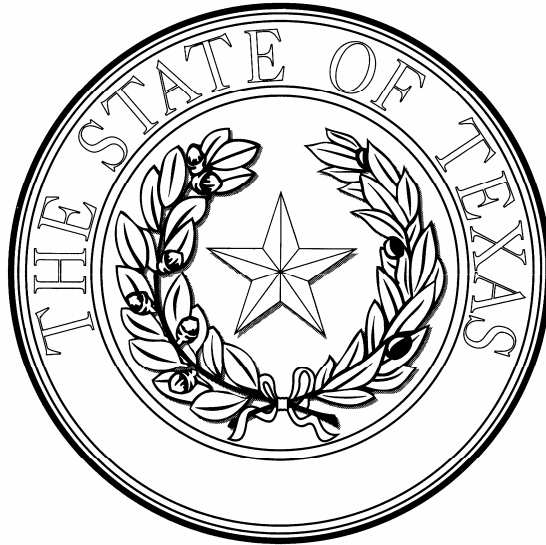
If you have questions concerning this inspection or other matters, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Paul W. Maldonado".

Paul W. Maldonado  
State Fire Marshal

# **Texas State Fire Marshal's Office**



## **Sam Houston State University Fire Safety Inspection Report**

**Executive Summary**



**Building Detail**

Published by the

**State Fire Marshal's Office  
Texas Department of Insurance**

April 2005

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

***GRADUATE ALIVE!***  
**FIRE SAFETY INSPECTION PROGRAM**

**Sam Houston State University**  
**Executive Summary**

The State Fire Marshal's Office has prepared this report to document its recent fire safety inspection of your campus. The State Fire Marshal's Office, through its ***Graduate Alive!*** Fire Safety Inspection Program, continues to work with universities to ensure their environment is as safe as possible from the dangers of fire.

***Graduate Alive! Project Overview***

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The State Fire Marshal's university inspection program, ***Graduate Alive!***, involves a multi-tiered process. The components of the process are as follows:

Each inspection requires an initial survey of each building and subsequent communications with the university to establish timelines and methods concerning corrections.

Each building is re-inspected at various stages of correction and after completion of corrections to verify repairs.

Constant, interim communication is maintained between the universities and the State Fire Marshal's Office to ensure cost effective and prompt compliance.

The inspection program requires ongoing review of campus fire safety efforts to ensure that levels of fire safety achieved are maintained. This protects the lives of university students, staff, and visitors and preserves the state's investment.

***Project Strategy***

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This critical fire safety initiative is a high priority within the state. The Higher Education Coordinating Board reports over 1.1 million students enrolled in Texas institutions of higher education. The 11 Deputy State Fire Marshals participating in the ***Graduate Alive!*** projects have inspected over 1,500 residential buildings housing over 70,000 students. Approximately 2,500 non-residential buildings have been inspected thus far. Facilities are currently

inspected in accordance with the 2003 edition of the National Fire Protection Association's Life Safety Code 101 and various state statutes. Authority for fire safety inspections is found in Chapter 417 of the Texas Government Code.

The State Fire Marshal's Office is mindful of the budget constraints facing the State and the universities. The Fire Marshal's Office will work with your university to prioritize the buildings according to use and severity of fire safety hazards found. Through effective communication with the safety department and administrators of Sam Houston State University, the State Fire Marshal's Office will endeavor to address the most egregious problems first and establish reasonable timelines for all corrections.

***Graduate Alive!*** underscores the commitment of the State Fire Marshal's Office to your university and sets the stage for a long-term, comprehensive and cooperative fire safety endeavor.

### ***Project Update – Sam Houston State University***

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The first priority of the State Fire Marshal, the Higher Education Coordinating Board and the Texas Legislature involves providing fire safe dormitories and other campus residential buildings. The residential buildings operated by Sam Houston State University have been previously inspected. However, a large number of students do reside off-campus. We urge your university to work with state and local fire safety authorities to ensure the safety of all students, faculty and staff. Your university should incorporate a review of fire safety for all Greek or other university affiliated groups that may provide off-campus housing. An annual fire safety inspection report should be required of each organization that provides off campus student housing.

The Sam Houston State University staff greatly assisted the inspection through their professionalism and courteous efforts. The staff facilitated efforts by preplanning the inspection, escorting our inspectors, and conferring with us throughout the entire process. Their efforts and open communication brought the inspection to a successful conclusion. The university system has already begun implementing corrections and policies concerning problems and situations discovered jointly between your staff and the state fire marshal representatives present during the inspection.

Specific building information identified during the inspection is contained in the accompanying Inspection Project Detail Report. These fire safety-related findings generally fit one of the following three categories:

*Construction* – issues such as open stairwells, exit strategies and building materials

*Mechanical* – sprinkler systems, alarm systems, exit signs, and smoke detectors

*Policy/Enforcement* – inspection and servicing of fire safety equipment and systems including fire extinguishers, alarms and detectors, sprinkler systems, emergency electrical generators and other life safety systems. Improper use of extension cords and appliances and blocked exits

To assist university personnel, the Inspection Project Detail Report incorporates building numbers assigned by the university. Breaks in the numerical sequence imply either a lack of violations for that specific building or a number was not assigned by the university and/or obtained during the inspection.

The university staff should disseminate information from this report to the appropriate representatives. It is imperative the university assume an active role in monitoring corrective actions.

## **Summary**

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The State Fire Marshal has previously notified university presidents that the investment being made in fire safety must be sustained. Preventive maintenance programs, educational initiatives, and enforcement of fire safety policies must remain a priority in order to preserve the safe environment being created. Specifically, universities must address the following:

- Maintenance of existing life safety systems such as fire alarms, fire sprinklers, fire extinguishers, etc. performed by the university and its contractors must meet all applicable NFPA standards including service types and intervals. Easily accessible records must be kept. The State Fire Marshal's Office recommends use of service tags and labels similar to those used by private entities for maintenance performed by university personnel.
- Implement and maintain a systematic method of tracking planned changes involving building layouts to prevent adverse affects involving life safety or fire protection equipment. Alterations of a building can easily affect the correct location of exits or effectiveness of fire protection systems. These planned changes should be reviewed and approved by the Safety Office and Physical Plant.
- Ensure all construction and remodeling projects incorporate bringing buildings into compliance with the most current edition of the Life Safety Code.
- Ensure specialized operations (power plant, airport, fuel storage tanks, laboratories, storage facilities, etc.) use both the Life Safety Code and other applicable NFPA standards.
- Conduct frequent inspections of high risk operations (including large areas of assembly) to insure life safety is maintained.

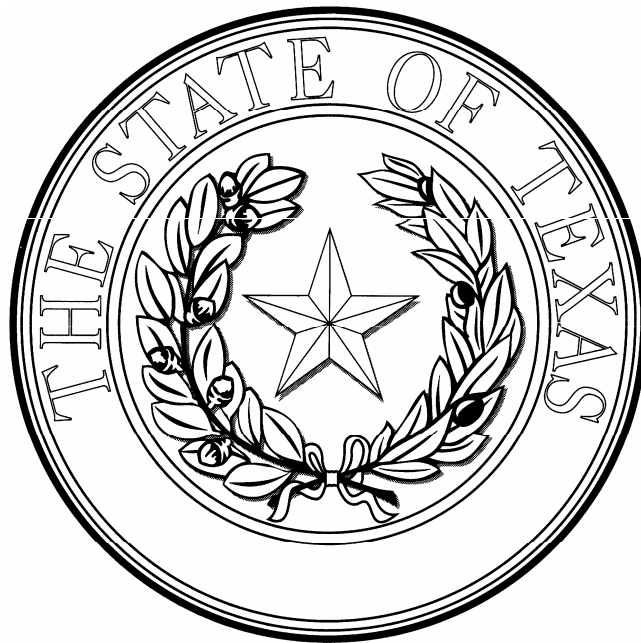
- Universities must be willing to sanction those individuals and groups that violate campus fire safety policies or vandalize fire protection systems.

It is imperative the Environmental Health and Safety Department receive administrative support to ensure effective results. However, the administration must not depend solely on this staff for the fire safety efforts of the university. An institutional culture must be established to make fire safety the responsibility of all faculty, staff and students. The top administration must insist, through the deans, managers, and supervisors, that each department's staff be responsible for housekeeping efforts in their areas of responsibility. This effort will do much to prevent accidental fires and to limit fire severity by reducing unnecessary combustibles throughout the campus.

Working together, we can ensure the university provides a fire-safe environment for all individuals using campus facilities. We appreciate the assistance provided by your staff during this inspection. The State Fire Marshal's Office is committed to helping your university achieve the greatest fire safety possible.

The State Fire Marshal's Office is an available resource to the university and local fire safety officials and is willing to answer fire safety questions concerning higher education institutions. For more information, you may contact Mr. Wayne Smith, Director of Inspections (512) 305-7911. Please do not hesitate to contact us if you have any questions.

# **Texas State Fire Marshal's Office**



## **Sam Houston State University**

### **Fire Safety Inspection Report Building Detail**

Published by the  
State Fire Marshal's Office  
Texas Department of Insurance  
April 2005

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

***GRADUATE ALIVE!*  
FIRE SAFETY INSPECTION PROGRAM**

**Sam Houston State University**

**Building Inspection Detail**

**General Observations and Recommendations**

---

***Structure of Physical Plant and Safety Department***

The university structure consists of a physical plant director and an assistant. The assistant provides oversight of five construction project coordinators, the safety officer and other personnel/related functions. The project coordinators and safety office provide oversight of architects, designers, contractors and builders. However, the current system fails to provide adequate oversight involving internal and external maintenance, renovations, alterations, additions and new construction. This inherently results in non-compliance with minimum standards.

The safety department lacks an acceptable life safety inspection program but is currently developing an inspection check list. It is important to note that check lists can provide basic criteria such as obstructions, servicing, etc., but the complexity of codes prevents them from adequately addressing all life safety standards.

The physical plant and safety department currently lack access to all NFPA standards. This in itself prevents subsequent research and compliance. Information indicated the safety department is contemplating use of NFPA on line as a means of access.

***Construction Plan Reviews***

Construction documents are reviewed by the assistant director and sometimes the safety department. The plans are also made available for a specific period of time for optional reviews from university personnel working in the electric, plumbing, HVAC and other departments. The system permits comments, which are provided to the architect for implementation. University reviews are not mandated and in many cases are limited

to simply eliminating operational concerns instead of including compliance with minimum life safety standards.

It is not possible for the safety department to provide adequate oversight of all life safety requirements. This one person department is responsible for multiple areas, including but not limited to life safety, environmental issues, physical safety, safety training/OSHA and emergency responses involving spills, fires, injuries, etc. It is not feasible to expect any one person to be fully abreast of these functions in combination with the other numerous related areas such as electrical systems, plumbing systems, gas systems, HVAC systems, communication systems and many other NFPA standards relating to the protection of life and property. Likewise, one should not expect any one construction project coordinator to fully understand all aspects of life safety as it relates to construction.

The university utilizes front end construction documents, which specify that all work should be in compliance with all applicable codes and/or regulations having jurisdiction over the work. Front end document 16050, section 1.04 refers to NFPA and 16510, section 1.05 specifies compliance with NFPA 70, local/municipal/state codes that have jurisdiction and UL fire resistance directory. The current system relies heavily on third-party reviews but in some cases does not mandate such reviews. This, in combination with inadequate internal reviews, results in non-compliance. Examples of non-compliance resulting from insufficient oversight include the following:

- A minor review of construction plans involving building 300, Ferrington (New Science), revealed a three-story structure with an unapproved vertical opening. This opening is only enclosed on the top floor. In this case, a third-party review from an independent consulting firm was provided to ensure compliance with minimum NFPA standards. However, this review failed to identify this life safety deficiency. Fortunately, this was addressed with the design architect and consulting firm prior to completion of the structure. See details within the body of the inspection report.
- A minor review of construction plans involving building 41, Smith Hudson building, revealed a dead-end corridor exceeding allowable distances. Construction is complete and thus prevents elimination of this deficiency. The existence of sprinkler protection was utilized as an acceptable equivalency.
- An inspection of building 288, Riverside Campground, revealed a complete renovation. This renovation failed to include numerous life safety requirements including the following:
  - Panic hardware as required on assembly egress doors.
  - Illuminated exit signs.
  - Emergency lighting.
  - Egress doors opening in the direction of egress travel as required of doors subject to 50 or more people.

- The inspection of building 52, Health & Kinesiology, revealed an extensive addition. This addition resulted in the following:
  - Loss of egress doors from two gym areas. This deficiency will be eliminated through an alteration of remaining egress.
  - Plans did incorporate replacement of a lost egress door discharging from the aerobics room but inadequate construction planning permitted the existing door to be sealed prior to completing installation of its replacement.
  
- The inspection of building 58, Bowers Press Box, revealed a recent extensive renovation. Prior to this renovation, the top floor was at roof level and open air. This renovation project brought the building further out of compliance; the most egregious deficiency involved the creation of another floor lacking two required exits. It is important to note, the lack of a required second exit deficiency was addressed internally prior to construction but was approved with one exit due to funding issues. A few of the other noted deficiencies include the following:
  - The required second exit was eliminated from the second floor, subsequently creating two floors with a single exit.
  - Inadequate emergency lighting. Unapproved floor finish in one of the exit stair enclosures.
  - No Sprinkler protection.
  - Inadequate fire alarm visual devices.
  
- The required second exit in Aerobics room 147 in the Health & Kinesiology Center building was eliminated and filled with concrete blocks as part of a building expansion. Construction planning failed to implement necessary measures to ensure required egress capacity of this area was maintained during construction. This room has a posted occupant load of 200 but was limited to not more than 49 people until a second means of egress is provided.

## ***Maintenance***

The current maintenance process does not require observation and/or reporting of deficiencies from maintenance personnel concerning issues outside their assigned responsibilities and in some cases within their scope of responsibility. This permits continuation of deficiencies.

In some instances measures were implemented without ensuring compliance with minimum standards. An example involves prior removal of fluorescent light bulbs from emergency lighting fixtures located in Room 115 of the Walker Education Building #202. The elimination of the lighting was implemented as a means of conserving energy without regard to their intended purpose, emergency lighting.

Fire protection systems maintenance is currently performed by university personnel. Information concerning maintenance schedules is as follows:

<u>SYSTEMS</u>	<u>SCHEDULE</u>
Fire Alarm systems	Yearly, mp2
Sprinkler Systems	None
Emergency Lighting	Yearly, mp2
Generators	Yearly, mp2
Fire Pumps	Monthly
Fixed Suppression	None

The foreman of the HVAC department supervises two individuals responsible for fire alarm systems maintenance. However, the campus inspection indicates existing maintenance on fire alarm systems is inadequate. The individuals responsible are capable of providing standard service but lack the ability to determine compliance with minimum standards. These individuals do not utilize or have access to any applicable NFPA standard. This results in continuation of existing non-compliance.

### ***Comprehensive Fire Safety Corrective Measures***

An integrated, campus-wide fire safety program must be achieved. The program shall include:

- Assignment and acceptance of fire safety responsibility and accountability at all levels;
- Administration must support fire safety program staffing. This ensures all levels of staffing understand the importance of fire safety, support the efforts of fire safety personnel and adhere to policies involving fire safety.
- Include fire safety staff in the review and approval of all construction and renovation projects resulting in building structural and/or operational changes to ensure such changes do not adversely affect fire safety.
- Mandate compliance with minimum standards.
- Mandate compliance with operational standards.
- Consider changes involving the chain of command. Currently the safety officer is responsible to the Assistant Director of the Physical Plant. This may hinder implementation of corrective measures when such measures conflict with and/or delay construction progress.
- Provide the safety department and other physical plant personnel access to all NFPA standards. On-line access is recommended.



- Implement regular inspection and review of facilities and activities by the safety office.
- Have all systems serviced by a licensed company. It is imperative that the university provide acceptable preventive maintenance of all fire and life safety systems, including fire extinguishers, fire sprinklers, fire detection, fire alarm systems, exit systems, marking of means of egress, hardware, and illumination systems (including normal and emergency lighting and generators). Preventive maintenance programs for fire safety systems and equipment must be in place to protect them from degradation and ensure they continue to function as intended. Failing to maintain systems creates a false sense of security. Effective and reliable preventive maintenance also eliminates long-term repair expenses.
- Implement a strict policy mandating that auxiliary functions comply with all safety and physical plant requirements. Recent changes occurring on September 1, 2004, relocated auxiliary functions outside the oversight of the physical plant. Similar independence at other universities has resulted in an extensive number of deficiencies.
- Establish a close working relationship with the local fire department. All university fire safety equipment must be compatible with equipment used by the local fire department. The fire department should be consulted concerning on campus accessibility issues, building names, building numbering and building locations.

### ***Priorities for Correction***

Fire safety corrective actions should be prioritized. This will provide the safest environment possible for students, faculty, staff and guests.

Priorities include:

- Residential buildings.
- High-rise buildings.
- Buildings with substantial occupant loads such as academic buildings having lecture auditoriums (assembly use).
- Laboratory or special hazard use buildings.
- Large assembly buildings with outstanding fire safety issues.
- Any other occupied building with significant dangerous conditions.

## ***Facility Operations***

Appropriate fire safety policies and procedures, as well as adequately trained facility operators, must be in place to maintain fire safe conditions and operations. Laboratories and research facilities are highly susceptible to fire from inadequate controls involving chemicals. Assembly occupancies hosting large numbers of guests must have staff trained in fire safe operating procedures. For a comprehensive discussion on assemblies, see the Campus-Wide Deficiencies section at the conclusion of this report.

## **DETAILED BUILDING INSPECTIONS**

### **2 - Austin Hall**

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This is a two-story structure categorized as a business occupancy. It is constructed of masonry with an exterior brick veneer finish and floors and ceilings consisting of a wood finish. The building incorporates two unenclosed stairs. Fire safety features include a fire alarm system, emergency lighting, automatic sprinkler protection and portable fire extinguishers.

#### ***Means of Egress Violation***

##### **FINDING #1**

**The exit stairs lack the required remoteness from one another (approximately 18 feet apart) and are not separated by a fire barrier.**

The lack of exit remoteness may result in both egress doors becoming simultaneously obstructed by a single event.

**Remedy** It is not feasible to change the existing location of the egress stairs. However, the benefit of remoteness can be achieved by isolating the two stairs from each other. Install a fire barrier separating the two egress stairs. This barrier will prevent a fire from simultaneously obstructing use of both stairs, subsequently accomplishing the same benefit as remoteness.

*NFPA 101, Chapters 39.2.2.2.1, 39.2.5 and 7.5.1.3*

#### ***Protection Violations***

##### **FINDING #2**

**The automatic fire sprinkler control valve located on the building exterior is not secured in the open position.**

Failing to secure the control valve in the open position permits an individual to close the valve, which cuts off the water supply to the sprinkler system.

**Remedy:** Secure the valve in the open position with a chain and padlock.

*NFPA 101, Chapter 4.5.6 and NFPA 13, Standard for the Installation of Sprinkler Systems, Chapter 8.15.1.1.2.1*

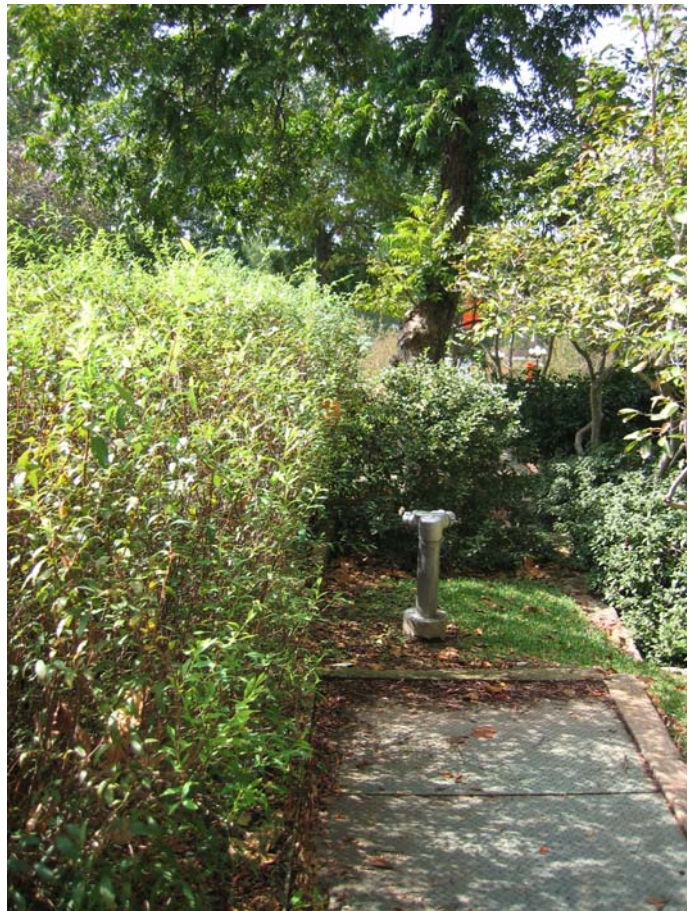
### **FINDING #3**

**The fire department connection lacks visibility because it is located in an area surrounded by vegetation. The FDC also lacks required caps.**

The lack of visibility will delay access, slowing fire department suppression efforts. The lack of caps will permit introduction of foreign objects into the piping, which may obstruct water flow.

**Remedy:** The following corrective measures are necessary.

- Have a licensed plumber or fire firm examine the fire department connection and piping to verify there are no obstructions within the piping.
- Consult with the local fire department concerning the extent of vegetation removal. This is necessary to ensure adequate accessibility.
- Replace missing plug type caps.
- Develop a program of regular fire department connections inspection (at least once quarterly) verify the following:
  - Visibility and accessibility of fire department connections.
  - Couplings and swivels are not damaged and rotate smoothly.
  - The check valve is not leaking.
  - The automatic drain



- valve is in place and operating properly.
  - The fire department connection clapper(s) is in place and operating properly.
- See campus-wide notes concerning fire department examination of hydrants and fire department connections. Implement corrective measures concerning access to fire department connections, location of hydrants and other deficiencies.

*NFPA 101, Chapter 9.7.5 and NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, Chapter 12.7.1*

#### **FINDING #4**

**The fire alarm system has multiple deficiencies:**

- **Lacks required fire alarm pull stations.**
- **Lacks a required tag indicating it has been serviced within the past year.**
- **Lacks required audio/visual devices**

**Remedy:** Implement the following corrective measures:

- Install additional manual pull stations. A manual pull station shall be located within five ft. of each exit door and in the natural path of egress travel.
- Install additional audio/visual devices.
- See campus wide-wide deficiencies located at the end of this report concerning the requirements for servicing and maintenance of fire alarm systems.

*NFPA 101, Chapters 39.3.4.2, 39.2.4.3 and 4.6.13 and NFPA 72, National Fire Alarm Code, Chapter 5.12.6*

#### **FINDING #5**

**The automatic fire sprinkler system lacks the required annual servicing.**

Fire sprinkler systems must be serviced annually and when impairments are noted. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the system serviced by a licensed company. Noted deficiencies shall be eliminated. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 4.6.13.1 and 9.7.5 and NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, Chapter 5.*

NOTE: The emergency lighting units located on the ceiling above the stair could not be assessed and thus were not tested. The university shall test these and all other emergency lighting as outlined in the ending portion of this report.

### **3 - Peabody Memorial Library**

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This four-story structure is categorized as an assembly occupancy. One of the floors consists of a basement. The exterior terrain surrounding this structure provides the first and second floor levels with exits discharging to grade. The building is constructed of masonry and steel. Fire safety features include a fire alarm system, some heat detection and limited smoke detection, portable fire extinguishers, a standpipe system, emergency lights, HVAC shutdown and illuminated fire exit signs.

#### ***Means of Egress Violations***

##### **FINDING #1**

**Emergency lighting is inadequate. Numerous areas including the stair enclosures lack emergency lighting and/or have inadequate emergency lighting.**

Emergency lighting is necessary to provide automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Implement the following corrective measures:

- Repair or replace inoperative emergency lighting.
- Install emergency lighting in the stair enclosures and other areas lacking required emergency lighting.
- See campus-wide deficiencies located at the end of this report concerning the lack of, or insufficient, emergency lighting.

*NFPA 101, Chapters 13.2.9, 7.9.2, 4.6.13.1 and 4.5.7*

##### **FINDING #2**

**The building has several egress deficiencies. In addition to the following deficiencies, one of these egress deficiencies involves direct exposure to an unapproved vertical opening consisting of a monumental stair. The deficiencies include the following:**

- **The third and fourth floor occupants originally exited from the stair enclosures at the first floor but current signage now directs travel back into the second floor area, which requires traversing the second floor area to reach an exit. This configuration fails to provide the enclosures with required discharge to the exterior.**

- **The second floor exits lack required remoteness. This situation may permit a single event to simultaneously obstruct both exits.**
- **The original exit sign at the primary entry door on the second floor is removed. The exit door is restricted to entry purposes. This action reduced egress capacity and the number of exits.**
- **An unapproved vertical opening consisting of a monumental stair that penetrates four floors lacks required separation from egress and other portions of the building.**
- **The monumental stair is inappropriately identified as an exit.**
- **Signage in the stair enclosures directs occupants to egress through the second floor instead of the lowest level of exit discharge.**

The vertical opening substantially increases the severity of the other egress deficiencies. This opening will permit rapid spread of heat, flame and smoke throughout the structure, hindering and/or preventing egress.

- **Remedy:** It is not practical or feasible to eliminate every deficiency associated with the above egress and atrium discrepancies. The following corrective measures are not in strict compliance with minimum standards but do substantially improve life safety
- Permit the primary entrance on the second floor to be used as an exit. Provide this door with an illuminated exit sign at the primary entry/exit located on the second floor.
- Provide complete sprinkler coverage throughout the structure.
- Provide each floor with at least two independent exit enclosures. One of the enclosures shall incorporate exit discharge to the exterior without having to traverse another floor area.
- Remove the exit signs directing occupants to the monumental stair. Signage should direct occupants to the exit enclosures.
- Remove the exit signs in the stair enclosures that direct occupants to exit through the second floor.
- Install an additional stair enclosure. It shall comply with the following:
  - Accessible from the second, third and fourth floors.
  - Located near the rear of the building in order to correct deficiencies involving lack of remoteness and common paths of travel.
  - Provide discharge to the exterior.

*NFPA 101, Chapters 13.2.1, 13.2.10, 7.10, 139.3.1.1, 8.6.7 and 4.6.4*

### **FINDING #3**

#### **The stairs have unapproved openings between the handrail guards.**

Guards shall not permit an object greater than four inches in diameter to pass through the openings. Excessive openings may permit a toddler or young child to pass through an opening and fall, resulting in injury and/or death.

**Remedy:** Provide the stair railing/guards with approved intermediate rails or an ornamental pattern. These intermediate rails and/or ornamental pattern shall not permit a sphere 100 mm (four in.) in diameter to pass through any opening up to a height of 865 mm (34 in.). The triangular openings formed by the riser, tread and bottom element of a guardrail at the open side of a stair shall not permit a sphere 150 mm (six in.) in diameter to pass through the triangular opening.

It is important to note that vertical intermediate rails are preferred as a means of reducing a child's ability to climb the rails. The four-inch opening was stipulated in the code as a result of the American Academy of Pediatrics. Their study revealed that approximately 950 out of 1000 children under age 10 can pass through a 150-mm (six-in.) wide opening. To prevent small children from falling through guards or being caught in openings, the configuration and construction of a guard must meet certain minimum requirements.

*NFPA 101, Chapters 13.2.1 and 7.2.2.4.5.3*

#### **FINDING #4**

**The doors entering the stair enclosures incorporate panic hardware instead of required fire-rated hardware.**

Panic hardware incorporates set screws that permit retraction of the positive latching mechanism. This may permit the pressure generated during a fire to push the doors open resulting in the rapid spread of heat, flame and smoke.

**Remedy:** Replace the unapproved panic hardware with approved fire-rated hardware.

*NFPA 101, Chapters 13.2.2.2.1, 7.2.1.7.2 and 7.2.1.8.1*

#### **FINDING #5**

**Several stair enclosure entry doors do not close to a required latched position.**

These doors, and their closing mechanisms, are intended to temporarily contain smoke, heat and flame should a fire occur. Leaving these doors open and/or failing to maintain them will adversely affect egress by permitting rapid spread of heat, flame and smoke.

**Remedy:** Repair non-functioning closing devices and positive latching.

*NFPA 101, Chapters 4.6.13.1, 13.2.2.2.1, 7.2.1.8.1 and 4.5.7*

#### **FINDING #6**

**The stair enclosures lack required exit discharge doors. The doors exiting the stair enclosures enter the bottom floor instead of providing required direct access to the exterior.**

The lack of doors leading directly to the exterior from the stair enclosures requires occupants to re-enter the bottom floor prior to being able to exit the building. This may result in occupants becoming trapped in the stair enclosures if a fire occurs in the bottom floor.

**Remedy:** Implement one of the following corrective measures.

Provide both stair enclosures with doors exiting directly to the exterior instead of into the bottom floor.

**Or**

Provide the entire first floor with complete sprinkler coverage. 50 percent of the required exit enclosures/exits must incorporate doors exiting directly to the exterior.

**Or**

Separate the area accommodating discharge into the bottom floor from other portions of the building. This barrier shall have a minimum one-hour fire barrier rating. Doors penetrating the barrier shall be self closing, positive latching and have a minimum 45 minute fire rating. This requires sprinkler protection only in the area that accommodates discharge from the stair enclosure into the bottom floor.

*NFPA 101, Chapters 13.2.1 and 7.7.2*

### **Protection Violations**

#### **FINDING #7**

**Service labels and inspection records concerning the standpipe system hose racks and hoses are non-existent, which indicates the lack of servicing and/or university system of monitoring this work.**

Testing of hoses is necessary to insure their integrity, subsequently preventing their failure during a fire.

**Remedy:** One of the following corrective measures must be implemented.

- Develop a campus-wide program of periodic inspection and testing of standpipe hoses. This requires the following:
  - Inspect and test all standpipe hose in accordance with NFPA 25 and NFPA 1962.
  - In-service hose designed for occupant use only shall be removed and service-tested at intervals not exceeding five years after the date of manufacture and every three years thereafter.
  - When hose is taken out of service for testing, replacement hose shall be installed on the rack, reel, or storage area until the tested hose is returned to service.



- In-service hose shall be un-racked, un-reeled or un-rolled and physically inspected at least annually. The hose shall be re-racked and re-reeled or re-rolled so that any folds do not occur at the same position on the hose.

**Or**

- Consult with the Huntsville Fire Department to determine their preference concerning the removal of existing hoses. Written documentation must be obtained from the Huntsville Fire Department.

*NFPA 101, Chapter 9.7.4.2; NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, Chapter 6.1; NFPA 1962, Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose, Chapter 4.3 and NFPA 1962 Standard for the Care, Use, and Service Testing of Fire Hose Including Couplings and Nozzles*

## **FINDING #8**

### **Unsealed penetrations exist in mechanical room 100U2.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** Seal the penetrations and see campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

## **FINDING #9**

**The door to mechanical room 100U2 is improperly held open by a drain pipe that is installed in a manner that prevents the door from closing. This mechanical room is categorized as a hazardous area.**

Failing to permit the door and its closing device to serve their purpose may permit the rapid spread of a fire from the mechanical room to other areas.

**Remedy:** Eliminate the pipe that prevents the door from closing. Develop appropriate monitoring procedures of personnel and contractors to ensure that installations do not adversely affect fire and smoke barriers.

*NFPA 101, Chapters 13.3.2 and 8.7*

## **FINDING #10**

**Multiple fire alarm deficiencies exist. These include the following:**

- An inadequate number of audio/visual devices exist. Audio/visual devices are currently limited to a point located in the center of the building above the water fountains. Occupants in the study carrels may not be alerted.
- The fire alarm system pull stations are located at an excessive elevation.

**Remedy:** Implement the following corrective measures:

- Review the fire alarm system performance.
- Install additional audio/visual devices where needed.
- Lower the elevation of the fire alarm manual pull stations. They shall be at an elevation not less than 3.5 feet or more than 4.5 feet from the floor elevation.

*NFPA 101, Chapters 13.3.4.1, 9.6.2.6 and 9.6.3 and NFPA 72, National Fire Alarm Code, Chapter 5.12.4*

### **Building Services Violation**

#### **FINDING #11**

#### **Power strips are interconnected throughout the building.**

These power strips are interconnected to obtain additional electrical receptacles. Power strips should not be interconnected as a means of obtaining additional electrical receptacles.

**Remedy:** Eliminate interconnection of power strips. They must be plugged directly into an electrical outlet.

*NFPA 101, Chapters 13.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 400-8*

NOTE: One egress deficiency was corrected during the inspection. This deficiency involved the use of delayed magnetic locking devices, which failed to comply with minimum standards.

Numerous doors throughout the structure are provided with door closing mechanisms. Due to the aforementioned discrepancies, the State Fire Marshal's Office recommends discontinuing securing these doors in the open position. This will provide compartmentation, subsequently slowing the spread of heat, flame and smoke.

## **5 - Bobby K. Marks Administration**

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This is a three-story structure categorized as a business occupancy. It is constructed of masonry and has an exterior brick veneer finish. Fire safety features include a fire alarm system, complete sprinkler coverage and portable fire extinguishers.

## ***Means of Egress Violation***

### **FINDING #1**

**The building lacks required emergency lighting in the exit stairs.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Install emergency lighting units within the stairs and see campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 39.2.9 and 7.9*

## ***Protection Violations***

### **FINDING #2**

**Several deficiencies involving the sprinkler system exist. These deficiencies include the following:**

- **The automatic fire sprinkler system lacks required annual servicing. It has not been serviced since its installation on 10-25-00. The lack of servicing may result in this system's failure to function properly.**
- **Room 115E has a corroded sprinkler head, which may prevent it from activating.**
- **Storage in several areas in the building obstructs sprinkler heads. It is within 18 inches of the sprinkler heads. This may lessen effectiveness of the sprinkler system.**
- **A ceiling tile is missing in room 206. This will permit heat to enter the interstitial space, subsequently delaying heat build up and activation of the sprinkler head in this room.**



Fire sprinkler systems must be serviced annually and repaired when impairments are noted. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Implement the following corrective measures:

- Have the system serviced by a licensed company. Noted deficiencies shall be eliminated.
- Remove items obstructing sprinkler heads.
- Replace the missing ceiling tile.
- See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 4.6.13.1 and 4.5.7 and NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems Chapter 5*

### **FINDING #3**

**Unsealed penetrations exist in room 206 and within the 111U2/elevator room.**

Heat and smoke can travel through these unsealed openings into the adjoining egress corridor.

**Remedy:** Seal the penetrations and see campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapter 8.5.5.2*

### **FINDING #4**

**Areas under the stairs are used for storage purposes in violation of the Life Safety Code.**

This storage will fuel a fire, subsequently hindering use of the exit stair.

**Remedy:** Eliminate the combustible storage. Discontinue using egress stair enclosures or any other means of egress component for storage.

*NFPA 101, Chapters 39.2.1 and 7.2.2.5.3*

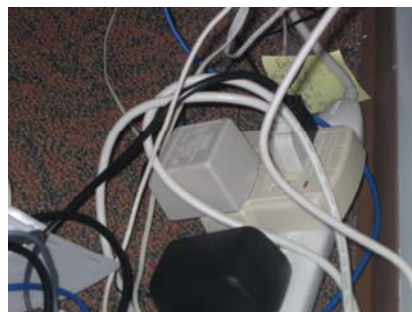


### **Building Services Violation**

### **FINDING #5**

**Extension cords are improperly used to power various appliances throughout the building and power strips are interconnected in many offices.**

Extension cords are designed and intended for use as temporary wiring. Power strips should not be



interconnected as a means of obtaining additional electrical receptacles.

**Remedy:** Eliminate the use of extension cords and interconnection of power strips. See campus-wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 400-8*

## **7 - Farrington Building**

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The Farrington Building is a three-story structure categorized as a business occupancy. It contains classrooms, labs and offices. It is constructed of masonry and steel. Fire safety features include two enclosed stairs, exits signs, emergency lighting and portable fire extinguishers.

### ***Means of Egress Violations***

#### **FINDING #1**

**Emergency lighting throughout the building is inadequate or non-functioning.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Install emergency lighting in the conference room and see campus-wide deficiencies located at the end of this report concerning the lack of, or insufficient, emergency lighting.

*NFPA 101, Chapters 39.2.9, 7.9.2 and 7.9.3.1.1*

#### **FINDING #2**

**Multiple classrooms throughout the building have occupant loads exceeding 50 persons but lack the required two means of egress.**

Rooms subject to use by 50 or more occupants are categorized as assembly occupancies, which require at least two separate means of egress.

**Remedy:** Provide an additional exit. This exit shall be remotely located from the existing exit.

*NFPA 101, Chapter 13.2.4.2*

## Protection Violations

### FINDING #3

**The chemical bulk storage room and numerous research and classroom labs lack required fire rated door assemblies.**

The lack of rated doors and door closing mechanisms will permit a fire occurring in a lab to rapidly spread into other areas of the building.

**Remedy:** Install 45 minute rated doors and door closing mechanisms. See campus-wide deficiencies located at the end of this report concerning fire barrier and smoke compartmentation (securing doors in an open position).

*NFPA 101, Chapter 8.4.4 and NFPA 45, Standard On Fire Protection For Laboratories Using Chemicals, Chapter 3 and table 3.1.1(b)*



### FINDING #4

**Flammable and other types of chemicals in several areas, including the chemical bulk storage room, are improperly stored. These deficiencies include the following:**

- **Flammables not stored within approved cabinets.**
- **Chemical containers lacking required caps/lids.**
- **Chemicals stored in fume hoods.**

Failing to properly store flammables may result in an accidental release, which increases the risk of fire and/or explosion.

**Remedy:** Implement the following corrective measures:

- Quantities of flammable liquids in excess of that needed for everyday use shall be stored in approved safety cabinets. The storage cabinets are not required to be vented. However, vent openings shall be sealed with approved bungs. Venting of storage cabinets requires vents to terminate at the exterior of the building and in an acceptable manner that will not compromise the specified performance of the cabinet. These cabinets shall be marked in conspicuous lettering stating “FLAMMABLE — KEEP FIRE AWAY.”
- Continuously maintain lids on container openings except during dispensing.
- Discontinue using fume hood areas for storage of chemicals.

- See campus-wide deficiencies located at the end of this report concerning laboratories.

*NFPA 101, Chapters 39.3.2 and 8.7.4 and NFPA 30, Flammable and Combustible Liquids Code, Chapters 6.3.3 and 6.3.4 and NFPA 45, Standard On Fire Protection For Laboratories Using Chemicals, Chapters 7.2.1.2, 7.2.3.1, 7.2.2.1*

## **FINDING #5**

**Multiple laboratories throughout the building lack required fire barrier ratings due to unapproved windows. These windows are exposed to the exit access corridor, which is located between the Farrington and Counseling Center buildings.**

Laboratories are required to have a minimum one-hour separation from the corridor with doors and windows installed with appropriate fire ratings. Unapproved window openings will permit a fire to rapidly penetrate the window, subsequently preventing use of the exit access corridor.

**Remedy:** Provide these openings with a 45-minute fire barrier rating.

*NFPA 101, Chapters 39.3.2, 8.7.1.1, 8.4.4 and 4.6.4 and NFPA 45, Standard On Fire Protection For Laboratories Using Chemicals, Chapter 3 and table 3.1.1(b)*

## **FINDING #6**

**Laboratory fume hoods lack required airflow monitors and testing to ensure proper performance and safe operation.**

The lack of airflow monitors may permit an unknown failure in the ventilation system, subsequently releasing dangerous vapors. The air pressure in the laboratory work areas shall be negative with respect to corridors and non-laboratory areas.

**Remedy:** Implement the following corrective measures:

- Install airflow measuring devices for hoods in each laboratory. The measuring device for hood airflow shall be a permanently installed device and shall provide constant indication to the hood user of adequate or inadequate hood airflow.
- Inspect the fume hoods annually to ensure proper and safe performance. This shall be done by either the University Environmental Health & Safety Office or a private firm. This inspection shall incorporate a label on the hood stating the last inspection date and approval for use.
- The following inspections and tests, as applicable, shall be made:
  - Visual inspection of the physical condition of the hood interior, sash, and ductwork.
  - Measuring device for hood airflow.
  - Low airflow and loss-of-airflow alarms at each alarm location.

- Face velocity.
- Verification of inward airflow over the entire hood face.
- Changes in work area conditions that might affect hood performance.
- Laboratory hood face velocity profile or hood exhaust air quantity shall be checked after any adjustment to the ventilation system balance.

*NFPA 101, Chapters 39.3.2, 8.7.1.1, 8.4.4 and 4.6.4 and NFPA 45, Standard On Fire Protection For Laboratories Using Chemicals, Chapters 6.13.5, 6.3.3, 6.3.4, 6.8.7 and 6.9*

**NOTE:** The chemical storage building located behind the Farrington building does not comply with spill containment. However, a new science building is currently under construction and it includes a new storage building, which is expected to be completed by September 2005. Therefore, the existing building may continue during the interim period.

### ***Building Services Violation***

#### **FINDING #7**

**The HVAC system located on the third floor in mechanical room 300U1 appears to lack a detector necessary for HVAC shutdown.**

Air duct detectors are designed to detect the presence of smoke entering the HVAC system, resulting in the mechanical systems automatically shutting down. This prevents the heating and cooling systems from spreading smoke throughout the building.

**Remedy:** Contact a licensed fire alarm firm to survey all air duct smoke detectors in the building and return malfunctioning or disconnected detectors to service. These detectors shall meet the following criteria:

- Located downstream of air filters and ahead of branch connections in air supply systems having capacities greater than 944 L/sec (2000 ft<sup>3</sup>/min).
- Located at each story prior to common return connections and prior to recirculation or fresh air inlet connections within return systems having capacities greater than 7080 L/sec (15,000 ft<sup>3</sup>/min) and serving more than one story.
- Shall automatically shutdown HVAC equipment upon detecting the presence of smoke.
- Shall incorporate connection to the fire alarm system in accordance with the requirements of NFPA 72, *National Fire Alarm Code*.

*NFPA 101, Chapters 39.5.2 and 9.2.1 and NFPA 90A, Standard for the Installation of Air-Conditioning and Ventilating Systems, Chapters 6.4.2 and 6.4.3*



## 8 - Academic Building III

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This is a three-story structure categorized as a business occupancy. It was previously used as a dormitory. It is constructed of masonry and has an exterior brick veneer finish. Fire safety feature includes partial emergency lighting.

### ***Means of Egress Violations***

#### **FINDING #1**

##### **Exit sign deficiencies include the following:**

- Several areas in the building lack required exit signs.
- The secondary exits from the dance studios lack required exit signs.

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting them in emergency evacuations. Directional indicators shall be a chevron type that is identifiable as a directional indicator.

***Remedy:*** Implement the following corrective measures:

- Install exit signs where lacking.
- Install exit signs identifying the secondary exits discharging from the dance studios.
- Survey the entire building and install additional exit signs where needed.
- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 13.2.1, 13.2.10, 7.10.1.1, 7.10.6.1.1 and 7.10.6.2.1*

#### **FINDING #2**

##### **Emergency lighting deficiencies include the following:**

- The emergency lighting units by rooms 200U1 and 113 are inoperative.
- The emergency lighting unit by room 243 has a broken light bulb bracket.
- The studios lack required emergency lighting.

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

***Remedy:*** Implement the following corrective measures:

- Repair or replace the non-functioning emergency lighting units near rooms 200U1 and 113 and replace the missing bulb bracket of the unit near room 243.
- Install emergency lighting in the studios.

- Survey the entire building to determine if all emergency lights function. Replace and/or repair where necessary.
- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 13.2.9.1, 7.9 and 4.6.13.1*

### **FINDING #3**

**The floors in rooms 113A and 113B are part of the original gym floor. Their elevation requires occupants traversing into these rooms to immediately step down two steps at the door area. The door area lacks a required landing.**

Occupants not familiar with the rooms may fall during emergency evacuations and non-emergency egress. This may injure occupants and/or hinder egress during emergency evacuations.

**Remedy:** Install a landing at the door. The elevation of the floor surfaces on both sides of a door shall not vary by more than 0.5 inch. The elevation shall be maintained on both sides of the doorway for a distance not less than the width of the widest door.

*NFPA 101, Chapters 13.2.1.2 and 7.2.1.3*

### **FINDING #4**

**Unapproved key deadbolt locking devices exist on the doors providing access between the studios. These doors are secondary exits and thus must be made available.**

Unapproved devices prevent use of egress doors.

**Remedy:** Eliminate all locking devices. Any door in a required means of egress from an area shall not require the use of a key, special effort, knowledge or tool.

*NFPA 101, Chapter 13.2.2.2.3*

### **FINDING #5**

**The exit doors discharging from the main studio incorporate single cylinder deadbolt locking devices instead of the required panic hardware. This area is subject to 125 occupants.**

Unapproved devices prevent rapid use of egress doors. Doors subject to 100 or more people must incorporate panic hardware. This hardware must disengage all other locking and/or latching devices on the doors.

**Remedy:** Remove the deadbolt locking devices and install panic hardware.

*NFPA 101, Chapters 13.2.2.1, 13.2.2.2.3 and 7.2.1.5.2*

### **Protection Violations**

#### **FINDING #6**

**The building lacks a required fire alarm system.**

Assembly occupancies with occupant loads of more than 300 shall be provided with an approved fire alarm system. This provides rapid occupant notification of a fire, should one occur.

**Remedy:** Install an approved fire alarm system in the building. The system shall include the following:

- Manual pull boxes located at each of the exit doors.
- Automatic detection in all areas not normally occupied.
- Adequate audio/visual devices that overcome ambient noise levels.
- A shunt that interrupts power to all other sound equipment that would drown out the fire alarm system.
- Occupant notification that incorporates prerecorded evacuation instructions.
- An approved voice communication system that is audible above the ambient noise level of the assembly occupancy.

*NFPA 101, Chapter 12.3.4*

#### **FINDING #7**

**A plywood door provides access to the studio control room from classroom 331. This plywood door fails to comply with minimum interior finish requirements.**

Unapproved interior finishes burn rapidly and thus endanger occupants.

**Remedy:** A new access stair has been installed in the studio eliminating the need for this door. Therefore, replace the plywood door with a material meeting a minimum class C rating.

*NFPA 101, Chapter 13.3.3.3.*

#### **FINDING #8**

**The stair enclosure entry doors lack required fire rated hardware and fail to incorporate positive latching.**

These doors, and their closing mechanisms, are intended to temporarily contain smoke, heat and flame, should a fire occur. Leaving these doors open and/or failing to maintain them will adversely affect egress by permitting rapid spread of heat, flame and smoke.

**Remedy:** Install fire rated hardware that incorporates positive latching.

*NFPA 101, Chapters 13.3.1.1 and 8.6.5*

### **FINDING #9**

**Camouflage netting is attached to the ceiling of room 303. This netting fails to comply with minimum interior finish requirements.**

Unapproved interior finishes burn rapidly and thus endanger occupants.

**Remedy:** Remove the camouflage netting. Ceiling areas must incorporate a finish having a minimum class C fire rating.



*NFPA 101, Chapter 13.3.3.3*

### **FINDING #10**

**A five-gallon propane container is improperly stored in room 306.**

Propane cylinders, other than 10-ounce consumer cylinders used for handheld torches, may not be stored inside buildings. Large cylinders endanger occupants and fire fighters.

**Remedy:** Move the cylinders to an exterior location having natural ventilation.

*NFPA 101, Chapter 8.7.3.1 and NFPA 58, Chapters 8.3.2.1 and 8.3.2.2*

### **FINDING #11**

**Fire extinguishers in the building lack required annual servicing and adequate mounting.**

Portable fire extinguishers must be serviced at least once annually. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance. Extinguishers are required to be mounted on a wall or some other substantial place that is readily visible.

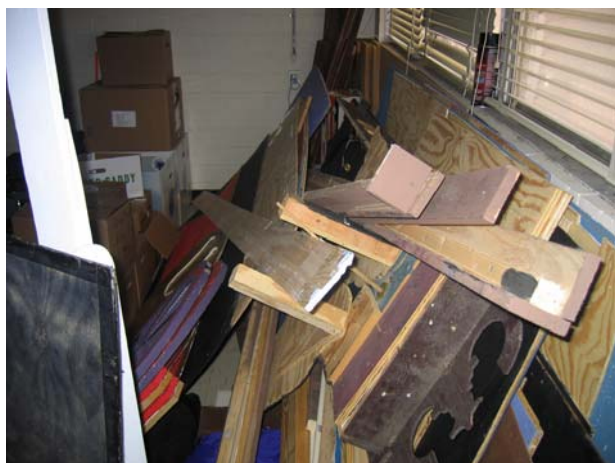
**Remedy:** Implement the following corrective measures:

- Have the portable fire extinguishers serviced by a licensed company.
- Mount the extinguishers on the wall or some other substantial place. Their height shall not exceed five feet from the floor to the top of the extinguisher.
- See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapter 4.6.13.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3*

## **FINDING #12**

**There is excessive fire load and unapproved storage of flammable paints in rooms 203 and 206. These rooms also lack required separation from the remainder of the building.**



The lack of appropriate storage permits the release of vapors. Vapors will act as an accelerant should a fire occur. Inadequate separation will permit rapid spread of fire occurring in one of these rooms into adjoining areas.

**Remedy:** Properly store flammable liquids within approved cabinets. Provide minimum one hour rated fire barriers separating these rooms. These barriers shall incorporate doors that are minimum 45 minute fire protection-rated and shall incorporate self-closing devices and positive latching.



*NFPA 101, Chapters 13.3.2.1 and 8.7.3 and NFPA 30, Flammable and Combustible Liquids Code, Chapter 6.5.4*

## FINDING #13

### **Combustible storage exists under the stairwells.**

This storage will fuel a fire should one occur, subsequently hindering use of the exit stair.

**Remedy:** Eliminate the combustible storage. Discontinue using egress stair enclosures or any other means of egress component for storage.

*NFPA 101, Chapters 13.3.2, 4.6.1.2 and 7.2.2.5.3*

## FINDING #14

### **Room 115A/record storage contains an amount of combustible storage, which categorizes this area as a hazardous area.**

Inadequate separation of this hazardous area will permit rapid spread of fire occurring in this room to adjoining areas.

**Remedy:** Provide minimum one hour rated fire barriers separating these rooms. These barriers shall incorporate doors that are minimum 45 minute fire protection-rated and shall incorporate self-closing devices and positive latching.

*NFPA 101, Chapters 13.3.2.1 and 8.4.1.1*



### **Building Services Violation**

## FINDING #15

### **Extension cords are improperly used to power various appliances throughout the building. Power strips are also interconnected.**

Extension cords are designed and intended for use as temporary wiring. Power strips should not be interconnected as a means of obtaining additional electrical receptacles.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 400-8*

## 9 - Estill Building

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This is a three-story structure categorized as a business occupancy. It is constructed of masonry and has an exterior brick veneer finish. The building design incorporates an open atrium connecting the first, second and third floors. Fire safety features include a fire alarms system, fire sprinkler system and portable fire extinguishers.

### ***Protection Violations***

#### **FINDING #1**

**The automatic fire sprinkler system lacks required annual servicing.**

Fire sprinkler systems must be serviced annually and repaired when impairments are noted. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the system serviced by a licensed company. Noted deficiencies shall be eliminated. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapter 4.6.13.1 and NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, Chapter 5*

#### **FINDING #2**

**An atrium-type opening connects the first through the third floors, effectively creating an area open to all three levels. The atrium lacks smoke separation from the remainder of the building.**

**Remedy:** Implement one of the two following corrective measures:

Provide smoke separation between the atrium and the remaining portions of the building.

OR

Provide an engineering analysis may be performed that demonstrates that the building is designed to keep the smoke layer interface above the highest unprotected opening to adjoining spaces, (72 in.) above the highest floor level of exit access open to the atrium, for a period equal to 1.5 times the calculated egress time or 20 minutes, whichever is greater.

NFPA 101, Life Safety Code, Chapters 39.3.1.1 and 8.6.7(5)

## **FINDING #3**

### **The building lacks the required two independent exits.**

The two existing egress stairs traverse the atrium. Smoke and heat from a fire can simultaneously eliminate the use of these exits.

Where two exits are required from a building or portion thereof, such exits shall be remotely located from each other and shall be arranged and constructed to minimize the possibility that more than one has the potential to be blocked by any one fire or other emergency. Where two exits are required, they shall be located at a distance from one another not less than one-third of the maximum over all diagonal dimension of the building or area to be served, measured in a straight line between the nearest edge of the exit doors or exit access doors. Not more than 50 percent of the capacity of the required number of exits, and not more than 50 percent of the required egress capacity, shall be permitted to discharge through areas on the level of exit discharge. Once smoke separation of the atrium has been provided, it may be used as the one exit providing discharge to the first floor area.

**Remedy:** Implement the following corrective measures:

Separate the atrium from other portions of the building with a smoke barrier. Travel into the atrium must be provided at the second and third floors. The atrium area must provide a discharge/exit door leading into the bottom floor.

AND

Install an additional exit enclosure. It shall be remotely located from the existing atrium/exit and have a minimum one hour fire barrier rating. Doors entering/exiting the exit stair enclosure shall have a 45 minute fire rating, be self-closing and incorporate positive latching.

NFPA 101, Life Safety Code, Chapters 39.2.4.2(1), 39.2.5.1, and 7.5.1

NOTE: An electric grill was found in room 301. Occupants were advised to remove the grill from the office.

## **10 - Academic Building IV**

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This four-story structure is categorized as a business occupancy. It is constructed of a steel frame with an exterior brick veneer finish and a drywall interior finish. Fire safety features include a fire alarm system, fire detection, complete sprinkler coverage, portable fire extinguishers, emergency lighting and illuminated fire exit signs.



## ***Means of Egress Violations***

### **FINDING #1**

**Egress obstructions exist in the building. These include the following:**

- Paper storage obstructs the egress corridor near room 440.
- Construction equipment blocks access to the northeast stair enclosure.

This material and equipment reduce and/or hinder access to egress and thus may restrict groups of people during an emergency evacuation. Furnishings, decorations or other objects shall not obstruct exit access, egress or visibility. These items will also fuel a fire should one occur.

**Remedy:** Eliminate the paper storage and construction equipment hindering and/or blocking access to egress. See campus-wide deficiencies located at the end of this report concerning egress obstructions and impediments.

*NFPA 101, Chapters 39.2.1.1, 7.1.10.1 and 4.5.3.2*

### **FINDING #2**

**The second exit door discharging from room 210 lacks a required illuminated exit sign.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations. Directional indicators shall be a chevron type that is identifiable as a directional indicator.

**Remedy:** Install an illuminated exit sign at the egress door discharging from room 210. This sign shall have illumination in both the normal and power failure modes. See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 39.2.10, 7.10.2 and 7.10.5*

## ***Protection Violations***

### **FINDING #3**

**Book shelves obstruct sprinkler heads in rooms 416, 436 and 473.**

Obstructions to sprinkler heads lessen their effectiveness, which may result in the sprinkler system's failure to control a fire.

**Remedy:** Implement the following corrective measures:

- Remove items obstructing sprinkler heads in the aforementioned rooms.

- Survey the entire building for obstructions and implement immediate corrective involving other obstructions.
- Consider application of visual indicators on walls within storage and similar areas. This has proven to be an effective means of ensuring staff compliance with storage height limitations.

*NFPA 101, Chapters 4.6.13.1, 9.7.5 and 4.5.7 and NFPA 13, Standard for the Installation of Sprinkler Systems, Chapter 8.5.4*

#### **FINDING #4**

##### **Visibility of the fire alarm systems audio visual device in room 416 is obscured.**

Obscured audio/visual devices may delay occupant notification of a fire, should one occur. Fire alarm systems must be inspected, serviced and repaired when impairments are noted. This ensures proper operation in case of a fire.

**Remedy:** Remove the items obscuring visibility of the audio/visual device and see campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapter 4.6.13.1, 39.3.4.3, 9.6.3 and 4.5.6*

#### **FINDING #5**

##### **Several stair enclosure entry doors located on the third floor fail to close to the required latched position.**

These doors, and their closing mechanisms, are intended to temporarily contain smoke, heat and flame, should a fire occur. Leaving these doors open and/or failing to maintain them will adversely affect egress by permitting rapid spread of heat, flame and smoke.

**Remedy:** Repair non-functioning closing devices and positive latching.

*NFPA 101, Chapters 4.6.13.1, 39.2.1.1, 7.2.1.8.1 and 4.5.7*

## **11 - Evans Complex**

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This four-story structure is categorized as a business occupancy and contains some incidental assembly uses. It is constructed of masonry and has an exterior brick veneer finish. Fire safety features include a fire alarm system, stand pipe system, emergency lighting and portable fire extinguishers.

## ***Means of Egress Violations***

### **FINDING #1**

**The west portion of the first floor lacks the required two exits. A second means of egress is available through the computer lab and the student work area. However, this door is equipped with a locking mechanism, preventing its use.**

The lack of two remotely located exits may result in occupants becoming trapped during a fire or other emergency.

**Remedy:** Remove the locking device from the intervening door and identify the door by installing illuminated exit signs.

*NFPA 101, Chapters 39.2.1.1, 7.2.1.5.2, 39.2.4.2 and 39.2.10*

### **FINDING #2**

**Numerous egress obstructions exist, including:**

- **A table and chairs obstructing the 300W exit access corridor.**
- **A table obstructing second floor access to the stair enclosure.**
- **Storage obstructing the auditorium secondary exit.**

These items hinder the use of and access to egress and thus may restrict groups of people during an emergency evacuation. Furnishings, decorations or other objects shall not obstruct exit access, egress or visibility.

**Remedy:** Remove items obstructing exits and see campus-wide deficiencies located at the end of this report concerning egress obstructions and impediments.



*NFPA 101, Chapters 13.2.1, 39.2.1.1, 7.1.10.2.1 and 4.5.3.2*

### **FINDING #3**

**Numerous exit sign deficiencies exist. These deficiencies include the following:**

- The secondary exits in the auditorium incorporate exit signs but they lack required visibility from the seating area due to being located behind a partition.
- The exit signs above the main entrance doors are inoperative in both the normal and emergency modes.



Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations. Directional indicators shall be a chevron type that is identifiable as a directional indicator.

**Remedy:** Install additional illuminated directional exit signs. These signs should be located on the walls in areas visible from the general seating area.

*NFPA 101, Chapters 13.2.10, 7.10 and 4.6.13.1*

#### **FINDING #4**

**The auditorium contains two emergency lighting units but their capacity is inadequate.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Install additional emergency lighting units. The number of additional units shall be sufficient to provide minimum illumination during a power failure.

*NFPA 101, Chapters 13.2.9 and 7.9*

#### **Protection Violations**

#### **FINDING #5**

**Unrelated storage exists in the second-floor HVAC/mechanical room.**

Unapproved storage will fuel a fire. This storage also hinders accessibility to the HVAC system.

**Remedy:** Remove all storage from the HVAC and mechanical closets/rooms. These rooms shall be continuously maintained free of combustible storage.

*NFPA 101, Chapter 39.5.2 and NFPA 90A Standard for the Installation of Air Conditioning and Ventilating Systems, Chapter 2-3.10.4(b)*

#### **FINDING #6**

**A large concentration of combustible items exists in offices 152A, 461, 414, 253, and 116. The extensive amount of combustibles in these offices exceeds what is typically found within such rooms and thus results in them being categorized as hazardous areas.**

Offices are not permitted to have extensive fuel loads. The extensive combustible materials in these offices will fuel a fire, endangering occupants and hindering fire department suppression efforts.

**Remedy:** Implement one of the following two corrective measures:

Enclose the aforementioned office areas with fire barriers. These barriers shall have a one-hour fire resistance rating and shall not incorporate windows. The doors entering these offices shall have a minimum 45-minute fire resistant rating, door closing device and positive latching.

**Or**

Remove the extensive combustible material to an amount typical of business offices.

*NFPA 101, Chapters 39.3.2.1 and 8.4.1.1*

#### **FINDING #7**

**The stairs are used for unapproved storage consisting of combustible items.**

This storage will fuel a fire, hindering use of the exit stair.

**Remedy:** Eliminate the combustible storage. Discontinue using egress stair enclosures or any other means of egress component for storage.

*NFPA 101, Chapters 39.3.2.1, 4.6.1.2 and 7.2.2.5.3*

#### **FINDING #8**

**Numerous fire doors throughout the building fail to fully close and latch as required.**

These doors, and their closing mechanisms, are intended to temporarily contain smoke, heat and flame, should a fire occur. Leaving these doors open and/or failing to maintain them will adversely affect egress by permitting rapid spread of heat, flame and smoke.

**Remedy:** Repair or replace non-functioning closing devices and latching mechanisms.

*NFPA 101, Chapters 4.6.13.1 and 4.5.7*

## **FINDING #9**

**Several unsealed fire wall and/or smoke barrier penetrations exist in mechanical, electrical and telecommunication rooms.**

Heat and smoke can travel through these unsealed openings into the adjoining egress corridor.

**Remedy:** Seal the penetrations and see campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 13.3.2, 8.3.5 and 8.5.5.2*

## **FINDING #10**

**The stair enclosures lack required exit discharge doors.**

The doors exiting the stair enclosures enter the bottom floor instead of providing required direct access to the exterior. The lack of doors leading directly to the exterior from the stair enclosures requires occupants to re-enter the bottom floor prior to being able to exit the building. This may result in occupants becoming trapped in the stair enclosures should a fire occur in the bottom floor.

**Remedy:** Implement one of the following corrective measures:

Provide both stair enclosures with doors exiting directly to the exterior instead of into the bottom floor.

**Or**

Provide the entire first floor with complete sprinkler coverage.

**Or**

Separate the area accommodating discharge into the bottom floor from other portions of the building. This barrier shall have a minimum 1 hour fire barrier rating. Doors penetrating the barrier shall be self closing, positive latching and have a minimum 45 minute fire rating. This requires sprinkler protection only in the area that accommodates discharge from the stair enclosure into the bottom floor.

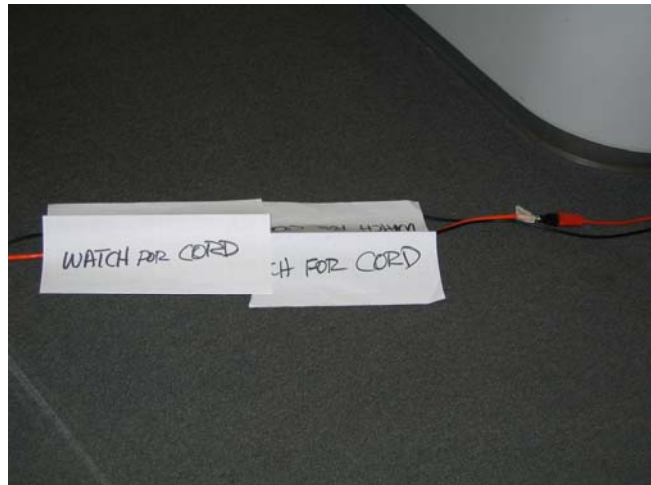
## **Building Services Violation**

### **FINDING #11**

**Extension cords and power strips are improperly used to power various appliances throughout the building.**

Extension cords are designed and intended for use as temporary wiring. They should not be used as a substitute for permanent wiring.

**Remedy:** Discontinue use of the extension cords and see campus-



wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 400.8*

**NOTE:** Doors separating offices and classrooms from the exit corridors throughout the building are kept open by wooden and rubber wedges. A fire occurring on either side of an open door can spread heat and smoke throughout the building, possibly trapping occupants in their rooms. Simply closing these doors can limit the

spread of heat and smoke beyond the area of origin, which will limit damage, enhance fire-fighting operations and provide additional evacuation time for occupants. The doors and their closing devices must be enabled to serve their intended purpose. This requires removal of all hold-open devices and if desired, installation of magnetic hold-open devices on doors subject to extensive use. The magnetic devices shall release the doors upon activation of the fire alarm system or upon loss of power.

## **12 – John W. Thomason Building**

This four-story structure is categorized as a business occupancy. It houses classrooms, offices and the university print shop. It is constructed of masonry and has an exterior brick veneer finish. The building contains a partial basement. The lower floor area

consists of a basement that is much smaller than the above-floor areas. Fire safety features include a fire alarm system, partial smoke detection, manual pull boxes, audio/visual devices, emergency lighting and portable fire extinguishers.

### ***Means of Egress Violations***

#### **FINDING #1**

**There are numerous inoperative emergency lighting units and several areas lack sufficient emergency lighting.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Implement the following corrective measures:

- Survey the entire building for functioning and adequate emergency lighting.
- Repair or replace inoperative emergency lighting units.
- Install additional emergency lighting units where necessary.
- See campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 39.2.9.1, 7.9.2, 4.6.13.1 and 4.5.7*

#### **FINDING #2**

**The basement is provided with one approved exit instead of the required two.**

One of the existing exits is a rollup-type door. This type of door is not approved and may hinder egress. Doors are required to be side hinged.

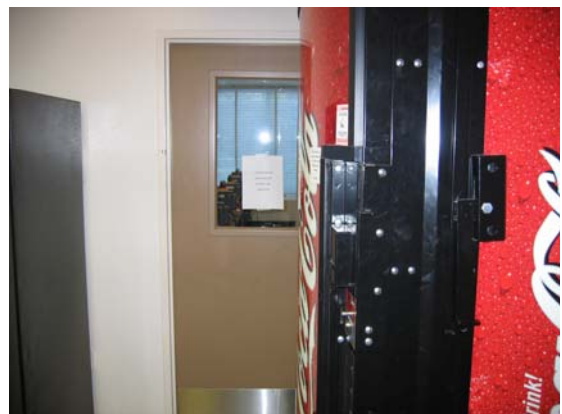
**Remedy:** Provide an additional exit. This door shall open directly to the exterior and shall be side hinged and open in the direction of egress travel.

*NFPA 101, Chapters 39.2.4.2 (1) and 7.4*

#### **FINDING #3**

**Vending machines obstruct the exit access corridor near room 329 and stair enclosure 100S3.**

These machines reduce the width of the exit access corridor and may restrict an emergency evacuation. Furnishings, decorations or other objects shall not obstruct exit access, egress or visibility.





**Remedy:** Remove the vending machine and see campus-wide deficiencies located at the end of this report concerning egress obstructions and impediments.

*NFPA 101, Chapters 4.5.3.2, 39.2.1.1 and 7.1.10.2.1*

#### **FINDING #4**

**Lecture rooms throughout the building have occupant loads exceeding 50 persons but lack the required two means of egress.**

Rooms subject to 50 or more people are categorized as assembly occupancies, which require at least two separate means of egress.

**Remedy:** Provide an additional exit from each lecture room. This exit shall be remotely located from the existing exit.

*NFPA 101, Chapters 39.2.4.1, 13.2.4.2 and 7.4.1.1*

#### **FINDING #5**

**Dead end corridors in excess of 50 feet exist in office suites 303 and 203.**

Dead end corridors shall not exceed 50 feet in length. Dead end corridors require occupants attempting to use these corridors during evacuations to reverse their direction of travel. This increases evacuation time, which endangers occupants.

**Remedy:** Provide an additional exit from the areas or limit the dead end corridor to less than 50 feet.

*NFPA 101, Chapter 39.2.5.2*

#### **FINDING #6**

**The stair enclosure lights are controlled from switches located at each landing. This permits occupants to sever power to the lighting, subsequently eliminating lighting in the stair enclosures.**

Lighting circuits are not permitted to incorporate a single switch that permits the lights to be completely turned off.

**Remedy:** Remove or relocate the light switches to make them inaccessible to non-faculty. Automatic, motion sensor-type lighting switches are permitted in the means of egress. The illumination timers must be set for a minimum 15-minute duration and motion sensors are activated by any occupant movement into the area served by the lighting units.

*NFPA 101, Chapters 39.2.8 and 7.8*

## Protection Violations

### FINDING #7

Improper storage of flammable and combustible liquids exists in the basement. This includes flammable liquids consisting of two, 55-gallon containers of isopropyl alcohol and combustible liquids consisting of two, 55-gallon containers of combustible wash and two, five-gallon containers of other combustible liquids.



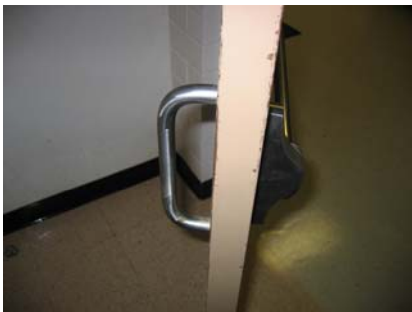
Flammable Class I liquids are not permitted in basement areas. Combustible Class II and Class IIIA liquids are permitted but must be adequately protected.

**Remedy:** Remove all flammable liquids. The other liquids may remain but this requires complete sprinkler protection in the basement area and a fire barrier separation having a minimum one hour rating. Doors penetrating this barrier shall have a minimum 45 minute fire rating and shall also incorporate door closing devices and positive latching.

*NFPA 101, Chapters 39.3.2, 8.7 and 8.7.3.1(1) and NFPA 30, Flammable and Combustible Liquids Code, Chapter 6.4.3.5*

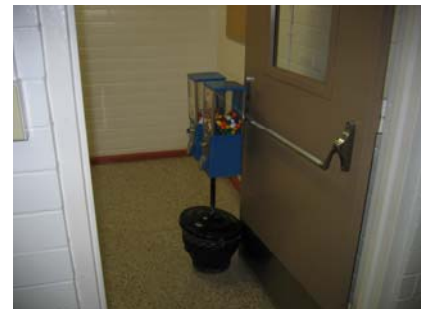
### FINDING #8

Stair enclosure entry doors lack fire rated hardware and positive latching. The door entering stair enclosure 300S3 is kept open with a gum ball machine.



These doors, and their closing mechanisms, are intended to temporarily contain smoke, heat and flame, should a fire occur. The lack of required hardware or failure to maintain them will adversely affect egress by permitting rapid spread of heat, flame and smoke.

**Remedy:** Install fire rated hardware on each stair enclosure entry door. This hardware shall incorporate self closing devices and positive latching. Discontinue securing these doors in the open position.



*NFPA 101, Chapters 39.2.1.1, 7.2.2.5.1.1, 7.1.3.2.1 and 4.6.13.1*

## FINDING #9

**Inadequate audio/visual devices exist. The office suites lack audio/visual devices and each floor is limited to two devices.**

**Remedy:** Review the performance of the fire alarm system and install additional alarm devices where needed.

*NFPA 101, Chapters 39.3.4.1 and 9.6.3.7*

## FINDING #10

**The mechanical room 300U2 and the custodial closet 315 are considered hazardous areas. The doors entering these rooms lack required door closing devices.**

Hazardous areas including, but not limited to, areas used for general storage are required to have separation from other parts of the building by fire barriers having a fire resistance rating of not less than one hour. All openings require protection by 45 minute fire protection-rated self-closing fire door assemblies.

**Remedy:** Install self-closing door mechanisms on the doors entering the mechanical and custodial rooms.

*NFPA 101, Chapters 39.3.2.1 and 39.3.2.2*

## FINDING #11

**A large concentration of combustible paper and other items are scattered throughout room 304. The extensive amount of combustibles in this office exceeds what is typically found within such rooms and thus results in rooms like this being categorized as hazardous areas.**

Offices are not permitted to have extensive fuel loads. The extent of combustible material in these offices will fuel a fire, endangering occupants and hindering fire department suppression efforts.

**Remedy:** Implement one of the following two corrective measures:



Enclose the office area with a fire barrier. This barrier shall have a one hour fire resistance rating and shall not incorporate windows. The door entering this office shall

have a minimum 45 minute fire resistant rating, a door closing device and positive latching.

**Or**

Remove the extensive combustible material to a level typical of business offices.

*NFPA 101, Chapters 13.3.2.1 and 8.4.1.1*

### ***Building Services Violation***

#### **FINDING #12**

**Extension cords are improperly used to power various appliances and power strips are interconnected. These exist throughout the building.**

Extension cords are designed and intended for use as temporary wiring. They should not be used as a substitute for permanent wiring. Power strips should not be interconnected as a means of obtaining additional receptacle outlets.



**Remedy:** Discontinue use of the extension cords and interconnection of power strips. See campus-wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 400.8*

**NOTE:** Free-standing water exists near the high-voltage room. This creates a risk of injury, should the water level rise.

## **18 - Academic Building II**

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This is a three-story structure categorized as a business occupancy. It is constructed of masonry and has an exterior brick veneer finish. Fire safety features include a fire alarms system and portable fire extinguishers.

## ***Means of Egress Violations***

### **FINDING #1**

**The lecture rooms have seating exceeding 50 people, which categorizes them as assembly occupancies. These rooms are not provided with the required two means of egress.**

At least two remotely located exit access doors are required to reduce the potential for a fire or emergency blocking the escape paths of occupants.

**Remedy:** Install a second exit from each lecture room or reduce occupant loads to less than 50 persons per room.

*NFPA 101, Chapters 13.2.4.1 and 7.4.1.1*

### **FINDING #2**

**An unapproved locking/latching device consisting of a hasp and padlock exists on the supply room door located in room 127B.**

Unapproved devices may result in occupants being inadvertently locked in an area.

**Remedy:** Replace the unapproved locking/latching device with one accessible from the interior side of the room. This replacement device may consist of a key-operated deadbolt, provided the locking mechanism on the interior side of the room incorporates a thumb release.



*NFPA 101, Chapters 39.2.2.2.1 and 7.2.1.5*

### **FINDING #3**

**Three exit doors on the first floor incorporate multiple locking/latching devices consisting of panic hardware and single-cylinder deadbolt locks. One of the single-cylinder locks was engaged during the inspection but unlocked prior to departure.**

Unapproved devices may result in occupants being prevented from exiting a building.

**Remedy:** Remove the deadbolt locking devices from the exit doors. Panic hardware must disengage all other locking and/or latching devices located on a door.

*NFPA 101, Chapters 39.2.2.2.1 and 7.2.1.7.3*

## ***Protection Violations***

### **FINDING #4**

**The portable fire extinguishers lack a required current inspection tag.**

The lack of servicing may result in the extinguisher not performing properly, subsequently endangering staff and leading to increased property damage.

**Remedy:** Contact a company licensed by the State Fire Marshal's Office to inspect and maintain the fire extinguisher. Fire extinguishers shall be subjected to maintenance at intervals of not more than one year, at the time of hydrostatic test, or when specifically indicated by an inspection.

*NFPA 101, Chapters 4.6.13.1 and 8.7.3 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3*

### **FINDING #5**

**Several stair enclosure entry doors at stairs 300S1 and 100S1 do not fully close and latch as required.**

These doors, and their closing mechanisms, are intended to temporarily contain smoke, heat and flame, should a fire occur. Failing to maintain these doors will adversely affect egress by permitting rapid spread of heat, flame and smoke.

**Remedy:** Repair non-functioning closing devices and/or latching devices.

*NFPA 101, Chapters 4.6.13.1, 4.5.7, 39.2.2.2.1 and 7.2.1.8.1*

### **FINDING #6**

**Unsealed floor to floor penetrations exist in the mechanical, telecommunication, storage and janitor rooms.**

Heat and smoke can travel through these unsealed openings into the adjoining egress corridors.

**Remedy:** Seal the unprotected penetrations and see campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapter 8.5.5.2*



### **FINDING #7**

**The fire alarm system has multiple deficiencies. These deficiencies include the following:**



- **The system lacks the required annual servicing.**
- **The system lacks adequate audible/visual devices. Each floor is limited to two audio/ visual devices.**

Fire alarm systems must be inspected, serviced and repaired when impairments are noted. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Implement the following corrective measures:

Have the system serviced by a licensed company.  
Eliminate noted deficiencies such as inadequate audio/visual devices. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 39.3.4.1, 9.6.3.7 and 4.6.13.1*

### **FINDING #8**

**The door protecting the opening into mechanical room 100U1 lacks a required fire resistant rating and self-closing device. This mechanical room is categorized as a hazardous area.**

The lack of a door closing device may permit a fire originating in the mechanical room to rapidly spread into exit access corridors.

**Remedy:** Install a door having a minimum 45-minute fire resistant rating. This door shall incorporate a door closing device and positive latching.

*NFPA 101, Chapters 39.3.2.1 and 8.7*

### **FINDING #9**

**Unsecured compressed gas cylinders exist in room 127B.**

A falling compressed cylinder may accidentally shear the valve, resulting in a release of gas and causing the cylinder to act as a projectile. This projectile may cause damage resulting in a threat to life and property.

**Remedy:** Secure the gas cylinders to prevent accidental tip over.



## **FINDING #10**

**Two doors enter the stair enclosure from computer lab 110. These doors lack the required fire resistive rating, self-closing devices and positive latching hardware.**

These doors, and their closing mechanisms, are intended to temporarily contain smoke, heat and flame, should a fire occur. The lack of approved doors will permit rapid spread of a fire in lab 110 into the stair enclosures, subsequently preventing use of this exit.



**Remedy:** Replace the existing doors with ones having a minimum 45 minute fire resistant rating. They shall also incorporate self-closing devices and positive latching.

*NFPA 101, Chapters 4.6.13.1, 39.2.2.2.1, 39.2.2.7, 7.2.1.8.1 and 7.2.6.3*

NOTE: A natural gas odor was present upon entering a mechanical room located in the basement, subsequently resulting in these systems being shut down. This was preceded by a similar odor the week prior to this inspection, found by university HVAC personnel upon initiating startup of the boilers. Their finding resulted in the gas system being inspected and tested for leaks, which did not reveal any problems. However, it is evident that a problem existed, as indicated by the odor present during this inspection. Further review during this inspection indicated the likelihood of insufficient make-up air and ventilation capacity to ensure proper combustion. This was later verified by an independent contractor. It is important to note university personnel limited their initial actions to testing of the lines and failed to implement additional actions after determining integrity of the gas lines were not the cause of this problem.

NOTE: Candles are present in some offices and in the formal dining area/room 207. The State Fire Marshal's Office recommends prohibiting candles.

## **19 - Lowman Student Center**

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This three-story structure is categorized as an assembly occupancy. It is constructed of masonry and has an exterior brick veneer finish. Fire safety features include an addressable fire alarm system, complete automatic fire sprinkler coverage, portable fire extinguishers and fixed fire suppression protecting the commercial cooking equipment.



## ***Means of Egress Violations***

### **FINDING #1**

**The exit access doors at rooms 219 and 221 are equipped with unapproved locking devices consisting of hasps and pad locks.**

Unapproved devices may result in occupants being inadvertently locked in the room and/or building.

**Remedy:** Any door in a required means of egress from an area shall not require the use of a key, special effort, knowledge or tool. Remove the hasps and padlocks.

*NFPA 101, Chapters 13.2.2.1 and 7.2.1.5.2*

### **FINDING #2**

**The emergency lighting located near the deep fat fryers in the kitchen is not functioning.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Repair or replace the non-functioning emergency lighting unit. See campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 13.2.9.1, 7.9.2 and 7.9.3.1.1*

### **FINDING #3**

**The secondary exit in the coffee shop is not readily visible. It lacks required visibility from all areas of the room due to the lack of required exit signs.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, thus assisting in emergency evacuations. Directional indicators shall be a chevron type that is identifiable as a directional indicator.

**Remedy:** Install illuminated directional exit signs. These signs shall provide adequate identification of this exit from within the coffee shop area. The power supplying these signs may be from either an internal or external source. See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 13.2.10 and 7.10*

#### **FINDING #4**

**Inadequate emergency lighting exists in multiple areas. These areas include the following locations:**

- **Egress and assembly areas in the coffee shop. Currently the only area having emergency lighting includes the counter area.**
- **The exit corridor that provides discharge to the exterior from the Ballroom G10 room.**
- **Room 712.**
- **The Kat Club.**
- **Two secondary exit stairwells.**

**Remedy:** Install adequate emergency lighting units in the aforementioned areas. See campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 13.2.9.1 and 7.9*

#### **FINDING #5**

**The arrangement of the means of egress in Ballroom G10 is inadequate. Three of the exits enter the same exit corridor.**

Exits converging into the same area will permit a single incident to simultaneously obstruct all exits, subsequently trapping occupants.

**Remedy:** Install an exit sign on the additional exit located on the opposite wall. It enters into a different corridor, which has an exit door discharging directly to the exterior.

*NFPA 101, Chapters 13.2.10 and 7.10*

#### **FINDING #6**

**Egress obstructions exist in several areas of the building, including the following:**

- **Bread racks and push carts obstruct the kitchen exit access corridor.**
- **A barricade intended to prevent occupants from using secondary egress doors exists in the book store.**

These items reduce the width of the exit access corridor and may restrict groups of people during an emergency evacuation. Furnishings, decorations or other objects shall not obstruct exit access, egress or visibility.

**Remedy:** Remove the obstructions and see campus-wide deficiencies located at the end of this report concerning egress obstructions and impediments.

*NFPA 101, Chapters 13.2.1, 7.1.10.2.1 and 4.5.3.2*

### **Protection Violations**

#### **FINDING #7**

**Flammable and combustible paints are improperly stored in wooden cabinets within room 328P.**

Storage of large quantities of flammable liquids must be in accordance with NFPA 30, Flammable and Combustible Liquids Code. Improper storage may cause and/or accelerate a fire.

**Remedy:** Provide an approved flammable and combustible liquids cabinet for storage of flammable liquids.

*NFPA 101, Chapters 13.3.2 and 8.7.3, and NFPA 30, Flammable and Combustible Liquids Code, Chapter 6.5.4*

#### **FINDING #8**

**A strong odor of flammable and combustible vapors exists. This area lacks the required one hour fire resistant separation from the remainder of the building.**

Rooms containing flammable and combustible vapors are categorized as hazardous and thus must be adequately separated. This prevents a fire caused by flammable or combustible vapors from immediately affecting the remainder of the building.

**Remedy:** Provide a minimum one hour fire resistant barrier between this room and other portions of the building. The door(s) entering this room shall have a minimum 45 minute rating and positive latching. This room must incorporate ventilation at all times to ensure that flammable and combustible vapors are kept at a minimum.

*NFPA 101, Chapter 13.3.2.1.2, 8.7.3.1 and NFPA 30, Flammable and Combustible Liquids Code, Chapter 7.3.4*

#### **FINDING #9**

**Items are stored within 18 inches of the sprinkler heads throughout the building. This includes an obstruction created by a suspended water heater in room 100J2.**

Obstructions to sprinkler heads lessen their effectiveness, which may result in the sprinkler system's failure to control a fire.

**Remedy:** Remove items obstructing sprinkler heads. Other institutions have applied visual indicators on walls. This has proven to be an effective means of ensuring staff compliance with storage height limitations.

*NFPA 101, Chapters 4.6.13.1 and 4.5.7 and NFPA 13, Standard for the Installation of Sprinkler Systems, Chapters 8.5.4 and 8.8.6.1*

#### **FINDING #10**

**The Barnes and Noble storage area has an excessive amount of combustible material, i.e., boxes, etc. The doors lack required self-closing devices to ensure the storage area is effectively separated from the remainder of the building.**

Areas containing extensive combustibles exceeding what is typically found within the occupancy are categorized as hazardous areas and thus must be separated.

**Remedy:** Install self-closing devices on the doors to ensure they remain closed and latched.

*NFPA 101, Chapter 13.3.2.1.2*

#### **FINDING #11**

**Installation of large shelves in room 112E neglected to include alteration of the automatic fire sprinkler protection, subsequently resulting in inadequate coverage.**

The lack of adequate sprinkler coverage may permit a fire occurring on one of the shelves to spread rapidly, overcoming the capacity of the sprinkler system.

**Remedy:** Have a licensed company extend the sprinkler system to provide adequate coverage or remove the shelving. Sprinklers shall be installed under fixed obstructions over four ft. wide, such as ducts, decks, open grate flooring, cutting tables, and overhead doors.

*NFPA 101, Chapter 4.6.13.1 and NFPA 13, Standard for the Installation of Sprinkler Systems, Chapter 8.8.5.3.2*

#### **FINDING #12**

**Freezers obstruct visibility of two audio/visual devices located in room 102F.**

Audio/visual devices must be unobstructed and visible at all times. Obstructing such devices will diminish their audible and visual capacity.

**Remedy:** Remove the items obstructing the devices or relocate the devices to ensure their audible and visual functions are not diminished.

*NFPA 101, Chapter 4.6.13.1*

## ***Building Services Violation***

### **FINDING #13**

#### **Extension cords are improperly used to power various appliances throughout the building.**

Extension cords are designed and intended for use as temporary wiring. They should not be used as a substitute for permanent wiring.

**Remedy:** Discontinue use of the extension cords and see campus-wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapters 13.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 400.8*

NOTE: During the inspection of the outside mechanical room, the electrical circuit breakers supplying three of the four boilers were locked and tagged out. The boilers had been cannibalized to provide one operational boiler. Information obtained from university HVAC personnel indicated the three cannibalized boilers would not be put back in service. Therefore, university personnel were directed to disconnect the electrical service and to disconnect and cap the gas supply. Future use of the three unused boilers requires inspection and certification.

NOTE: Doors separating offices and classrooms from the exit corridors throughout the building are held open by wooden and rubber wedges. A fire occurring on either side of an open door can spread heat and smoke throughout the building, possibly trapping occupants in their rooms. Simply permitting the doors to close can limit the spread of heat and smoke beyond the area of origin, which will limit damage, enhance fire-fighting operations and provide additional evacuation time for occupants. Although not required by the occupancy chapter, the Life Safety Code does mandate maintenance of existing features. Therefore, this office recommends allowing the doors and their closing devices to serve their intended purpose. This requires removal of all hold-open devices and if desired, the installation of magnetic hold-open devices on doors subject to extensive use. The magnetic devices shall release the doors upon activation of the fire alarm system or upon loss of power.

## **20 - Art Lab C - Sculpture**

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This one-story structure is categorized as an industrial occupancy. It is a metal frame building with a metal exterior and drywall interior. Fire protection features include portable fire extinguishers and illuminated fire exit signs.

### ***Means of Egress Violations***

## FINDING #1

**The exit doors on the south side of the building discharge into a fenced area that provides gates for exit discharge. However, the gates are locked.**

Exits must remain usable during hours of occupancy.

**Remedy:** Remove the key operated locking device. The gates may be locked to prevent entry from the outside but egress shall not require the use of a key, tool or special knowledge.

*NFPA 101, Chapters 40.2.1, 40.2.7, 7.7 and 7.2.1.5*

## FINDING #2

**The opening into the woodshop area from the corridor lacks a door. This inadvertently creates a dead end exceeding the permitted 50 foot limitation. This situation also creates a lack of separation between the woodshop/hazardous area and the remainder of the building.**

Dead ends require occupants to reverse their direction of travel, subsequently increasing evacuation time. The lack of a separation between the woodshop area and the remainder of the building will permit a fire occurring in the woodshop area to immediately affect the remainder of the building.

**Remedy:** Install a 45 minute rated fire door at the woodshop entry. This door shall incorporate a door closing device and positive latching. This effectively limits the corridor length to less than 50 feet and also provides the woodshop with an adequate separation from the remainder of the building.

*NFPA 101, Chapters 40.2.5.2, 40.3.2, 8.7 and 4.6.4*

### **Protection Violation**

## FINDING #3

**Three empty portable fire extinguishers exist in the outside gated area and are not mounted.**

Portable fire extinguishers must be serviced at least once annually. This ensures proper operation in case of a fire. They must be mounted and readily visible to occupants. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance



with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. Mount the portable fire extinguishers in a readily visible location. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapter 4.6.13 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3*

NOTE: A propane cylinder located in the shop was removed during the inspection and thus not referenced as a discrepancy.

## **21 - Art Lab D – Painting Drawing**

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This one-story structure is categorized as a business occupancy. It is a metal frame building with a metal exterior and drywall interior. Features of fire protection include a fire alarm system with detection throughout, portable fire extinguishers, emergency lighting and illuminated fire exit signs.

### ***Protection Violations***

#### **FINDING #1**

**The portable fire extinguisher near room 100M1 has not been serviced within the past year.**

Portable fire extinguishers must be serviced at least once annually. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the portable fire extinguisher serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 39.3.5, 4.6.13.1 and 9.7.4.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3.1.4*

#### **FINDING #2**

**Portions of the building's interior finish consist of an unidentified fabric covering the corridor walls.**

Materials not meeting minimum requirements burn rapidly and emit an extensive amount of smoke, which may hinder egress during a fire.

**Remedy:** Provide documentation specifying the material's rating. It should have a minimum Class A or B rating. This material must be removed if it does not meet these requirements.

*NFPA 101, Chapters 39.3.3.2.1 and 10.2*

## **22 - Career Planning & Placement Center**

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This one-story structure is categorized as an assembly occupancy, which houses a library. It is constructed of masonry and has an exterior brick veneer. Fire safety features include a fire alarm system, manual pull boxes, smoke detection and audio/visual devices. The secondary exit door is equipped with a delay egress locking device that has a 15 second delay.

### ***Means of Egress Violations***

#### **FINDING #1**

##### **The building lacks required emergency lighting.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Install emergency lighting units within assembly and egress areas. See campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 13.2.9.1 and 7.9*

#### **FINDING #2**

##### **The secondary exit access door in the library lacks a required illuminated exit sign.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations. Directional indicators shall be a chevron type that is identifiable as a directional indicator.

**Remedy:** Install an illuminated exit sign above the door leading to the exit and see campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.





*NFPA 101, Chapters 13.2.1, 7.10.1.1, 7.10.6.1.1 and 7.10.6.2.1*

### **FINDING #3**

**Storage, including the janitor's cart, is located in the exit access corridor of the north office area.**

This storage reduces the width of the exit access corridor and may restrict groups of people during an emergency evacuation. Furnishings, decorations or other objects shall not obstruct exit access, egress or visibility.

**Remedy:** Remove the storage and see campus-wide deficiencies located at the end of this report concerning egress obstructions and impediments.

*NFPA 101, Chapters 13.2.1, 7.1.10.2.1 and 4.5.3.2*

### **Protection Violation**

### **FINDING #4**

**Unsealed wall penetrations exist in the machine room and the door lacks a required closing device.**

Heat and smoke can travel through unsealed openings into the adjoining areas. The lack of a door closing device will permit rapid spread through the opening if the door is in the open position. .

**Remedy:** Install a door closing device and see campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 13.3.2 and 8.7*

## **24 - Pritchett Men's Restroom**

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This building is a single-story structure categorized as an assembly occupancy. This building serves as an accessory building to the Pritchett soccer field. It is constructed of concrete block with a steel roof system.

### **Building Services Violation**

### **FINDING #1**

**The electrical panel box breakers located in the closet are inappropriately taped in the open position.**



Taping these breakers open hinders their ability to trip during a short or other malfunction, which increases the risk of fire.

**Remedy:** Remove the tape from all breakers and maintain them in the proper working order.

*NFPA 101, Chapters 13.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 110.12(C)*

## 37 - Music Recital Hall

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This is a single-story building categorized as an assembly occupancy. It incorporates a small mezzanine area. It is of wood frame construction and has a combination exterior finish consisting of wood siding and brick veneer. Fire safety features include a fire alarm system, emergency lighting and portable fire extinguishers.

### **Protection Violations**

#### **FINDING #1**



**Combustible items are improperly stored in the building's lobby, including an extensive amount of combustible wooden props.**

This extensive storage will fuel a fire, and also hinders egress.

**Remedy:** Remove the wooden props, which should be stored in a room

designed as a hazardous area. This includes a minimum one hour fire barrier separation and 45 minute rated fire doors incorporating self closing devices and positive latching. An option involves relocation of this material to an exterior area.

*NFPA 101, Chapter 13.3.2.1.2*



## FINDING #2

**Unapproved storage of flammable paints exists in room 102. This room also contains an extensive amount of combustible materials.**

The lack of appropriate storage for flammable liquids permits the release of vapors, which will act as an accelerant should a fire occur. The extensive combustible material will also fuel a fire.

**Remedy:** Implement the following corrective measures:



Provide an approved cabinet for the storage of flammable liquids or remove the liquids. Provide the area with a minimum one hour fire barrier separation. Doors entering this area shall consist of 45 minute fire rated doors with self closing devices and positive latching.

*NFPA 101, Chapters 13.3.2.1 and 8.7.3.1 and NFPA 30, Flammable and Combustible Liquids Code, Chapter 6.5.4*

## 39 - Academic Building 1

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This four-story structure is categorized as a business occupancy and it has some incidental assembly uses. It is constructed with a steel frame and has an exterior brick veneer finish and a drywall interior finish. The top floor consists of a penthouse, which has a mechanical room. Fire safety features include a fire alarm system with complete detection, portable fire extinguishers, emergency lights and illuminated fire exit signs.

### **Means of Egress Violations**

#### FINDING #1

**Emergency lighting deficiencies exist throughout the building. Some areas identified include the following:**

- **An inoperative emergency lighting unit exists near room 310.**
- **The second floor emergency lighting system is inoperative.**
- **The exterior stair enclosures lack emergency lighting.**

Emergency lighting is necessary to provide automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Implement the following corrective measures:

- Repair or replace inoperative emergency lighting.
- Install emergency lighting in the exterior stair enclosures.
- See campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 39.2.9, 7.9.2, 4.6.13.1 and 4.5.7*

## **FINDING #2**

**Multiple classrooms throughout the building have occupant loads exceeding 50 persons. These assembly areas lack the required two means of egress.**

Rooms subject to use by 50 or more people are categorized as assembly occupancies, which require at least two separate means of egress.

**Remedy:** Provide an additional exit. This exit shall be remotely located from the existing exit.

*NFPA 101, Chapter 13.2.4.2*

## **FINDING #3**

**Entrances to the stair enclosures lack required illuminated exit signs.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, subsequently assisting in emergency evacuations. Directional indicators shall be a chevron type that is identifiable as a directional indicator.

**Remedy:** Install illuminated exit signs at each stair enclosure entry point. These signs shall have illumination in both the normal and power failure modes. See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 39.2.10, 7.10.2, and 7.10.5*

## **FINDING #4**

**Floor-mounted door stops at stair enclosure entry doors are preventing doors from fully closing to a required latched position.**

Stair enclosure penetrations created from door openings must be protected. This ensures the integrity of the enclosure by preventing rapid spread of heat, flame and smoke into the enclosure.

**Remedy:** Remove the floor mounted door stops.

*NFPA 101, Chapters 39.2.1.1, 7.2.1.8.1, 4.6.13.1 and 4.5.7*

#### **FINDING #5**

**The doors entering the stair enclosures incorporate panic hardware instead of required fire-rated hardware.**

Panic hardware incorporates set screws that permit retraction of the positive latching mechanism. This may permit the pressure generated during a fire to push the doors open resulting in the rapid spread of heat, flame and smoke.

**Remedy:** Replace the unapproved panic hardware with approved fire-rated hardware.

*NFPA 101, Chapters 39.2.2.2.1, 7.2.1.7.2 and 7.2.1.8.1*

#### **FINDING #6**

**The stair enclosures lack required exit discharge doors. The doors exiting the stair enclosures enter the bottom floor instead of providing required direct access to the exterior.**

The lack of doors leading directly to the exterior from the stair enclosures requires occupants to re-enter the bottom floor prior to being able to exit the building. This may result in occupants becoming trapped in the stair enclosures should a fire occur on the first floor.

**Remedy:** Implement one of the following corrective measures:

Provide both stair enclosures with doors exiting directly to the exterior instead of into the bottom floor.

**Or**

Provide the entire first floor with complete sprinkler coverage. Fifty percent of the required stair enclosures/exits must incorporate doors exiting directly to the exterior.

**Or**

Separate the area accommodating discharge into the bottom floor from other portions of the building. This barrier shall have a minimum 1 hour fire barrier rating. Doors penetrating the barrier shall be self closing, positive latching and have a minimum 45 minute fire rating. This requires sprinkler protection only in the area that accommodates discharge from the stair enclosure into the bottom floor.

*NFPA 101, Chapters 39.2.1 and 7.7.2*

## ***Protection Violations***

### **FINDING #7**

#### **Unsealed penetrations exist in the elevator mechanical room.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** Seal the penetrations and see campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

### **FINDING #8**

#### **The fire alarm system lacks sufficient audio/visual warning devices.**

The lack of required audio/visual devices may delay occupant notification of a fire, should one occur. Fire alarm systems must be inspected, serviced and repaired when impairments are noted. This ensures proper operation in case of a fire.

**Remedy:** Have the system's deficiencies corrected by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 4.6.13.1, 39.3.4.3, 9.6.3 and 4.5.6*

### **FINDING #9**

#### **Bulletin boards exist in the stair enclosures. These boards adversely affect the required interior finish of these enclosures.**

Unapproved interior finish or combustible material will fuel a fire, should one occur. The bulletin boards may eliminate use of the stair enclosures should a fire occur.

**Remedy:** Remove the bulletin boards from the stair enclosures.

*NFPA 101, Chapters 39.3.3.2 and 10.2 and NFPA 701, Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*

## ***Building Services Violation***

### **FINDING #10**

**Extension cords are used to power appliances and numerous power strips are interconnected.**

Extension cords are designed and intended for use as temporary wiring. Power strips should be plugged directly into an electrical outlet and not interconnected with others as a means of providing additional electrical receptacles.

**Remedy:** Remove the extension cords and discontinue interconnecting power strips. See campus-wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 400-8*

## **41 - Smith-Hutson Business Building**

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This four-story structure is categorized as a business occupancy. It is constructed of a steel frame with a brick veneer exterior finish and a drywall and plaster interior finish. The top floor consists of a large penthouse area containing mechanical equipment. Fire protection features include a fire alarm system, detection throughout, portable fire extinguishers, emergency lighting and illuminated fire exit signs.

### ***Means of Egress Violations***

#### **FINDING #1**

**Numerous emergency lighting units are not functioning and several areas lack required emergency lighting, including:**

- **Non-functioning unit near the main electrical panel in the penthouse.**
- **Non-functioning units in the stairwells.**
- **Lacking in the exit corridors of all floors.**
- **Lacking in the auditorium.**
- **Lacking in office suite areas 305 and 210.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Implement the following corrective actions:

- Repair or replace non-functioning emergency lighting units.
- Install emergency lighting units where lacking.

- See campus-wide deficiencies located at the end of this report concerning the lack of, or insufficient, emergency lighting.

*NFPA 101, Chapters 39.2.9 and 7.9*

## **FINDING #2**

**The exit corridors in office suites numbered 305 and 210 lack required exit signs.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations. Directional indicators shall be a chevron type that is identifiable as a directional indicator.

**Remedy:** Install exit signs where lacking and see campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 39.2.10 and 7.10*

## **FINDING #3**

**Furniture and other storage obstruct the auditorium's northeast and southeast secondary exits.**

These items reduce the capacity of egress and thus may restrict groups of people during an emergency evacuation. Furnishings, decorations or other objects shall not obstruct exit access, egress or visibility.

**Remedy:** Remove items obstructing exits and see campus-wide deficiencies located at the end of this report concerning egress obstructions and impediments.

*NFPA 101, Chapters 39.2.1.1, 7.1.10.2.1 and 4.5.3.2*

## **FINDING #4**

**Several stair enclosure entry doors fail to close to a required latched position.**

These doors, and their closing mechanisms, are intended to temporarily contain smoke, heat and flame, should a fire occur. Leaving these doors open and/or failing to maintain them will adversely affect egress by permitting rapid spread of heat, flame and smoke.

**Remedy:** Repair and/or replace non-functioning closing mechanisms and latching devices.

*NFPA 101, Chapters 39.2.1.1, 7.2.1.8.1, 4.6.13.1 and 4.5.7*

## **Protection Violation**



## **FINDING #5**

**Unsealed fire wall and/or smoke barrier penetrations exist throughout numerous mechanical, electrical and telecommunication rooms.**

Heat and smoke can travel through these unsealed openings into the adjoining egress corridor.

**Remedy:** Seal the penetrations and see campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 39.3 and 8.5.5.2*

### ***Building Services Violation***

## **FINDING #6**

**Extension cords and power strips are improperly used to power various appliances throughout the building.**

Extension cords are designed and intended for use as temporary wiring. They should not be used as a substitute for permanent wiring.

**Remedy:** Discontinue use of the extension cords and see campus-wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 400.8*

## **44 – Custodial & Grounds Building**

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This one-story structure is categorized as a mixed occupancy, including business, storage and industrial uses. It is a metal frame building with a metal and rock exterior and drywall interior. Fire protection features include a full automatic fire sprinkler system, a full fire detection and alarm system, portable fire extinguishers, emergency lights and illuminated fire exit signs.

### ***Protection Violations***

## **FINDING #1**

**Metal shelving in storage room 102 obstructs sprinkler heads.** The distance between the shelving and sprinkler heads is less than the required 18 inches.

Obstructions to sprinkler heads lessen their effectiveness, which may result in the sprinkler system's failure to control a fire.

**Remedy:** Implement the following corrective measures:

- Remove metal shelving and any other items obstructing sprinkler heads in the aforementioned rooms.
- Survey the entire building for obstructions and implement immediate corrective measures.
- Consider application of visual indicators on walls within storage and similar areas. This has proven to be an effective means of ensuring staff compliance with storage height limitations.

*NFPA 101, Chapters 4.6.13.1 and 4.5.7 and NFPA 13, Standard for the Installation of Sprinkler Systems, Chapter 8.5.4*

## **FINDING #2**

**The portable fire extinguisher near room 102A has not been serviced within the past year.**

Portable fire extinguishers must be serviced at least once annually. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the portable fire extinguisher serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapter 4.6.13.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3.4.1*

NOTE: The exterior loading dock lacks sprinkler coverage. Therefore, maintain limited storage in this area.

## **44 - Custodial/Grounds Maintenance Fuel Storage Tank**

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The diesel fuel storage tank (AST) has a capacity of approximately 1,500 gallons. The AST has an attached suction dispenser. The system supplies fuel to grounds maintenance equipment.

## ***AST Violations***

### **FINDING #1**

**The above-ground storage tank lacks a label indicating if it is designed and constructed in accordance with recognized engineering standards or approved equivalents. Tank corrosion is visible in several locations.**

Atmospheric tanks, including those incorporating secondary containment, shall be designed and constructed in accordance with recognized engineering standards or approved equivalents.



**Remedy:** Replace the existing AST with one meeting one of the following standards.

UL 142, Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids; UL 2080, Standard for Fire Resistant Tanks for Flammable and Combustible Liquids; or UL 2085, Standard for Protected Aboveground Tanks for Flammable and Combustible Liquids

**Or**

API Specification 12B, Bolted Tanks for Storage of Production Liquids; API Specification 12D, Field Welded Tanks for Storage of Production Liquids; API Specification 12F, Shop Welded Tanks for Storage of Production Liquids; or API Standard 650, Welded Steel Tanks for Oil Storage

NFPA 30, Flammable and Combustible Liquids Code, Chapter 4.2.3.1.1 and NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapter 4.3.2

### **FINDING #2**

**The above-ground storage tank lacks a required emergency pressure relief vent.**

This tank, exposed to a fire, may result in the contents developing sufficient pressure to cause a tank rupture. This endangers firefighters and nearby buildings.

**Remedy:** Replacement of the existing tank with one meeting minimum standards will require installation of an



emergency relief vent.

*NFPA 30, Flammable and Combustible Liquids Code, Chapter 4.2.5.2.1 and NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapter 4.3.2*

### **FINDING #3**

**The above-ground storage tank is surrounded by a spill containment wall. This wall is penetrated by two plastic conduit pipes located near the bottom of the wall. These pipes are sheared off, permitting the release of liquids through these pipes.**

Spill containment must be maintained. Every tank that contains a Class I, Class II, or Class IIIA liquid shall be provided with means to prevent an accidental release of liquid from endangering important facilities and adjoining property or from reaching waterways. Such means shall include remote impoundment, impounding around tanks by diking, or an integral secondary containment tank.

**Remedy:** Provide one of the pipes with a cut-off valve. This valve shall be kept closed unless emptying rain water from the spill containment areas. Effectively seal the second plastic conduit.



*NFPA 30, Flammable and Combustible Liquids Code, Table 4.3.2.3 and NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapter 4.3.2.8*

### **FINDING #4**

**The fuel dispenser is supplied by a pipe originating near the bottom edge of the AST.**

A disruption of the dispensing mechanism may permit an uncontrolled flow of fuel. Openings in above-ground tanks shall be above the maximum liquid level. Bottom outlets are not permitted.

**Remedy:** Installation of an approved AST shall incorporate approved piping.

*NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapters 4.3.6.1*

## **FINDING #5**

**The fueling system lacks a required remote means of stopping fuel flow during an emergency.**

**Remedy:** Install one or more clearly identified emergency shutoff devices. These devices shall meet the following criteria:

- Installed in an approved location not less than 20 feet or more than 100 feet from the fuel dispensing device(s) they serve.
- Shall disconnect power to all dispensing devices, remote pumps serving the dispensing devices, associated power, control and/or signal circuits and all other electrical equipment in the hazardous (classified) locations surrounding the fuel dispensing devices.

*NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapter 6.7*

## **FINDING #6**

**The fuel dispensing hose lacks a required emergency breakaway device. Breakaway devices are designed to retain liquid on both sides of the breakaway point.**

A vehicle driven away without removing the dispensing nozzle will result in severing the hose and/or damaging the tank or dispenser. This could result in an uncontrolled spill of diesel fuel.

**Remedy:** Install a listed emergency breakaway device.

*NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapters 6.5.2*

## **FINDING #7**

**The above-ground storage tank is filled by a fuel tanker that is usually parked less than the required 25 feet from the AST.**

Any emergency occurring during filling operations may result in a fire involving the tank and fuel truck.

**Remedy:** Provide an area that provides the delivery vehicle with a minimum 25 feet separation from the AST.

*NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapters 9.2.2.2*

## **FINDING #8**

**The AST fill inlet lacks a required liquid-tight connection. The tank is currently filled by a dispensing nozzle from the fuel tanker.**

Liquid-tight fill connections prevent accidental spills, limit release of vapors and facilitate operation of overfill alarms.

**Remedy:** Provide the tank fill connection with a check valve or shutoff valve that incorporates a quick-connect coupling or a check valve that incorporates a dry-break coupling. This shall be located at the tank fill inlet unless the system is altered to include piping. In this case, the connection to the piping shall be equipped as addressed above. In either case, the connection device shall be protected from tampering and physical damage and it shall incorporate a spill containment device of noncombustible construction.

*NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapter 9.2.2.5*

## **FINDING #9**

**The AST lacks a required means of sounding an alarm when the fuel level approaches the full level while being filled.**

The lack of an approved overfill alarm may result in the AST being overfilled, subsequently resulting in a fuel spill and possible fire.

**Remedy:** Provide an audible overfill alarm device meeting the following criteria:

- Shall sound an audible alarm when the liquid level in the tank reaches 90 percent of capacity.
- Shall automatically stop the flow of liquid into the tank when the liquid level in the tank reaches 98 percent capacity or restrict the flow of liquid into the tank to a maximum flow rate of 2.5 gpm when the liquid in the tank reaches 95 percent capacity.
- These provisions shall not restrict or interfere with the operation of either the normal vent or the emergency vent.

*NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapters 4.3.6.3*

## **FINDING #10**

**The operating instruction and warning signs posted in the fuel dispensing area lack required information.**

The lack of adequate operating instructions and warning signs may hinder emergency actions.

**Remedy:** Conspicuously post operating and warning signs in the dispenser area. These signs shall include the following:

- Operating instructions shall include location of emergency controls and a requirement that the user stay outside of the vehicle and in view of the fueling nozzle during dispensing.
- Warning signs shall incorporate the following or equivalent wording:

**WARNING**

It is unlawful and dangerous to dispense fuel into unapproved containers.

No smoking.

Stop motor.

No filling of portable containers in or on a motor vehicle.

Place container on ground before filling.

Discharge your static electricity before fueling by touching a metal surface away from the nozzle.

Do not re-enter your vehicle while fuel is pumping.

If a fire starts, **do not** remove nozzle — back away immediately.

Do not allow individuals under licensed age to use the pump.

**Emergency Instructions**

In case of fire or spill:

(1) Use emergency stop button.

(2) Report accident and location by calling (*specify local fire number and location on the sign*).

A telephone or other approved, clearly identified means to notify the fire department shall be provided on the site in a location accessible during any hours of operation of the fuel dispensing area

*NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapters 9.2.5.4*

## **46 - George J. Beto Criminal Justice Center**

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This mixed occupancy is a four-story structure with one floor being a basement. A portion of this building houses training facilities for the Texas Department of Criminal Justice (TDCJ area). The building is constructed of masonry and steel. Fire protection features include fire alarm systems, corridor smoke detection, manual pull stations, audio/visual devices, HVAC shutdown, generator, illuminated exit signs and portable fire extinguishers. This building abuts the University Hotel building with protected openings between the two. The report addressing the Criminal Justice Center contains two sections; one includes the CJC area, the other includes the TDCJ area.

## ***Means of Egress Violations***

### **FINDING #1**

**Room C104 has seating for 60 occupants. This room is equipped with the required two means of egress. However, the egress doors improperly open against the direction of egress travel.**

Doors subject to 50 people or more must open in the direction of egress travel. Otherwise, numerous people reaching a door simultaneously during an emergency evacuation will prevent the doors from being opened, subsequently trapping occupants.

***Remedy:*** Change the door pivot so that both doors open in the direction of egress travel.

*NFPA 101, Chapters 13.2.1 and 7.2.1.4.2*

### **FINDING #2**

**File cabinets are located in the egress corridor, subsequently obstructing egress and reducing capacity of the egress corridor.**

The file cabinets may restrict groups of people during an emergency evacuation. Furnishings, decorations or other objects shall not obstruct exit access, egress or visibility.

***Remedy:*** Two options exist.

Remove the file cabinets from the egress corridor.

Or

Replace the file cabinets with lateral file cabinets. This will restore the minimum required egress corridor width.

And

See campus-wide deficiencies located at the end of this report concerning egress obstructions and impediments.

*NFPA 101, Chapters 39.2.1.1 and 7.1.10.2.1*

### **FINDING #3**

**The exit sign located at the lower ramp lacks required illumination and faces the incorrect direction.**



Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations. Directional indicators shall be a chevron type that is identifiable as a directional indicator.

**Remedy:** Implement the following corrective measures:

- Replace the existing sign with an illuminated sign that functions in the normal and power failure modes.
- Rotate the sign 90 degrees; it shall be double faced so as to be visible from the corridor in both directions.
- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 13.2.1, 7.10.1.1, 7.10.6.1.1 and 7.10.6.2.1*

#### **FINDING #4**

**An inoperative emergency lighting unit exists in the courtroom and possibly other areas. The penthouse and criminal justice boiler plant lack emergency lighting units.**

**Remedy:** Repair or replace the inoperative emergency lighting unit, check all others to determine if they function and install a unit in the penthouse mechanical room and criminal justice boiler plant. See campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 13.2.9, 7.9.2, 4.6.13.1 and 4.5.7*

#### **FINDING #5**

**The rear egress door discharging from courtroom A260 lacks required panic hardware.**

This door is subject to 100 or more occupants and thus requires panic hardware. Inappropriate exit door hardware will delay evacuations.

**Remedy:** Install panic hardware and see campus-wide deficiencies located at the end of this report concerning unapproved locking and/or latching devices.

*NFPA 101, Chapters 13.2.1, 13.2.2.2.3 and 7.2.1.7.3*

#### **Protection Violations**

#### **FINDING #6**

**The lighting booth has an approximately 125 ft. common path of travel, which substantially exceeds permitted distances. However, the lighting booth is**

elevated above the auditorium and has complete visual view over this area. This provides these occupants with rapid warning of a fire occurring in the auditorium. However, the path traversed is exposed to the catwalk room, which lacks a separation because its entry door lacks a door closing device.

The lack of an adequate separation will permit a fire occurring in the catwalk room to immediately affect and/or prevent use of the single egress from the lighting booth room.

**Remedy:** Provide the catwalk entry door with a closing device to protect the adjacent egress stairs from a fire occurring within this area.

*NFPA 101, Chapter 4.6.4*

## **FINDING #7**

**Unsealed floor and wall penetrations exist in the catwalk room.**

Heat and smoke can travel through these unsealed openings into the adjoining auditorium.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapter 8.5.5.2*

## **FINDING #8**

**This building abuts the University Hotel building and has a protected door opening between the two. This rated door is provided with a magnetic hold-open device. However, each building contains a separate fire alarm system and these systems do not communicate with each other. Therefore, the magnetic hold-open device will not release the door from a fire occurring within one of the two buildings.**

Unprotected openings will permit rapid spread of heat, flame and smoke, should a fire occur.

**Remedy:** Have the system altered by a licensed company and/or qualified university representative. This alteration shall incorporate a reliable means of releasing the door upon activation of either fire alarm system.

*NFPA 101, Chapter 39.3.4.1 and 4.6.13.1 and NFPA 72*

## **FINDING #9**

**Numerous areas lack required audio/strobe devices, including the assembly area known as courtroom 260.**

Fire alarm systems must incorporate minimum strobe/audible devices to ensure all occupants are made aware of a fire, should one occur.

**Remedy:** Have the system serviced by a licensed company. Necessary strobe and audible devices shall be installed. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 4.6.13.1, 39.3.4 and 9.6.3*

## **FINDING #10**

**An alteration has occurred near the Dean's suite. This alteration resulted in the fire alarm remote pull not being accessible.**

The lack of accessibility to remote fire alarm pull stations will delay occupant notification of a fire.

**Remedy:** Have a licensed company and/or qualified university representative relocate the remote pull to an accessible location adjacent to the egress door.

*NFPA 101, Chapters 39.3.4, 4.6.13.1 and 9.6.2.6*

## **FINDING #11**

**A significant fire load exists in office 218 and mechanical room CL00U1.**

This situation will substantially increase the rate of fire spread and/or hinder fire department suppression efforts.

**Remedy:** Substantially reduce the extent of combustibles and organize the remaining contents from office 218. Remove the storage from the mechanical room. Mechanical rooms are designated for mechanical equipment and related items. See campus-wide deficiencies located at the end of this report concerning excess fire load.

*NFPA 101, Chapters 39.3.2.1, 8.7.1.1 and 4.6.1.2*

## **FINDING #12**

**A significant amount of combustible storage exists under the penthouse egress stair.**

This storage will fuel a fire, should one occur.

**Remedy:** Eliminate the combustible storage. Discontinue using egress stair enclosures for storage.



*NFPA 101, Chapters 39.3.2.1, 8.7.1.1 and 4.6.1.2*

### **FINDING #13**

**The portable fire extinguishers located in the stand pipe cabinets lack service labels.**

Portable fire extinguishers must be serviced at least once annually. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 39.3.5, 4.6.13.1 and 9.7.4.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapters 6.1 and 6.3*

### **FINDING #14**

**The door entering the central egress stair is improperly held open by a fusible link.**

Hold-open devices consisting of fusible links require a specific temperature before melting and permitting the door to close. A tremendous amount of smoke can be generated from a fire prior to reaching the temperature necessary to melt the fusible link. This will result in rapid smoke spread through this vertical opening and into other portions of the building.

**Remedy:** Remove the fusible link. Hold-open devices shall consist of magnetic devices that release the doors upon activation of the fire alarm system.

*NFPA 101, Chapters 39.2.1 and 7.2.1.8.2*

### **FINDING #15**

**The door leading into A171 has a broken closing device. This room is considered a hazardous area and thus requires separation from other portions of the building.**

Doors protecting openings into hazardous areas and their closing mechanisms are intended to temporarily contain smoke, heat and flame, should a fire occur. Leaving these doors open and/or failing to maintain them will adversely affect egress by permitting rapid spread of heat, flame and smoke.

**Remedy:** Repair or replace the non-functioning closing device.

*NFPA 101, Chapter 4.6.13.1*

### **Building Services Violations**

#### **FINDING #16**

**An electrical receptacle outlet located in the auditorium is only supported by electrical conductors.**

Electrical boxes, panels, fixtures, etc., must be rigidly anchored to a substantial surface. The insulation protecting the electrical conductors may be damaged when having to support fixtures.

**Remedy:** Anchor the electrical receptacle box to the wall.



*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 410.15 National Electrical Code*

#### **FINDING #17**

**Mechanical room L00UIA has a junction box that is missing its cover and electrical conductors are protruding from this box.**

Electrical boxes, panels and similar devices must incorporate protective covers to prevent contact with energized conductors.

**Remedy:** Replace the missing cover.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Chapter 408.18*

NOTE: Stair railings do not comply with minimum standards. Excessive diameters hinder grasping and openings between guards will permit toddlers to pass through. These situations increase the likelihood of someone falling. Future renovations shall incorporate compliance with minimum standards.

NOTE: The work room doors were in the open position during this inspection. This area is considered hazardous due to the large extent of combustible materials. Thus these doors must remain closed. This violation was eliminated during the inspection.

NOTE: The boilers located in the Criminal Justice plant are adjacent to the exit. However, it is not practical to relocate this area and thus is not referenced as a violation.

## 46 – TDCJ Area

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### *Means of Egress Violations*

#### **FINDING #1**

**The door leading to the dorm lounge balcony area is improperly provided with a double cylinder key locking device.**

Locks shall be operable from the egress side of the door without the use of a key, a tool or special knowledge from the egress side of the door. This prevents accidental locking of an individual within these areas.

**Remedy:** Remove the unapproved device and see campus-wide deficiencies located at the end of this report concerning non-functioning, excessive, unapproved and improperly installed locking and/or latching devices and non-functioning closing mechanisms.

*NFPA 101, Chapters 39.2.2.2.1 and 7.2.1.5.2*

#### **FINDING #2**

**The door entering stair enclosure B200S2 fails to close to a latched position.**

This door and its closing mechanism are required to close to a latched position. Failing to maintain positive latching will permit forces generated from a fire to open the door, subsequently permitting rapid spread of heat, flame and smoke into the exit enclosure.

**Remedy:** Repair and/or adjust the closing device and latching mechanism.

*NFPA 101, Chapters 4.6.13.1, 13.2.2.2.1 and 7.2.1.8.1*

### **Protection Violations**

#### **FINDING #3**

**The rooms identified as B203/linen storage and B114 contain an extensive amount of combustible materials, which categorizes these rooms as hazardous areas.**

Combustible material will fuel a fire.

**Remedy:** Provide the doors entering these rooms with door closing devices. This will temporarily contain heat, flame and smoke in these areas.

*NFPA 101, Chapters 39.3.2.1, 8.7.1.1 and 4.6.1.2*

## 47 - Teacher Education Center

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The Teacher Education Center is a three-story structure categorized as a business occupancy with incidental assembly and storage areas. It is constructed with steel and concrete and has a brick exterior. Fire safety features include illuminated exit signs, fire alarm and detection systems, a fire standpipe system, portable fire extinguishers and an emergency generator.

### ***Means of Egress Violation***

#### **FINDING #1**

**Fire exit signs in several locations in the building lack required illumination in the emergency power mode, including the following:**

- **Near 300S3.**
- **Near 227C.**
- **Between doors 111 and 119.**
- **Near 165.**
- **Two exit signs near 145.**
- **Entrance to stair 100S2.**
- **Entrance to offices 211-254.**
- **Near 220.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations.

**Remedy:** Implement the following corrective measures:

- Restore emergency mode illumination.
- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 13.2.1, 7.10.1.1, 7.10.6.1.1 and 7.10.6.2.1*

### ***Protection Violations***

#### **FINDING #2**

**The air duct smoke detectors on HVAC air handler units throughout the building are not operating correctly. The air flow indicator blades are not turning and some detectors do not indicate connection to the fire alarm system. These are located in the following locations:**

- **AHU-4705-three detectors-mechanical room 300U1.**
- **AHU-4706-two detectors-mechanical room 300U2.**

- **Two air handler units in mechanical room 200U1.**
- **AHU-4702-mechanical room 100U2.**

Air duct detectors are designed to detect the presence of smoke entering the HVAC system, subsequently resulting in the mechanical systems automatically shutting down. This prevents the heating and cooling systems from spreading smoke throughout the building.

**Remedy:** Contact a licensed fire alarm firm to survey all air duct smoke detectors in the building and return malfunctioning or disconnected detectors to service. These detectors shall meet the following criteria:

- Located downstream of air filters and ahead of branch connections in air supply systems having capacities greater than 944 L/sec (2000 ft<sup>3</sup>/min).
- Located at each story prior to common return connections and prior to recirculation or fresh air inlet connections within return systems having capacities greater than 7080 L/sec (15,000 ft<sup>3</sup>/min) and serving more than one story.
- Shall automatically shutdown HVAC equipment upon detecting the presence of smoke.
- Shall incorporate connection to the fire alarm system in accordance with the requirements of NFPA 72, *National Fire Alarm Code*.

*NFPA 101, Chapter 9.6.1.3 and NFPA 90A, Standard for the Installation of Air-Conditioning and Ventilating Systems, Chapters 6.4.2 and 6.4.3*

### **FINDING #3**

**Fire hoses located in cabinets throughout the building are tagged with breakaway seals indicating they were last tested on July 1990.**

Testing of hoses is necessary to insure their integrity, subsequently preventing their failure during a fire.

**Remedy:** One of the following corrective measures must be implemented.

- Develop a program of periodic inspection and testing of standpipe hoses campus wide. This requires the following:
  - Inspect and test all standpipe hose in accordance with NFPA 25 and NFPA 1962.
  - In-service hose designed for occupant use only shall be removed and service-tested at intervals not exceeding five years after the date of manufacturer and every three years thereafter.
  - When hose is taken out of service for testing, replacement hose shall be installed on the rack, reel, or storage area until the tested hose is returned to service.



- In-service hose shall be un-racked, un-reeled or un-rolled and physically inspected at least annually. The hose shall be re-racked and re-reeled or re-rolled so that any folds do not occur at the same position on the hose.
- Consult with the Huntsville Fire Department to determine their preference concerning the removal of existing hoses. Written documentation must be obtained.

*NFPA 101, Chapter 9.7.4.2 and NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, Chapter 6.1 and NFPA 1962, Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose, Chapter 4.3*

#### **FINDING #4**

**The standpipe fire department connection on the exterior of the building is not identified as to what type of system it serves. This may result in confusion during firefighting operations.**

**Remedy:** Install a sign at the fire department connection. It shall have raised letters, at least inch in height and cast on a plate or fitting that reads "STANDPIPE."



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*NFPA 101, Chapter 9.7.4.2 and NFPA 14, Standard for the Installation of Standpipe and Hose Systems, Chapter 6.3.5.2*

#### **FINDING #4**

**Fire extinguishers in the building have service labels dated October 2002 and October 2003.**

Portable fire extinguishers must be serviced at least once annually. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 4.6.13.1 3 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3*

## **FINDING #5**

### **Vertical penetrations are created by unsealed telecommunication and data cable penetrations.**

This will permit rapid spread of smoke, heat and flame from one floor to the adjacent floor above. Penetrations for cables, cable trays, conduits, pipes, tubes, combustion vents and exhaust vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a wall, floor or floor/ceiling assembly constructed as a fire barrier shall be protected by a fire-stop system or device. The fire-stop system or device shall be tested in accordance with ASTM E-814 or ANSI/UL 1479.

**Remedy:** Survey all telecommunications closets, mechanical, and electrical rooms for unsealed penetrations and install protective devices as described above. See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.3.5.1 and 8.5.5.2*

## **48 - Bernard G. Johnson Coliseum**

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The Bernard G. Johnson Coliseum is a multi-purpose assembly occupancy. Numerous university departments, student groups, local high schools, community organizations and national promotional companies utilize the coliseum. It is available for lease for purposes including entertainment, trade shows, seminars and special events. Fire safety features include a fire alarm system with detection, portable fire extinguishers, exit signs and battery operated and generator powered emergency lighting.

### ***Means of Egress Violations***

## **FINDING #1**

**Tables and chairs arranged for special events block exit routes in the concourse. In case of an emergency, the evacuation of occupants will be delayed by furnishings that are blocking exit pathways.**



Means of egress from all parts of the building shall be maintained free, unobstructed and accessible to ensure reasonable safety for occupants. Furnishings, decorations or other objects shall not obstruct exit access, egress or visibility.

**Remedy:** Remove the tables and chairs blocking the concourse. Develop a plan for all events to ensure that reception tables, concession sales, display booths, etc., do not impede exit pathways.

*NFPA 101, Chapters 4.5.3.2 and 7.1.10.2.1*

**FINDING #2**

**Fire exit signs in several locations in the building lack required illumination in the emergency power mode. The locations with malfunctioning fire exit sign illumination include, but may not be limited to, the following:**

- The exit sign above room 125.
- The exit sign above room 129.
- The exit sign located between room 100S3 and stair 100SF.

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations.

**Remedy:** Implement the following corrective measures:

- Restore emergency mode illumination.

- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 13.2.1, 7.10.1.1, 7.10.6.1.1 and 7.10.6.2.1*

### **FINDING #3**

**Inoperative emergency lighting units exist in several areas, including, but possibly not limited to, the following locations:**

- The generator powered emergency lighting fixture near room 217 is missing one bulb.
- Exit sign/emergency light in ramp B3/C3 has one inoperative bulb.
- Emergency light fixture at the top of seating area S/A has one inoperative bulb.
- Emergency light fixture at the top of seating area O/P has one inoperative bulb.
- Emergency light fixture at the top of seating area B/C does not function.
- Emergency light fixture at the top of seating area C/D has one inoperative bulb.

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Repair or replace the emergency light fixtures and/or bulbs and periodically test for proper function. See campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 13.2.9.1, 7.9.2, 4.5.7, 4.16.13.1 and 7.9.3.1.1*

### **Protection Violation**

### **FINDING #4**

**The portable fire extinguishers throughout the building have labels dated September 2000.**

Portable fire extinguishers must be serviced at least once annually. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapter 4.6.13.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3*

### ***Building Service Violation***

#### **FINDING #5**

**An extension cord is improperly used to power a big screen television and other electronic equipment in workroom 217.**

Extension cords are designed and intended for use as temporary wiring.

The cord may not be capable of carrying the electrical current load and may overheat or short circuit and cause a fire. Extension cords are not permitted to be used as a substitute for permanent wiring.

**Remedy:** Discontinue using the extension cord. See campus-wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapter 13.5.1 and NFPA 70, National Electrical Code, Article 400.8*

## **49 - University Theater Center**

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This three-story structure is categorized as a mixed occupancy, with business and assembly uses. It is constructed of steel and masonry. Fire safety features include partial sprinkler coverage, a fire alarm system, partial smoke detection, HVAC shutdown, portable fire extinguishers and emergency lighting.

### ***Means of Egress Violations***

#### **FINDING #1**

**Numerous egress deficiencies exist, including the following:**

- **Rack storage was created in the second floor. This storage is accessed from unapproved vertical ladders.**
- **Catwalk rack storage is accessed from an unapproved vertical ladder.**
- **Egress is obstructed in the room 131 storage loft and this room is limited to a single exit.**
- **The egress door near room 140 lacks an illuminated exit sign.**
- **Egress stair 008/scene shop area lacks an illuminated exit sign.**
- **Exit door 031 is inappropriately marked with a sign stating "Not an Accessible Exit."**
- **The north exit discharging from the stage lacks required panic hardware.**

- **The primary egress doors discharging from the main and small stages are equipped with unapproved thumb and/or key operated deadbolt locking devices instead of the required panic hardware.**
- **Curtains in the small stage area obstruct egress from the stage floor area.**

**Remedy:** Implement the following corrective measures:

- Provide all rack storage areas with acceptable means of egress components. This mandates replacement of unapproved vertical ladders. See protection violations prior to implementing changes, which may require removal and/or relocation of storage.
- Remove all impediments hindering egress. This includes, but is not limited to, room 131 storage loft.
- Provide the storage loft in room 131 with a second means of egress. It appears installation of a stair leading to the shop floor is the most practical solution.
- Install illuminated exit signs at the door near room 140 and the egress stair from 008/scene shop.
- Remove the sign at exit door 031 that states "Not an Accessible Exit."
- Install panic hardware on the exit door discharging from the stage.
- Remove the deadbolt locking devices from the primary egress doors discharging from the main and small stages. Provide these doors with panic hardware or remove all locking and latching devices, subsequently creating free-swinging doors.
- Remove the curtains in the small stage area that obstruct egress.

*NFPA 101, Chapters 13.2.1, 13.2.2.2.3, 13.2.4, 7.1.10.1, 7.2.1.7.3 and 7.2.1.5.2*

## **FINDING #2**

**The egress route traversing through 036 has multiple deficiencies, including the following:**

- **Exit door 036 lacks a required exit sign.**
- **Exit door 036 opens against the direction of egress travel.**
- **Furniture in room 036 obstructs egress.**
- **The doors entering and exiting the lobby 036 area lack required panic hardware.**

**Remedy:** Implement the following corrective measures:

- Install an illuminated exit sign at the 036 exit door. This illumination shall function in both the normal and power failure conditions.
- Change the direction of door pivot on the door entering area 036. It shall open in the direction of egress travel.
- Relocate the furniture in room 036 to the south wall.

- Provide the doors entering and exiting the lobby 036 with panic hardware or remove the knob and other latching and releasing mechanisms.

*NFPA 101, Chapters 13.2.1, 13.2.10, 13.2.2.2.3, 7.10, 7.1.10.1 and 7.2.1.4.2*

### **FINDING #3**

**Numerous areas within the structure lack required and/or functioning emergency lighting. A few areas identified include the following locations.**

- **Catwalk area (lacking)**
- **Main Theater (lacking)**
- **Small Stage (not functioning)**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Install emergency lighting units within the aforementioned areas lacking required emergency lights and repair the non-functioning ones. See campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 13.2.9 and 7.9*

### **Protection Violations**

### **FINDING #4**

**Numerous areas throughout the building are extensively filled with combustible storage. These areas include areas/rooms not originally designed or intended for storage. Occupants within numerous areas are exposed to this storage. These locations include, but may not be limited to, the following:**

- **Second floor storage rack.**
- **Room 137, second floor.**
- **Catwalk area at main stage.**
- **Room 108.**



This extensive storage is creating a tremendous fuel load for a fire, should one occur. The extent of storage presents a substantial threat to occupants and fire fighters. It



appears that storage through the years has not been purged upon receipt of donated items, resulting in a serious threat to life.

Hazardous areas including, but not limited to, areas used for general storage are required to be separated from other parts of the building by fire barriers having a fire resistance rating of not less than one hour. All openings require protection by 45 minute fire rated doors, self-closing devices and positive latching.

**Remedy:** Immediately begin eliminating storage from the building. Areas not originally designed or intended to contain

storage shall not be used for such purposes. Storage areas shall incorporate a minimum one hour fire barrier separation and sprinkler protection.

*NFPA 101, Chapters 13.3.2.1 and 13.3.2.2*

#### **FINDING #5**

**Items are stored within 18 inches of the sprinkler heads throughout the building, including, but not limited to, the following locations:**

- **Prop lock up room.**
- **Rack areas.**
- **Trap room.**

Obstructions to sprinkler heads lessen their effectiveness, which may result in the sprinkler system's failure to control a fire.

**Remedy:** Remove items obstructing sprinkler head. Other institutions have applied visual indicators on walls. This has proven to be an effective means of ensuring staff compliance with storage height limitations.

*NFPA 101, Chapters 13.3.5.1, 4.6.13.1 and 4.5.7 and NFPA 13, Standard for the Installation of Sprinkler Systems, Chapters 8.5.4 and 8.8.6.1*

#### **FINDING #6**

**Equipment room 205 is used for unrelated miscellaneous purposes.**

Equipment and mechanical rooms are intended to house equipment and related items. Unapproved storage or other functions may result in a fire and/or hinder fire department access. This unapproved activity also hinders access to the equipment and utility supply.



**Remedy:** Remove all unrelated functions and storage from the equipment room 205.

*NFPA 101, Chapters 13.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 110.26 (F)*

#### **FINDING #7**

**The label on the small stage curtains indicate they were last treated in 1983. The label clearly states that testing is required every four years.**

The lack of treatment will permit rapid flame spread and excessive smoke development.

**Remedy:** Treat the curtains with an approved flame retardant substance. Documentation must be maintained and made available upon request.

*NFPA 101, Chapters 13.4.5.11.1, 13.7.3.1, 10.3.1 and NFPA 701, Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*

#### **FINDING #8**

**Inspection records concerning the standpipe system hose racks and hoses are non-existent, which indicates the lack of servicing and/or university oversight.**

Testing of hoses is necessary to insure their integrity, subsequently preventing their failure during a fire.

**Remedy:** One of the following corrective measures must be implemented.

- Develop a program of periodic inspection and testing of standpipe hoses campus wide. This requires the following:
  - Inspect and test all standpipe hose in accordance with NFPA 25 and NFPA 1962.
  - In-service hose designed for occupant use only shall be removed and service-tested at intervals not exceeding five years after the date of manufacture and every three years thereafter.
  - When hose is taken out of service for testing, replacement hose shall be installed on the rack, reel, or storage area until the tested hose is returned to service.
  - In-service hose shall be un-racked, un-reeled or un-rolled and physically inspected at least annually. The hose shall be re-racked and re-reeled or re-rolled so that any folds do not occur at the same position on the hose.
- Use of fire hoses by occupants is not recommended by the State Fire Marshal's office and most fire departments as faculty and students lack the necessary training and protective equipment. Typically, fire departments utilize their hoses instead of relying on others. Therefore, consult with the

Huntsville Fire Department to determine their preference concerning removal of existing hoses. Their removal will prevent use by untrained individuals and subsequently eliminate fire department delays due to having to disconnect these hoses. Written documentation must be obtained.

*NFPA 101, Chapters 13.5.1 and 9.7.4.2 and NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, Chapter 6.1 and NFPA 1962, Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose, Chapter 4.3 and NFPA 1962 Standard for the Care, Use, and Service Testing of Fire Hose Including Couplings and Nozzles*

## **FINDING #9**

**It appears the smoke detector in mechanical room 200U4 is inactive.**

Air duct detectors are designed to detect the presence of smoke entering the HVAC system, resulting in the mechanical systems automatically shutting down. This prevents the heating and cooling systems from spreading smoke throughout the building.

**Remedy:** Contact a licensed fire alarm firm to survey all air duct smoke detectors in the building and return malfunctioning or disconnected detectors to service. These detectors shall meet the following criteria:

- Located downstream of air filters and ahead of branch connections in air supply systems having capacities greater than 944 L/sec (2000 ft<sup>3</sup>/min).
- Located at each story prior to common return connections and prior to recirculation or fresh air inlet connections within return systems having capacities greater than 7080 L/sec (15,000 ft<sup>3</sup>/min) and serving more than one story.
- Shall automatically shutdown HVAC equipment upon detecting the presence of smoke.
- Shall incorporate connection to the fire alarm system in accordance with the requirements of NFPA 72, *National Fire Alarm Code*.

*NFPA 101, Chapters 13.5.1 and 9.6.1.3 and NFPA 90A, Standard for the Installation of Air-Conditioning and Ventilating Systems, Chapters 6.4.2 and 6.4.3*

## **FINDING #10**

**Unsealed penetrations exist in mechanical room 200U4.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** Seal the penetrations and see campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

NOTE: The building was provided with a generator but it has since been removed from service.

## **50 - East Central Plant**

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This one-story structure is categorized as an industrial occupancy. The structure is a steel and masonry structure with a brick veneer exterior. Features of fire protection include a fire alarm system, portable fire extinguishers and emergency lighting.

### ***Means of Egress Violations***

#### **FINDING #1**

**The emergency lighting units are not functioning.**

Functioning emergency lighting is imperative during evacuations involving power failures.

**Remedy:** Repair or replace the non-functioning emergency lighting units and see campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 40.2.9 and 7.9.1*

#### **FINDING #2**

**The building lacks required directional exit signs.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations. Directional indicators shall be a chevron type that is identifiable as a directional indicator.

**Remedy:** Install directional exit signs where necessary and see campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 40.2.10, 7.10.2 and 7.10.5*

## 51 - Dan Rather Communications Building

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This is a three-story structure categorized as a business occupancy. It is constructed of masonry and has an exterior finish consisting of brick veneer and glass panels. Fire safety features include a fire alarm system, portable fire extinguishers, HVAC shut down, duct smoke detectors and portable fire extinguishers.

### ***Means of Egress Violations***

#### **FINDING #1**

##### **The building lacks required emergency lighting.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Install emergency lighting units within the means of egress and assembly areas. See campus-wide deficiencies located at the end of this report concerning the lack of, or insufficient, emergency lighting.

*NFPA 101, Chapters 39.2.9.1 and 7.9*

#### **FINDING #2**

##### **The door to room 328 is equipped with a double cylinder deadbolt lock that requires a key to unlock from the egress side.**

Unapproved devices may result in occupants being inadvertently locked in the room and/or building.

**Remedy:** Remove the key operated deadbolt. Any door in a required means of egress from an area shall not require the use of a key, special effort, knowledge or tool. Replace the double cylinder key lock to ensure the door is accessible at all times.

*NFPA 101, Chapters 39.2.2.2.1 and 7.2.1.5.2*

#### **FINDING #3**

##### **The exit access door from room 303 improperly incorporates more than one release device. One of these devices is incorporated into the door knob and the other is a double cylinder deadbolt lock.**

A means of egress shall not require more than one device to release and open a door. The door does not require use of both devices upon activation of the fire



alarm system. However, the current configuration fails to comply with minimum standards required for delayed and/or access-controlled egress devices.

Unapproved locking and/or latching devices may hinder egress and thus endanger occupants.

**Remedy:** Remove the key-operated deadbolt locking device and see campus-wide deficiencies located at the end of this report concerning delayed egress and access controlled devices.

*NFPA 101, Chapters 39.2.2.2.1 and 7.2.1.5.4*

#### **FINDING #4**

**Lecture rooms throughout the building have occupant loads exceeding 50 persons but lack the required two means of egress.**

Rooms subject to use by 50 or more occupants are categorized as assembly occupancies, which require at least two separate means of egress.

**Remedy:** Provide an additional exit from each lecture room. This exit shall be remotely located from the existing exit.

*NFPA 101, Chapters 39.2.4.1, 13.2.4.2 and 7.4.1.1*

#### **FINDING #5**

**Room 104 lacks required emergency lighting.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Install emergency lighting units in room 104 and see campus-wide deficiencies located at the end of this report concerning the lack of, or insufficient, emergency lighting.

*NFPA 101, Chapters 13.2.9.1 and 7.9*

#### **Protection Violations**

#### **FINDING #6**

**Mechanical rooms 100U1, 300U3 and 200U2 are considered hazardous areas. The doors entering these rooms lack required door closing devices.**

Hazardous areas including, but not limited to, areas used for general storage are required to be separated from other parts of the building by fire barriers having a fire

resistance rating of not less than one hour. All openings require protection by 45 minute fire protection-rated self-closing fire door assemblies.

**Remedy:** Install self closing door mechanisms on the doors entering the mechanical rooms.

*NFPA 101, Chapters 39.3.2.1 and 39.3.2.2*

## **FINDING #7**

**Fire alarm system deficiencies exist. These include the following:**

- **The smoke alarms in room 300U3 are the original detectors installed with a fire alarm system that has since been replaced. The detectors are not compatible with the new system and are not functioning.**
- **Room 104 lacks a required audio/visual device.**
- **The sound proof rooms lack required audio/visual devices.**

Protection features must be maintained. If not required, they must be removed. Non-functioning features create a false sense of security. The lack of audio/visual devices may delay occupant notification.

**Remedy:** Implement the following corrective measures:

- Remove the unused smoke detectors and replace them with ones that are connected to the new fire alarm system. These detectors should incorporate HVAC shutdown.
- Install audio/visual devices in room 104 and in the sound proof rooms.

*NFPA 101, Chapters 39.3.4.1, 9.6.3.7 and 4.6.13*

## **FINDING #8**

**Unsealed penetrations exist in mechanical rooms 100U1, 200U3 and 200U1 and the doors entering these rooms lack self-closing devices.**

Heat and smoke can travel through these unsealed openings into the adjoining egress corridor. Door closing devices are intended to keep the doors closed to also prevent rapid spread of heat, flame and smoke.

**Remedy:** Seal the penetrations and install self closing door mechanisms on the doors entering these hazardous areas. See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 39.3 and 8.5.5.2*

## FINDING #9

A large concentration of combustible items exists in offices 126 and 203. The extensive amount of combustibles in this office exceeds what is typically found within such rooms and thus results in them being categorized as hazardous areas.

Offices are not permitted extensive fuel loads. The extent of combustibles in these offices will fuel a fire, should one occur, subsequently endangering occupants and hindering fire department suppression efforts.



**Remedy:** Implement one of the following two corrective measures:

Enclose the aforementioned office areas with fire barriers. These barriers shall consist of a one hour fire resistance rating and shall not incorporate windows. The doors entering these offices shall consist of ones having a minimum 45 minute fire resistant rating, door closing devices and positive latching.

**OR**

Remove the extensive combustible material to a level typical of business offices.

*NFPA 101, Chapters 39.3.2.1 and 8.4.1.1*

## FINDING #10

**Stair enclosure door #200S2 does not fully close and latch as required.**

This door and its closing mechanism are intended to temporarily contain smoke, heat and flame. Failing to maintain latching capabilities will adversely affect egress by permitting rapid spread of heat, flame and smoke.

**Remedy:** Repair the door latching hardware.

*NFPA 101, Chapters 39.2.1.1, 7.2.2.5.1.1, 7.1.3.2., 4.6.13.1 and 4.5.7*

## FINDING #11

### **Mechanical room 100U1 is used for storage of unrelated items.**



Mechanical rooms are intended to house equipment and related items. Unapproved storage may result in a fire and/or hinder fire department access. This storage also hinders access to the equipment and utility supply.

**Remedy:** Remove all unrelated storage from the mechanical room.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 110.26 (F)*

### **Building Services Violation**

## FINDING #12

### **Extension cords are improperly used to power various appliances throughout the building.**

Room 104 was recently remodeled but this remodel failed to meet receptacle demands, resulting in extensive use of extension cords. Extension cords are designed and intended for use as temporary wiring. They should not be used as a substitute for permanent wiring. Power strips should not be interconnected as a means of obtaining additional receptacle outlets.

**Remedy:** Discontinue use of the extension cords and see campus-wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 400.8*

**NOTE:** Doors separating offices and other areas from exit corridors are secured in the open position with kick down style hold-open devices and miscellaneous items. A fire occurring on either side of an open door can rapidly spread heat and smoke into adjoining areas, subsequently hindering use of egress corridors. Although not specifically required by the occupancy chapter, the Life Safety code does mandate maintenance of existing features. Therefore, this office recommends allowing the doors and their closing devices to serve their intended purpose. This requires removal of all hold-open devices and other items preventing doors from fully closing. If desired, doors subject to extensive use may incorporate magnetic hold-open devices. The magnetic devices shall release the doors upon activation of the fire alarm system or upon loss of power.



NOTE: Room 329 contained a lamp and night light supplied from spliced electrical cords. These were disconnected and removed by the safety office.

NOTE: A halogen lamp exists in room 114. These types of lamps have caused many fires throughout the nation. The bulbs in these lamps create an extensive amount of heat. In many cases, the guard protecting these bulbs is removed, subsequently permitting accidental contact with combustibles, which will result in their ignition. Although not prohibited by the Life Safety Code, this office recommends the University adopt a policy prohibiting halogen lamps in academic and similar buildings.

## **52 - Health & Kinesiology Center**

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The Health & Kinesiology Center is a two-story structure categorized as an assembly occupancy. It is constructed of steel and concrete and has a brick exterior. The building contains classrooms, athletic courts, offices and storage areas. Fire safety features include a fire detection and alarm system, emergency generator and portable fire extinguishers. The building is currently undergoing renovations including an addition.

### ***Means of Egress Violations***

#### **FINDING #1**

**Fire exit signs in several locations in the building lack required illumination in the emergency power mode, including:**

- **The fire exit sign above the east door of weight room 121.**
- **The fire exit sign located between rooms 122B and 146.**
- **The fire exit signs inside 146 gym 1 and 2.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations.

**Remedy:** Implement the following corrective measures:

- Restore emergency mode illumination.
- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 13.2.1, 7.10.1.1, 7.10.6.1.1 and 7.10.6.2.1*

## FINDING #2

The required second exit in Aerobics room 147 has been eliminated and filled with concrete blocks as part of a building expansion. This room has a posted occupant load of 200 and now limited to a single exit.



One exit presents a risk of a fire blocking this single exit, subsequently trapping occupants.

**Remedy:** The occupant load of this room was restricted to not more than 49 occupants until a second means of egress is provided.

*NFPA 101, Chapter 13.2.4.2*

## FINDING #3

The two exit doors discharging to the exterior from 145 Gym 2 are identified as exits but are blocked and will be removed from use due to construction.

This situation may delay evacuations due to occupants attempting to use these identified exits.

**Remedy:** Two other exit access doors discharge to an egress corridor from the gym and another door permits access to the adjoining gym, which



has additional egress. Therefore, this condition permits the following corrective measures:

- Install signs on the two doors that are no longer available as exits. This signage shall state "NO EXIT". These signs shall remain until the doors are effectively sealed and no longer appear as exits.
- The exiting doors in one gym do not meet remoteness requirements. Therefore, remove the accordion gate at the passageway between Gyms 1 and 2.

*NFPA 101, Chapters 13.2.10.1 and 7.10.8.3.1*

#### **FINDING #4**

**The door discharging from the second floor racquetball viewing area to the main corridor is equipped with a lock, preventing its use as an exit. This creates a 135 foot dead-end corridor, an excessive common path of travel and a second floor area with a single exit. Common paths of travel are limited to 75 feet and dead-ends are limited to 20 feet.**

This condition will increase evacuation time and limit occupants to a single means of egress, which could result in trapping occupants.

**Remedy:** Replace the existing locking/latching hardware with a device not requiring the use of a key, tool or special knowledge. This eliminates travel distance deficiencies and provides the second-floor area with two separate means of egress.

*NFPA 101, Chapters 13.2.5.1.1 and 13.2.5.1.2*

**NOTE:** The elevators in the building lack signs indicating they are not to be used during a fire. In case of a fire, occupants may attempt to use the elevator as an exit, delaying their evacuation. Although not required, this office recommends installation of a sign similar to this illustration.



#### **Protection Violation**

#### **FINDING #5**

**The air duct smoke detectors on HVAC air handler units throughout the building are not operating correctly. The air flow indicator blades are not turning and some detectors do not indicate connection to the fire alarm system. These are located in the following locations:**

- **AHU-2 in mechanical room 100 U 2.**

- **AHU-5 in mechanical room 100 U 3.**

Air duct detectors are designed to detect the presence of smoke entering the HVAC system, resulting in the mechanical systems automatically shutting down. This prevents the heating and cooling systems from spreading smoke throughout the building.

**Remedy:** Contact a licensed fire alarm firm to survey all air duct smoke detectors in the building and return malfunctioning or disconnected detectors to service. These detectors shall meet the following criteria:

- Located downstream of air filters and ahead of branch connections in air supply systems having capacities greater than 944 L/sec (2000 ft<sup>3</sup>/min).
- Located at each story prior to common return connections and prior to recirculation or fresh air inlet connections within return systems having capacities greater than 7080 L/sec (15,000 ft<sup>3</sup>/min) and serving more than one story.
- Shall automatically shutdown HVAC equipment upon detecting the presence of smoke.
- Shall incorporate connection to the fire alarm system in accordance with the requirements of NFPA 72, *National Fire Alarm Code*.

*NFPA 101, Chapter 9.6.1.3 and NFPA 90A, Standard for the Installation of Air-Conditioning and Ventilating Systems, Chapters 6.4.2 and 6.4.3*

### **Building Service Violations**

#### **FINDING #6**

**A brown, lightweight extension cord is improperly used to power electronic office equipment in room 104.**

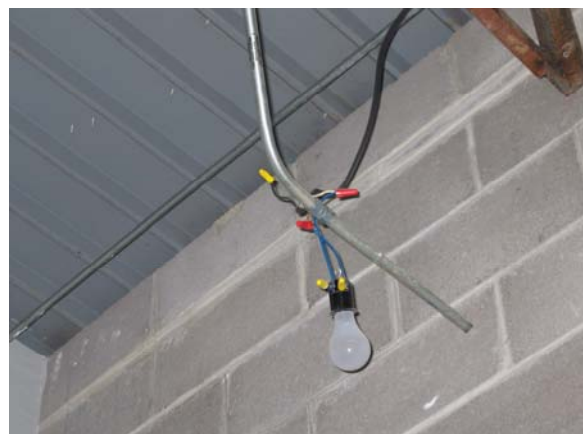
Extension cords are designed and intended for use as temporary wiring. The cord may not be capable of carrying the electrical current load and may overheat or short circuit and cause a fire. Extension cords are not permitted to be used as a substitute for permanent.

**Remedy:** Discontinue using the extension cord and see campus-wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapter 39.5.1 and NFPA 70, National Electrical Code, Article 400.8*

#### **FINDING #7**

**The light fixture in storage room 200U4 is supported by the electrical conductors supplying the fixture.**



The weight of the fixture may result in severing the electrical conductor insulating jacket, resulting in an electrical short, subsequently causing a fire.

**Remedy:** Contact a licensed electrician to remove the existing lamp holder and install a permanent light fixture meeting the requirements of NFPA 70, *National Electrical Code*. Luminaries (fixtures) and lamp holders shall be securely supported and attached to some building structural member.

*NFPA 101, Chapter 39.5.1; NFPA 70, National Electrical Code, Article 410.15*

## **53 - Lee Drain Building**

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The Lee Drain Building is a four-story structure categorized as a business occupancy with incidental assembly areas. An atrium penetrates three floors but is enclosed with glass windows and is provided with fire sprinkler protection. Fire safety features include partial sprinkler coverage, a standpipe system, fire alarm system and detection, portable fire extinguishers and illuminated fire exit signs.

### ***Means of Egress Violations***

#### **FINDING #1**

**Fire exit signs in several locations in the building lack required illumination in the emergency power mode, including:**

- **Between 308 and 311.**
- **Near 337.**
- **332 corridor-works in emergency mode, but not normal mode.**
- **Outside room 202.**
- **Outside room 135.**
- **Outside room 136.**
- **Outside room 138.**
- **Outside room 150.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations.

**Remedy:** Implement the following corrective measures:

- Restore emergency mode illumination.
- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 13.2.1, 7.10.1.1, 7.10.6.1.1 and 7.10.6.2.1*

## **FINDING #2**

**An inoperative emergency lighting unit exists inside stairway 400S at the fourth floor.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Repair or replace the emergency light fixtures and/or bulbs and periodically test for proper function. See campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 13.2.9.1, 7.9.2, 4.5.7, 4.16.13.1 and 7.9.3.1.1*

## **FINDING #3**

**Large lecture halls located on the first floor of the building have occupant loads of approximately 170 persons. The exit access doors from these rooms lack required panic hardware and the rooms lack required emergency lighting.**

Egress doors from assembly areas must incorporate panic hardware. This permits doors to be easily opened when subject to simultaneous access by numerous people. The lack of emergency lighting will hinder evacuations during power failure conditions.

**Remedy:** Install panic hardware on all doors discharging from the lecture rooms having occupant loads exceeding 100 persons. These rooms also require installation of emergency lighting.

*NFPA 101, Chapters 13.2.9.1 and 13.2.2.2.3*

## **FINDING #4**

**The atrium is separated from other parts of the building. However, the integrity of the opening protection is destroyed because door latching hardware located at the top edge of the doors has been dislodged.**



The lack of positive latching will permit the forces generated from a fire to push the doors open, subsequently permitting heat, flame and smoke to enter the egress corridors.

**Remedy:** Repair or replace all non-functioning door hardware. NFPA 80 recommends the use of bolts for securing door hardware but this depends on door construction type.

*NFPA 101, Chapter 8.3.3.1 and NFPA 80, Standard for Fire Doors and Windows, Chapter 2-5.3*

### **Protection Violations**

#### **FINDING #5**

**Vertical penetrations are created by unsealed telecommunication and data cable penetrations. These penetrations exist but may not be limited to the following locations:**

- **100U2.**
- **200U3.**
- **300U3.**
- **400U3.**



This will permit rapid spread of smoke, heat and flame from one floor to the adjacent floor above. Penetrations for cables, cable trays, conduits, pipes, tubes, combustion vents and exhaust vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a wall, floor or floor/ceiling assembly constructed as a fire barrier shall be protected by a fire-stop system or device. The fire-stop system or device shall be tested in accordance with ASTM E-814 or ANSI/UL 1479.

**Remedy:** Survey all telecommunications closets, mechanical, and electrical rooms for unsealed penetrations and install protective devices as described above. See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.3.5.1 and 8.5.5.2*

## **FINDING #6**

**Unattended fume hoods shall be kept closed. Some areas identified include:**

- **106-Laboratory.**
- **108-Laboratory.**
- **108A-Laboratory.**
- **115A-Laboratory.**
- **119-Laboratory.**
- **125A-Laboratory.**
- **303-Laboratory.**
- **304-Biology Prep Room.**

Unattended open fume hoods may result in the release of flammable or toxic materials into the interior of the building, should the ventilation fans fail. This hazard endangers occupants.

**Remedy:** Keep laboratory fume hood sashes in the closed position whenever possible. See campus-wide notes concerning laboratory functions.

*NFPA 101, Chapter 8.7.4.1 and NFPA 45, Standard on Fire Protection for Laboratories Using Chemicals, Chapter 6.8.3*

## **FINDING #7**

**A bottle of 100 percent ethyl alcohol is improperly stored inside a standard household refrigerator located in laboratory 125.**

Storage of flammable substances in unapproved refrigerators may result in the ignition of flammable vapors from internal refrigerator equipment, resulting in an explosion or fire.

**Remedy:** Remove the alcohol from this refrigerator. Develop a program to label all unapproved refrigerators in laboratories in accordance with NFPA 45. Refrigerators, freezers or coolers shall be prominently marked to indicate whether or not they meet requirements for safe storage of flammable liquids. The sign shall be similar to the following:

<b>DO NOT STORE FLAMMABLE SOLVENTS IN THIS REFRIGERATOR</b>
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*NFPA 101, Chapter 8.7.4.1 and NFPA 45, Standard on Fire Protection for Laboratories Using Chemicals, Chapter 12.2.2.1*

## **FINDING #8**

**The sprinkler system fire pump in room 100U5 has an approximate one drop/second leak rate from the pump packing. The last system inspection appears to have been January 2002.**

Failing to properly maintain fire protection equipment may result in its failure to properly function.

**Remedy:** Contact a licensed fire alarm firm to inspect, test, and maintain the fire sprinkler system. Fire pumps shall be subject to annual testing and frequent inspections and operation as set forth in Chapter 8 of NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapter 9.7.5, NFPA 25, Chapter 8*

## **56 - Music Building**

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The Music Building is a three-story structure categorized as a business occupancy with incidental assembly and storage areas. It is constructed of steel and concrete with a brick exterior finish. An atrium connects two of the three stories. Fire safety features include a stand pipe system, fire alarm system, detection, illuminated exit signs and portable fire extinguishers.

### ***Means of Egress Violations***

## **FINDING #1**

**Room 201 has a posted occupant load of 350 and choir room 202 has a posted occupant load of 200, which categorizes these rooms as assembly areas. These assembly areas lack required exit signs, panic hardware and emergency lighting.**

In case of an emergency, occupants may "pile up" at doors lacking panic hardware. This situation is compounded due to the lack of required signage and emergency lighting.

**Remedy:** Install panic hardware on all egress doors discharging from the lecture rooms having occupant loads exceeding 100 persons. These rooms also require installation of emergency lighting and exit signs.

*NFPA 101, Chapters 13.2.9.1, 13.2.10 and 13.2.2.2.3*

## **FINDING #2**

**Stair door 300S1 is improperly equipped with panic hardware instead of the required fire exit hardware.**

Panic hardware permits retracting the latch, thus eliminating positive latching. This will permit the pressure from a fire to push the door open, subsequently allowing smoke, heat and flame into the stair enclosures.

**Remedy:** Replace the panic hardware with listed and approved fire exit hardware.

*NFPA 101, Chapter 7.2.1.7.2*

## **FINDING #3**

**Fire exit signs in several locations in the building lack required illumination in the emergency power mode, including the following:**

- **201-west exit.**
- **Near 215/216.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations.

**Remedy:** Implement the following corrective measures:

- Restore emergency mode illumination.
- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 13.2.1, 7.10.1.1, 7.10.6.1.1 and 7.10.6.2.1*

## **FINDING #4**

**The practice room lacks required emergency lighting.**

The lack of required emergency lighting in combination with a cubicle floor arrangement/maze and the ceiling and structural members in this area being painted black will delay occupant evacuation.

**Remedy:** Install additional emergency lighting units in the practice room and see campus-wide deficiencies located at the end of this report concerning the lack of, or insufficient, emergency lighting.

*NFPA 101, Chapters 39.2.9.1 and 7.9.2.1*

## FINDING #5



right hand door.

The double doors discharging from the 105 receiving to the loading dock are equipped with panic hardware but one incorporates an unapproved slide bolt latch located near the bottom edge.

Means of egress from all parts of the building shall be maintained free and unobstructed. Panic hardware must disengage all locking and/or latching devices located on the door.

**Remedy:** Remove the slide bolt from the

*NFPA 101, Chapter 4.5.3.2*

## FINDING #6

**A chair obstructs the exit passageway at the northeast corner of the first floor practice room.**

Items reducing the width of the exit access corridors may restrict groups of people during an emergency evacuation. Furnishings, decorations or other objects shall not obstruct exit access, egress or visibility.

**Remedy:** Remove the chair and see campus-wide deficiencies located at the end of this report concerning egress obstructions and impediments.

*NFPA 101, Chapters 39.2.1.1 and 7.1.10.2.1*



**NOTE:** The elevators in the building lack signs indicating they are not to be used during a fire. In case of a fire, occupants may attempt to use the elevator as an exit, delaying their evacuation. Although not required, this office recommends installation of a sign similar to the illustration below.



## ***Protection Violations***

### **FINDING #7**

**The fire alarm control panel indicates two trouble alarms.**

University personnel stated problems with some detectors require reprogramming of the alarm system. Fire alarm systems must be inspected, serviced and repaired when impairments are noted. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the system serviced by a licensed company. Noted deficiencies shall be eliminated. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 4.6.13.1 and 9.6.1.3*

### **FINDING #8**

**The fire exit hardware on the entrance door to practice room 1-39, specifically the door adjacent to 100J1, is out of adjustment. The latch is retracted and will not engage positive latching.**

Doors lacking positive latching will permit forces generated from a fire to push the door open, subsequently permitting heat, flame and smoke to pass through the door opening.

**Remedy:** Repair or replace all door hardware that has been damaged.

*NFPA 101, Chapter 8.3.3.1 and NFPA 80, Standard for Fire Doors and Windows, Chapter 2-5.3*

### **FINDING #9**

**The stand pipe system fire hose located in music storage room 306 has never been tested. It is currently banded by the original shipping band present on the day of installation.**

The thick nylon band will require cutting prior to use, which delays suppression efforts. Testing is also necessary to ensure hose integrity.

**Remedy:** One of the following corrective measures must be implemented.

- Develop a campus-wide program of periodic inspection and testing of standpipe hoses. This requires the following:

- Inspect and test all standpipe hose in accordance with NFPA 25 and NFPA 1962.
- In-service hose designed for occupant use only shall be removed and service-tested at intervals not exceeding five years after the date of manufacturer and every three years thereafter.
- When hose is taken out of service for testing, replacement hose shall be installed on the rack, reel, or storage area until the tested hose is returned to service.
- In-service hose shall be un-racked, un-reeled or un-rolled and physically inspected at least annually. The hose shall be re-racked and re-reeled or re-rolled so that any folds do not occur at the same position on the hose.
- Use of fire hoses by occupants is discouraged because they lack the training and protective equipment for safe use. Therefore, contact the Huntsville Fire Department to determine if it prefers hoses removed from the racks. Many departments bring their own hoses for connection, thus existing hoses delay their suppression efforts. Written documentation must be obtained.

*NFPA 101, Chapter 9.7.4.2 and NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, Chapter 6.1 and NFPA 1962, Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose, Chapter 4.3*

## **FINDING #10**

**The stand pipe system has several deficiencies, including:**

- **Caps are missing from the fire department connection to the standpipe system. These caps prevent the introduction of foreign objects or debris into the fire standpipe system.**
- **The fire department connection faces the Theater Building. A road once passed between these buildings, which provided fire department access but has since been converted to a pedestrian esplanade, eliminating access to fire department apparatus. Currently, the nearest point of approach for fire department connection is approximately 500 feet.**

**Remedy:** The following corrective measures are necessary:

- Have a licensed plumber or fire firm make an examination of the fire department connection and piping to verify there are no obstructions.
- Replace the missing plug type caps.
- Develop a program of regular inspection of fire department connections (at least once quarterly) to verify the following:
  - Visibility and accessibility of fire department connection.
  - Verify couplings and swivels are not damaged and rotate smoothly.
  - The check valve is not leaking.
  - The automatic drain valve is in place and operating properly.

- The fire department connection clapper(s) is in place and properly operating.
- See campus-wide notes concerning fire department examination of hydrants and fire department connections. Implement corrective measures concerning access to fire department connections, location of hydrants and other deficiencies.

*NFPA 101, Chapter 9.7.5 and NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, Chapter 12.7.1*

### **Building Service Violation**

#### **FINDING #11**

#### **Unprotected openings exist in circuit breaker panel board 3H located in electrical equipment room 334.**

Unprotected openings may result in accidental contact with energized circuits by personnel or permit the accidental introduction of a foreign object resulting in electrical shorting and possible ignition of nearby combustibles.

**Remedy:** Install plates that effectively seal the unprotected openings.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 408.18*

## **57 - Bowers Stadium Field House**

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This three-story structure is categorized as an assembly occupancy. It is constructed of masonry and has an exterior brick veneer finish. Fire safety features include a fire alarm system, partial smoke detection, manual pull boxes and audio/visual devices.

### **Means of Egress Violations**

#### **FINDING #1**

#### **Two exit access doors in the third floor patio area improperly open against the direction of egress travel.**

Doors subject to 50 or more people must open in the direction of egress travel. Several people simultaneously reaching an exit door opening against egress travel will prevent the door from being opened. These doors are subject to over 100 occupants.

**Remedy:** Reinstall the existing exit access doors so that they open in the direction of exit travel from the patio area.

*NFPA 101, Chapters 13.2.2.2.1 and 7.2.1.4.2*

## **FINDING #2**

**The egress doors discharging into the building from the third floor patio area are equipped with unapproved key deadbolt locking devices instead of required panic hardware.**

Unapproved devices may result in occupants being inadvertently locked in an area. The lack of approved panic hardware on doors subject to 100 or more may prevent the doors from being opened when simultaneously accessed by several people during an emergency evacuation.

**Remedy:** Replace the double cylinder key locks with panic hardware. Panic hardware shall release all other locking/latching devices on the doors.

*NFPA 101, Chapters 13.2.22.3 and 7.2.1.5.2*

## **FINDING #3**

**The building lacks required emergency lighting in the patio area and within the interior egress corridors.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Install emergency lighting units in the patio and interior egress corridors. See campus-wide deficiencies located at the end of this report concerning the lack of, or insufficient, emergency lighting.

*NFPA 101, Chapters 13.2.9 and 7.9*

## **FINDING #4**

**Numerous exit signs throughout the building lack required illumination.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations. Directional indicators shall be a chevron type that is identifiable as a directional indicator.

**Remedy:** Implement the following corrective measures:

- Survey the entire building and restore emergency mode and normal illumination.
- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 13.2.1, 7.10.1.1, 7.10.6.1.1 and 7.10.6.2.1*

## FINDING #5

Room 322 is subdivided by an accordion-style door that is locked with a hasp and padlock. The areas on each side of the accordion door have occupant loads exceeding 50 people but each area lacks the required two means of egress.

**Remedy:** Implement one of the following three corrective measures.

Install a second exit from each lecture room.

Or

Remove the accordion door.

Or

Integrate a door opening in the accordion door. This door shall not incorporate locking, shall open in both directions to facilitate egress from either area and shall be readily identified with signage.

*NFPA 101, Chapters 13.2.4.2, 7.4.1.1 and 7.2.1.12*

## FINDING #6

The second floor, west side dressing room lacks the required two means of egress.

At least two remotely located exit access doors are required to reduce the potential for a fire or emergency blocking egress.

**Remedy:** Install a second exit from the dressing room or reduce the occupant load to less than 50 persons.

*NFPA 101, Chapters 13.2.4 and 7.4.1.1*

## FINDING #7

A hasp and padlock exist on room 210's exit access door.

Unapproved devices may result in occupants being inadvertently locked in an area. .

**Remedy:** Replace the hasp and padlock with a releasing mechanism not requiring the use of a key, tool or special knowledge. Panic hardware shall release all other locking/latching devices on the doors.





*NFPA 101, Chapters 13.2.2.2.1 and 7.2.1.5*

### **FINDING #8**

**The exit doors discharging from room 213 open against the direction of egress travel. This room is subject to more than 50 occupants.**

Doors subject to 50 or more people must open in the direction of egress travel. Several people simultaneously reaching an exit door opening against egress travel will prevent the door from being opened. These doors are subject to over 100 occupants.

**Remedy:** Reinstall the exit doors so that they open in the direction of exit travel from the patio area.

*NFPA 101, Chapters 13.2.2.2.1 and 7.2.1.4.2*

### **FINDING #9**



**A golf cart, high jump landing pad and chairs obstruct the storage area exit access door.**

These items reduce the width of the exit access corridor and may restrict groups of people during an emergency evacuation. Furnishings, decorations or other objects shall not obstruct exit access, egress or visibility.

**Remedy:** Relocate the items obstructing the egress door. See campus-wide deficiencies located at the end of this report concerning egress obstructions and impediments.

*NFPA 101, Chapters 4.5.3.2, 13.2.1 and 7.1.10.1*

### **Protection Violations**

### **FINDING #10**

**Unsealed penetrations exist in numerous areas, including, but not limited to, the following locations:**

- **Room 317.**
- **Room 318.**
- **Laundry room.**

**Remedy:** Implement the following corrective measures:

- Seal the penetrations identified at the above locations.
- Survey the entire building and seal any other identified penetrations.
- See campus wide-wide deficiencies located at the end of this report concerning penetrations.

Heat and smoke can travel through these unsealed openings into the adjoining egress corridor.

*NFPA 101, Chapters 13.3 and 8.5.5.2*

## **FINDING #11**

**A large concentration of combustible items exists in office 310. The extensive amount of combustibles in this office exceeds what is typically found within such rooms and thus results in it being categorized as a hazardous area.**

Offices are not permitted extensive fuel loads. The extent of combustibles in these offices will fuel a fire, should one occur, subsequently endangering occupants and hindering fire department suppression efforts.

**Remedy:** Implement one of the following two corrective measures:

Enclose the aforementioned office area with a fire barrier. This barrier shall consist of a one hour fire resistance rating and shall not incorporate windows. The door entering this office shall have a minimum 45 minute fire resistant rating, a door closing device and positive latching.

**Or**

Remove the extensive combustible material to a level typical of business offices.

*NFPA 101, Chapters 13.3.2.1 and 8.4.1.1*

## **FINDING #12**

**An unapproved opening from electrical room 322 opens into the stair enclosure.**

Enclosed, usable spaces within exit enclosures shall be prohibited unless the space is separated from the stair enclosure by the same fire resistance as the exit enclosure and the entrance to the enclosed, usable space shall not be from within the stair enclosure.

**Remedy:** It is impractical to relocate the electrical room entrance door. Therefore, to improve fire safety conditions, provide this door with a self-closing device. This door shall remain closed and latched at all times.

*NFPA 101, Chapters 13.2.1.1 and 7.2.2.5.3*

### **FINDING #13**

**A heat detector is installed on the ceiling grid but most of the grid's tiles are missing.**

The lack of ceiling tiles will delay activation of the heat detector. The missing tiles require the interstitial space above the grid to fill with heat prior to reaching the elevation of the heat detector. The delay in detection and subsequent activation of the fire alarm system endangers occupants.



**Remedy:** Replace the missing ceiling tiles.

*NFPA 101, Chapter 4.6.13.1 and NFPA 72, National Fire Alarm Code, Chapter 5.6.3.1\**

### **FINDING #14**

**The laundry and storage rooms are categorized as hazardous areas, which require minimum separations from other areas. The required doors originally separating the storage and laundry rooms are removed.**

The dangers associated with hazardous areas endanger occupants. The lack of a door separating these areas will permit rapid spread of fire from one area to another.

**Remedy:** Replace the missing fire doors. These doors shall have a minimum 45 minute fire resistant rating and incorporate door closing devices with positive latching.

*NFPA 101, Chapters 13.3.2 and 8.7*

### **FINDING #15**

**A non-code complying mezzanine is created in room 210. It is improperly used as an office and contains a refrigerator, TV, computer and several chairs. Deficiencies involving this mezzanine include the following:**

- **The floor area consists of doors laid horizontally and supported by lockers.**
- **Access is from a non-complying, shop-built vertical ladder.**
- **Alteration failed to comply with minimum construction standards.**

**Remedy:** Remove the unapproved mezzanine area. If replaced, it shall incorporate approved construction techniques and comply with minimum LSC requirements concerning stairs, guards, rails, etc.

*NFPA 101, Chapter 4.6.8*

#### **FINDING #16**

**The door separating dressing room 210 from storage room 213 has been inappropriately altered. It is sawn in half horizontally, making it a Dutch-style door, which destroyed the original separation provided by this door.**

The storage room is categorized as a hazardous area, which requires a minimum separation from other areas. The lack of a fire-rated door will permit rapid spread of fire from the storage area into the dressing room.

**Remedy:** Replace the destroyed fire door with one having a minimum 45 minute fire resistant rating that incorporates a door closing device and positive latching.

*NFPA 101, Chapters 13.3.2.1 and 8.7*

#### **FINDING #17**

**Storage obstructs access to the ground floor machine room.**

Machine rooms must be accessible for maintenance issues.

**Remedy:** Relocate the storage to ensure this room is accessible at all times.

*NFPA 101, Chapter 4.6.13.1*

#### **FINDING #18**

**Unapproved storage of flammable liquids exists. This substance includes two plastic gasoline containers and two, five-gallon containers of paint thinner.**

The lack of appropriate storage permits the release of vapors. Vapors will act as an accelerant, should a fire occur.

**Remedy:** Properly store flammable liquids within approved cabinets or remove the flammable liquids to an approved area.

*NFPA 101, Chapters 13.3.2.1 and 8.7.3.1 and NFPA 30 Flammable and Combustible Liquids Code, Chapter 4.1.5.4*

#### **FINDING #19**

**The patio area lacks required audio/visual devices.**

The lack of audio/visual devices may result in occupants not being alerted of a fire upon activation of the fire alarm system. Occupants from this area must travel back into the building in order to exit the building.

**Remedy:** Install adequate audio/visual devices in the patio area.

*NFPA 101, Chapter 13.3.4.3*

### **Building Services Violations**

#### **FINDING #20**

**Extension cords are improperly used to power various appliances throughout the building.**

Extension cords are designed and intended for use as temporary wiring.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapters 13.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 400-8*

#### **FINDING #21**

**A wall clock in the track and field dressing room was supplied by an electrical receptacle outlet that is not secured in a receptacle box. This outlet's energized terminals are covered with tape in an effort to prevent contact with energized circuits. The clock was disconnected during the inspection.**



Electrical installations must be installed in accordance with NFPA 70, *National Electrical Code*, to limit the possibility of an electrical fire or shock.

**Remedy:** Repair the electrical outlet or remove the outlet and cover the electrical outlet box containing the energized conductors.

*NFPA 101, Chapter 39.5.1 and NFPA 70E, Standard for Electrical Safety in the Work Place Chapter 400.16*

## 58 - Bowers Press Box

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This assembly occupancy is a three-story structure constructed of masonry and steel. Prior to its recent remodel, the top floor was open air. Fire protection features include a fire alarm system with corridor smoke detection, manual pull stations, audio/visual devices, illuminated exit signs, emergency lighting and portable fire extinguishers.

### ***Means of Egress Violations***

#### **FINDING #1**

**There are an inadequate number of exits from the third and second floors.**

The third floor has a single exit that discharges from the enclosure into the second floor. The second floor currently has one approved exit due to the other being obstructed during a recent building renovation. This renovation resulted in the loss of a corridor leading to the second stair enclosure. Travel to this stair enclosure is now required through the presidents suite and an access door that opens against the direction of egress travel.

This deficiency was identified by university personnel prior to the recent building renovation. The lack of required egress increases the likelihood of occupants becoming trapped should the one means of egress become obstructed by fire.

The lack of required egress increases the likelihood of occupants becoming trapped should their lone means of egress become obstructed by fire.

***Remedy:*** Implement the following corrective measures:

- Change the direction of door pivot on the door entering the President's Suite from the egress corridor, remove the key locking devices and provide a clear path of travel not requiring egress around chairs, tables and similar items. Access shall be provided to occupants of the third and second floors. This also requires installation of another stair leading from the third to the second floor level. This stair shall be remotely located from the existing stair.

*NFPA 101, Chapter 13.2.4.2*

#### **FINDING #2**

**Numerous trip hazards exist at many door areas. This is due to excessive elevation changes on each side of a door and/or substantial elevation changes at the threshold areas.**

Excessive floor elevation changes increase the likelihood of an individual tripping during egress.

**Remedy:** Eliminate the trip hazards.

- The elevation of floor surfaces on each side of a door way shall not vary by more than 0.5 inch.
- The increase in elevation at threshold areas shall not extend more than 0.5 inch in elevation.

*NFPA 101, Chapters 13.2.1, 7.2.1.3.1 and 7.2.1.3.3*

### **FINDING #3**

**Emergency lighting is not sufficient and not functioning in some areas. The current configuration of the lighting circuit/switch in the stairs permits all lighting in the stairs to be turned off with the throw of a single switch.**

Adequate and functioning emergency lighting is imperative during evacuations involving power failures.

**Remedy:** Two corrective measures are necessary.

- Change the electrical supply to the lighting within the stair enclosures. The lighting shall be on two separate circuits. If light switches exist, a single switch shall not interrupt power to all lighting devices.
- Install additional emergency lighting where necessary and repair and/or replace inoperative emergency lighting units. See campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 13.2.9.1, 7.9.2, 4.6.13.1 and 4.5.7*

### **FINDING #4**

**A significant amount of combustible storage exists on the under-the-stair platform.**

This storage will fuel a fire.

**Remedy:** Eliminate the combustible storage. Discontinue using egress stair enclosures for storage.

*NFPA 101, Chapters 13.2.1 and 7.2.2.5.3.1*

## ***Protection Violations***

### **FINDING #5**

**One of the stair enclosures has a floor finish consisting of an unknown type of carpet. Unapproved interior floor finishes burn rapidly and emit an extensive amount of smoke.**

New interior finish within exit enclosures, including stair treads and risers, is required to be not less than a Class II.

**Remedy:** Determine the type of floor finish. If not in compliance with a Class II material, it shall be removed and/or replaced with a material characterized by a critical radiant flux specified in LSC 10.2.7.4 (2).

*NFPA 101, Chapters 13.2.1, 7.1.4.2 and 10.2.7.4*

### **FINDING #6**

**The building is considered a high-rise structure but lacks required sprinkler protection.**

The lack of sprinkler protection threatens occupants. This situation is compounded due to the lack of two required exits as noted in Finding #1.

**Remedy:** Install complete sprinkler protection. The sprinkler heads shall consist of quick action heads. The use of sprinkler protection and quick action heads substantially improves life safety and thus provides a suitable alternative to the lack of two required exits from the third and second floor areas.

*NFPA 101, Chapter 13.4.4*

### **FINDING #7**

**Unsealed wall penetrations exist in the ticket area and mechanical rooms.**

Heat and smoke can travel through these unsealed openings into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapter 8.5.5.2*

### **FINDING #8**

**The fire alarm system is yellow tagged due to deficiencies. The system lacks sufficient visual devices in some rooms.**



Fire alarm systems must be inspected, serviced and repaired when impairments are noted. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the system serviced by a licensed and/or qualified university representative. Noted deficiencies including inadequate visual devices shall be eliminated. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapter 4.6.13.1*

### ***Building Services Violation***

#### **FINDING #9**

**Extension cords are improperly used in the concession areas.**

Extension cords are designed and intended for use as temporary wiring.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 400-8*

## **59 - Bowers East Concession**

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This single-story structure is categorized as a mercantile occupancy. It is constructed of masonry and has an exterior brick veneer finish. Fire safety features include a fire alarm system, manual pull boxes, emergency lighting, audio/visual devices and portable fire extinguishers.

### **Means of Egress Violation**

#### **FINDING #1**

**Inoperative emergency lighting units exists.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Repair or replace the inoperative emergency lighting units and see campus-wide deficiencies located at the end of this report concerning the lack of, or insufficient, emergency lighting.

*NFPA 11, Chapters 39.2.9.1, 7.9.2, 4.6.13.1 and 4.5.7*

## **Protection Violation**

### **FINDING #2**

**Compressed gas cylinders throughout the building are not secured to prevent accidental tip over.**

A falling compressed cylinder may accidentally shear the valve, resulting in a release of gas and causing the cylinder to act as a projectile. This projectile may cause damage resulting in a threat to life and property.

**Remedy:** Secure the gas cylinders to prevent accidental tip over.

*NFPA 101, Chapter 4.6.1.2 and NFPA 55, Standard for the Storage, Use and Handling of Compressed and Liquefied Gases in Portable Cylinders, Chapter 7.1.3.4*

## **64 - Vending Service Building**

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The vending building is a steel frame building containing a large open room, restroom, two offices and a storage room. Fire safety features include portable fire extinguishers.

### **Means of Egress Violation**

#### **FINDING #1**

**A chair and stacks of empty cardboard boxes obstruct access to the front exit door.**

These obstructions will hinder egress. Furnishings, decorations or other objects shall not obstruct exit access, egress or visibility.



**Remedy:** Remove the items obstructing the exit and see campus-wide deficiencies located at the end of this report concerning egress obstructions and impediments.

*NFPA 101, Chapters 42.2 and 7.1.10.1*

## ***Protection Violation***

### **FINDING #2**

**The portable fire extinguishers located throughout the building lack required servicing.**

The lack of servicing may result in the extinguishers not performing properly, endangering staff and leading to increased property damage.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 42.3 and 4.6.13.2 and NFPA 10, Standard for Portable Fire Extinguishers, Chapters 6.1 and 6.3*

## **69 - Horticulture Lab**

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This building is a single-story structure categorized as a business occupancy and consisting of a single open room. It is a wood frame structure. Fire safety features are limited to portable fire extinguishers.

## ***Protection Violation***

### **FINDING #1**

**The portable fire extinguishers located throughout the building lack required servicing.**

The lack of servicing may result in the extinguishers not performing properly, endangering staff and leading to increased property damage.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 39.3.5 and 9.7.4.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapters 6.1 and 6.3*

## ***Building Services Violation***

### **FINDING #2**

**Excessive storage obstructs access to the electrical panel box located in the front corner of the room.**

Hindering access greatly delays disconnection of service during an emergency.

**Remedy:** Remove all storage from around the panel box, allowing at least a 36" clearance.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electric Code, Table 110-26(a)*

## 71 - Art Building F

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This one-story structure is categorized as a business occupancy. It is constructed of steel and has a drywall interior. Fire safety features include a fire alarm system with manual pull boxes, audio/visual devices, smoke detectors and portable fire extinguishers.

### **Means of Egress Violation**

#### **FINDING #1**

##### **Two benches obstruct the exit corridor.**

These benches reduce the width of the exit access corridor and may restrict groups of people during an emergency evacuation. Furnishings, decorations or other objects shall not obstruct exit access, egress or visibility.

**Remedy:** Remove the storage and see campus-wide deficiencies located at the end of this report concerning egress obstructions and impediments.

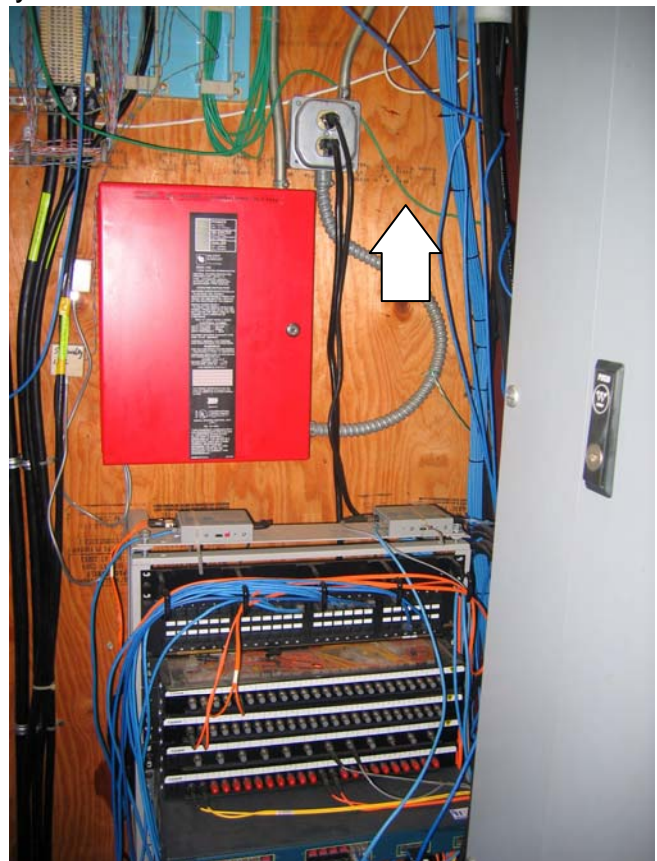
*NFPA 101, Chapters 39.2.1.1, 7.1.10.2.1 and 4.5.3.2*

### **Protection Violations**

#### **FINDING #2**

**Fire alarm deficiencies exist and include the following:**

- **The automatic dialer circuit is altered to include power to computer servers.**
- **The service tag indicates it was last serviced on 1994.**



Fire alarm systems require dedicated power supplies. Inadequate servicing will result in this and other types of deficiencies.

**Remedy:** Implement the following corrective measures:

- Have the system serviced by a licensed company.
- Eliminate connection with the computer servers.
- See campus wide notes concerning servicing of fire protection equipment.

*NFPA 101, Chapters 39.3.4, 9.6 and 4.5.6 and NFPA 72, National Fire Alarm Code Article 4.4.1.4.1*

### **FINDING #3**

**The exit access corridor's south wall is covered with a painted particle material. This material fails to meet required wall finish ratings. This material is approximately 20 feet in length, extends from floor to ceiling and is used for placement of student art work.**

Unapproved material burns rapidly and thus may hinder evacuations.

**Remedy:** Remove the particle material from the walls and discontinue displaying paper art work in the egress corridor. The exit corridor walls must maintain a minimum Class A or Class B interior finish rating. The attachment of extensive combustible artwork to the egress corridor walls diminishes wall ratings to below acceptable levels.

*NFPA 101, Chapter 39.3.3.2.1*

### **Building Service Violation**

### **FINDING #4**

**A power strip in the art exhibit area is improperly powered by an extension cord. The extension cord extends under a door when in use and also creates a trip hazard at the secondary exit door.**

Extension cords are designed and intended for use as temporary wiring. They should not be used as a substitute for permanent wiring.

**Remedy:** Discontinue use of the extension cords and see campus-wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 400.8*

**NOTE:** The south wall of the egress corridor is used to display art. This was not present during the inspection. However, it is important to note that excessive combustible artwork diminishes fire ratings.

## 72 - Art Building B

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This two-story structure is categorized as a business occupancy. It is a wood frame structure with an exterior brick veneer finish and a drywall interior finish. Fire protection features include portable fire extinguishers.

### ***Means of Egress Violation***

#### **FINDING #1**



**The second story egress has an 80 foot dead-end corridor, which exceeds limitations. This deficiency is compounded due to the existence of unprotected window and door openings.**

Dead-end corridors require occupants traversing this area to reverse their direction. This increases evacuation times. A fire occurring in one of the rooms along this dead-end will quickly penetrate the unprotected openings, subsequently preventing egress from numerous other rooms.

***Remedy:*** Two alternative corrective measures exist.

Install 20 minute rated doors along this dead-end. These doors shall incorporate door closing devices and positive latching. Windows along this path shall also incorporate wired or other listed glass. This does not limit the dead-end but does provide an acceptable alternative.

**Or**

Install an additional exterior stair. This stair shall be located at the remote end of the dead-end.

*NFPA 101, Chapters 39.2.5.2, 7.5.3.3 and 4.6.4*

## ***Protection Violation***

### **FINDING #2**

**Room 100A contains seven small cylinders and one large cylinder of acetylene. This substance creates a hazard exceeding what is typically found in this structure, subsequently resulting in the room being categorized as hazardous.**

Hazardous areas including, but not limited to, areas used for general storage are required to be separated from other parts of the building by fire barriers having a fire resistance rating of not less than one hour. All openings require protection by 45 minute fire protection-rated self-closing fire door assemblies.

**Remedy:** Install a UL-listed door assembly having a fire resistance rating of not less than 45 minutes. The door shall incorporate a door-closing mechanism and positive latching.

*NFPA 101, Chapters 39.3.2.2 and 8.7*

## **73 - Art Building A**

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This one-story structure is categorized as a business occupancy. It is a metal frame building with a metal exterior and drywall interior. Features of fire protection include a fire alarm system with detection throughout, portable fire extinguishers, emergency lighting and illuminated fire exit signs.

## ***Protection Violation***

### **FINDING #1**

**Two portable fire extinguishers located under the table have been discharged and lack required servicing.**

Portable fire extinguishers must be serviced at least once annually. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 39.3.5, 9.7.4.1 and 4.6.13.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3*

## **FINDING #2**

**Portions of the building's interior finish consist of an unidentified fabric covering the corridor walls.**

Materials not meeting minimum requirements burn rapidly and emit an extensive amount of smoke, which may hinder egress during a fire.

**Remedy:** Provide documentation specifying the material's rating. It should have a minimum Class A or B rating. If not meeting these requirements, this material must be removed.

*NFPA 101, Chapters 39.3.3.2.1 and 10.2*

## **79 - Horticulture Complex**

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The horticulture building is a single-story wood frame structure classified as a business occupancy. Fire protection features are limited to portable fire extinguishers.

### ***Protection Violation***

## **FINDING #1**

**The portable fire extinguishers located in the building lack required servicing.**

The lack of servicing may result in the extinguishers not performing properly, subsequently endangering staff and leading to increased property damage.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 39.3.5 and 9.7.4.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapters 6.1 and 6.3*

## **80 - Recycling Building**

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This is a single-story building with an open floor plan and categorized as a storage occupancy. Fire safety features include exit signs and emergency lights.

### ***Protection Violation***

## **FINDING #1**

**The portable fire extinguishers in the building lack required servicing.**



The lack of servicing may result in the extinguishers not performing properly, subsequently endangering staff and leading to increased property damage.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 42.3 and 4.6.13.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapters 6.1 and 6.3*

### **Building Services Violation**

#### **FINDING #2**



**Empty boxes obstruct access to the electrical panel box.**

Hindering access greatly delays disconnection of service during an emergency.

**Remedy:** Remove all storage from around the panel box, allowing at least a 36 inch clearance.

*NFPA 101, Chapters 42.5.1 and 9.1.2 and NFPA 70, National Electric Code, Table 110-26(a)*

## **83 - Residence Life**

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This two-story structure is categorized as a business occupancy. It is constructed of masonry and has an exterior stucco finish. Fire safety features include a fire alarm system, manual pull boxes, smoke detection, audio/visual devices and portable fire extinguishers.

### **Means of Egress Violation**

#### **FINDING #1**

**The exit sign located at the primary entrance/exit lacks required illumination.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations. Directional indicators shall be a chevron type that is identifiable as a directional indicator.

**Remedy:** Repair or replace the non-illuminated exit sign. Illumination must exist in both the normal and power failure conditions. See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

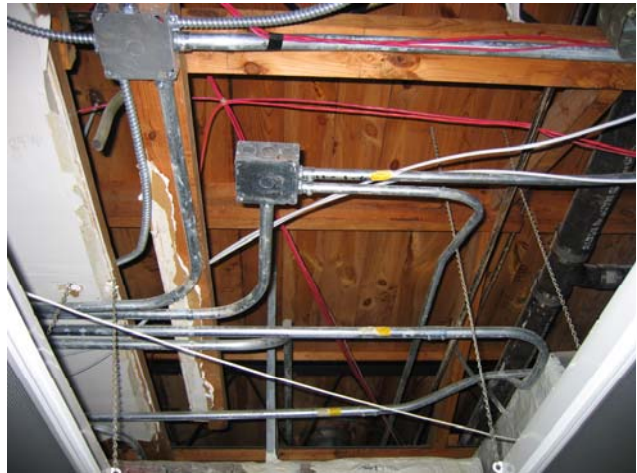
*NFPA 101, Chapters 39.2.10, 7.10 and 4.6.13*

### **Protection Violations**

#### **FINDING #2**

**The first floor mechanical room ceiling area is exposed to combustible wood decking at the second floor level. Mechanical rooms and similar areas are considered hazardous and thus require a minimum separation from other areas.**

The lack of separation between the mechanical room and other areas may permit the rapid spread of fire from the mechanical room to other occupied spaces.



**Remedy:** Two alternatives exist:

Provide a minimum one hour fire separation. This should include the walls and ceiling area. Doors entering this room shall incorporate door closing devices, positive latching and the door shall have a minimum 45 minute fire rating.

Or

Provide the area with sprinkler protection.

*NFPA 101, Chapters 39.3.2 and 8.7.1.1*

#### **FINDING #3**

**The janitor's closet door latching mechanism was taped in the retracted position. Upon removing the tape, the door would not fully close to a latched position.**

The lack of separation between the janitor's closet/hazardous area and the remainder of the building may permit the rapid spread of fire from this room to



other areas.

**Remedy:** Repair and/or replace the latching mechanism to ensure that the door fully closes and latches when not in use.

*NFPA 101, Chapters 39.3.2.1 and 8.7*

#### **FINDING #4**

**The glass partition door located at the top of the stairs obstructs the manual fire alarm pull box when the door is in the open position.**



Each manual fire alarm box on a system shall be accessible, unobstructed, and visible to permit quick activation of the fire alarm system.

**Remedy:** Remove the door or relocate the manual fire alarm pull box so the door will no longer obstruct it when the door is opened.

*NFPA 101, Chapters 4.6.13.1 and 9.6.2.6*

#### **Building Services Violation**

#### **FINDING #5**

**An extension cord is improperly used in room 202.**

Extension cords are designed and intended for use as temporary wiring. They should not be used as a substitute for permanent wiring.

**Remedy:** Discontinue use of the extension cord and see campus-wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 400-8*

**NOTE:** The building is equipped with an electric wheel chair lift that may stop between floors during a loss of power. The facility lacks a contingency plan to expedite removal of a mobility impaired person from the second floor in an emergency.

## 86 - Animal Husbandry Building

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This is a single-story building categorized as an assembly and contains incidental storage and business areas. It is constructed with steel and masonry. There is an attached room separated by masonry walls that is only accessible from the exterior of the building. This room houses the structure's electrical panel boxes. Fire safety features include illuminated exit signs and portable fire extinguishers.

### ***Means of Egress Violation***

#### **FINDING #1**

**The building lacks required emergency lighting units.**

Emergency lighting provides illumination in the event that a power failure or lighting units fail due to an unforeseen emergency. Its existence is imperative during evacuations involving power failures.

**Remedy:** Install emergency lighting units within assembly areas and the means of egress, and see campus-wide deficiencies located at the end of this report concerning the lack of, or insufficient, emergency lighting.

*NFPA 101, Chapters 13.2.9 and 7.9*

### **Protection Violation**

#### **FINDING #2**

**The portable fire extinguishers located throughout the building lack required servicing.**

The lack of servicing may result in the extinguishers not performing properly, endangering staff and leading to increased property damage.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 13.3.5 and 4.6.13.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.1 and 6.3*

### ***Building Services Violation***

#### **FINDING #3**

**The section 1 electrical panel box located in the electrical room is missing its required cover.**



Without an approved cover a person has access to the high voltage electrical wiring and may become electrocuted. Introduction of a foreign object may also result in shorting, subsequently igniting nearby combustibles.

**Remedy:** Replace the missing electrical panel cover.

*NFPA 101, Chapters 13.5 and 9.1.2*

## **91 - Poultry Lab**

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The poultry lab building is a single-story structure categorized as a business occupancy. It is constructed of masonry with a steel roof system.

### ***Protection Violation***

#### **FINDING #1**

**The portable fire extinguishers located throughout the building lack required servicing.**

The lack of servicing may result in the extinguishers not performing properly, endangering staff and leading to increased property damage.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 39.3.5 and 9.7.4.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapters 6.1 and 6.3*

## **92 - Tractor Lab**

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The tractor lab is a single-story building categorized as a business occupancy and having incidental storage. One large room at the end of the building is a classroom used for rebuilding tractors and other machinery. It is constructed of steel and masonry. Fire safety features are limited to portable fire extinguishers.

### ***Protection Violation***

#### **FINDING #1**

**The portable fire extinguishers located throughout the building lack required servicing.**

The lack of servicing may result in the extinguishers not performing properly, subsequently endangering staff and leading to increased property damage.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 39.3.5 and 9.7.4.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapters 6.1 and 6.3*

## **93 - Farm Power Machinery Building**

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The farm machinery building is a single-story building categorized as a storage occupancy. It is constructed of masonry with a steel roof system. Fire safety features are limited to portable fire extinguishers.

### ***Protection Violation***

#### **FINDING #1**

**The portable fire extinguishers located throughout the building lack required servicing.**

The lack of servicing may result in the extinguishers not performing properly, subsequently endangering staff and leading to increased property damage.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 42.3 and 4.6.13.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapters 6.1 and 6.3*

## **102 - Jackson-Shaver Hall**

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This four-story structure is categorized as a dormitory occupancy. The structure has a brick veneer exterior and a drywall interior finish. Features of fire protection include a fire alarm system with smoke detection throughout, a standpipe system with integrated fire pump, portable fire extinguishers, emergency lighting and illuminated fire exit signs.

### ***Protection Violation***

#### **FINDING #1**

**The standpipe and fire pump lack service labels and records indicating the lack of required maintenance and servicing.**

Testing of hoses is necessary to insure their integrity, subsequently preventing their failure during a fire.

**Remedy:** One of the following corrective measures must be implemented.

- Develop a campus-wide program of periodic inspection and testing of standpipe hoses. This requires the following:
  - Inspect and test all standpipe hose in accordance with NFPA 25 and NFPA 1962.
  - In-service hose designed for occupant use only shall be removed and service-tested at intervals not exceeding five years after the date of manufacturer and every three years thereafter.
  - When hose is taken out of service for testing, replacement hose shall be installed on the rack, reel, or storage area until the tested hose is returned to service.
  - In-service hose shall be un-racked, un-reeled or un-rolled and physically inspected at least annually. The hose shall be re-racked and re-reeled or re-rolled so that any folds do not occur at the same position on the hose.
- Use of fire hoses by occupants is discouraged because they lack the training and protective equipment for safe use. Therefore, contact the Huntsville Fire Department to determine if it prefers hoses removed from the racks. Many departments bring their own hoses for connection, thus existing hoses delay their suppression efforts. Written documentation must be obtained.

*NFPA 101, Chapter 9.7.4.2; NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, Chapter 6.1; NFPA 1962, Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose, Chapter 4.3 and NFPA 1962 Standard for the Care, Use, and Service Testing of Fire Hose Including Couplings and Nozzles*

## **103 - Belvin-Buchanan Hall**

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This four-story structure is categorized as a dormitory occupancy. The structure has a brick veneer exterior and a drywall interior finish. Features of fire protection include a fire alarm system with smoke detection throughout, portable fire extinguishers, emergency lighting and illuminated fire exit signs.

### ***Means of Egress Violations***

#### **FINDING #1**

**A door entering the egress corridor from the cafeteria is inappropriately secured in the open position.**

This door and its closing mechanism are intended to temporarily contain smoke, heat and flame should a fire occur. Leaving these doors open and/or failing to maintain them will adversely affect egress by permitting rapid spread of heat, flame and smoke.

**Remedy:** Discontinue securing this and other doors in the open position.

*NFPA 101, Chapters 4.6.13.1, 29.2.1.1 and 7.2.1.8.1*

Protection Violations

## **FINDING #2**

**The interstitial area above the ceiling plenum area within the egress corridors is utilized for return air. It has horizontal penetrations into each dorm room. The area also has an opening to the mechanical room, which exposes the egress corridor to a hazardous area. The egress corridors lack the required 30 minute fire barrier separation due to the lack of a rated ceiling and unapproved openings into the corridor from the dorm rooms.**

Penetrations into the egress corridors from dorm rooms may exist on the bottom third of the walls. Penetrations above the bottom third must consist of ductwork with the penetrations being sealed or mechanical dampers.

A fire occurring in any dorm room will permit the rapid spread of smoke, heat and flame into other dorm rooms by traveling through the interstitial space above the suspended ceiling.

**Remedy:** It appears at least three options are available.

Installation of mechanical dampers at each dorm room penetration and replacing the unapproved/rated ceiling. Provide the opening into the mechanical room closet with a damper that is tied into the fire alarm system.

**Or**

Sealing the penetrations at the ceiling and lowering them to the bottom third of the wall. This would result in the egress corridor being used for return air. Provide the opening into the mechanical room closet with a damper that is tied into the fire alarm system.

**Or**

Install metal ductwork within the existing plenum area and seal all other dorm room penetrations. Seal the penetration into the mechanical room. The penetration shall consist of metal duct with the penetration being effectively sealed.

*NFPA 101, Chapter 17.3.6*



### **FINDING #3**

**The newly installed detectors in the dorm rooms are installed at an incorrect elevation.**

Inadequate installation may delay detection and subsequent occupant notification.

**Remedy:** Relocate the existing hardwired smoke detectors to the correct elevation as specified by the manufacturer and NFPA standards.

*NFPA 101, Chapters 17.3.4 and 9.6 and NFPA 72, National Fire Code, Chapter 5.7.3.2*

## **104 - Elliot Hall**

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This four-story structure is categorized as a dormitory occupancy. The structure has a brick veneer exterior and a drywall interior finish. Features of fire protection include a fire alarm system with smoke detection throughout, portable fire extinguishers, emergency lighting and illuminated fire exit signs.

### **Protection Violation**

#### **FINDING #1**

**Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

## **110 - Zeta Tau Alpha House**

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

## ***Means of Egress Violation***

### **FINDING #1**

**The laundry room door entering the first-floor exit access corridor lacks the required self-closing devices.**

The lack of door closing devices will permit rapid spread of smoke, heat and flame, subsequently blocking exit passageways.

**Remedy:** Install a self-closing device on the door missing its closing device.

*NFPA 101, Chapter 29.3.6.4*

## ***Protection Violation***

### **FINDING #2**

**Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

## **111 - Gibbs House**

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

## ***Protection Violation***

### **FINDING #1**

**Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

## **112 - Lea Houston House**

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

### ***Means of Egress Violation***

#### **FINDING #1**

**The door entering the first-floor exit access corridor from the laundry room lacks required self-closing devices.**

The lack of door-closing devices will permit rapid spread of smoke, heat and flame, subsequently blocking exit passageways.

**Remedy:** Install a self-closing device on the door lacking its closing device.

*NFPA 101, Chapter 29.3.6.4*

### ***Protection Violation***

#### **FINDING #2**

**Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

## 113 - Alpha Delta Pi House

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

### ***Means of Egress Violations***

#### **FINDING #1**

**A door near the laundry room that enters the first-floor exit access corridor lacks its required self-closing devices.**

The lack of door-closing devices will permit rapid spread of smoke, heat and flame, subsequently blocking exit passageways.

**Remedy:** Install a self-closing device on the door lacking its closing device.

*NFPA 101, Chapter 29.3.6.4*

#### **FINDING #2**

**The emergency lighting unit located in the center stair is not functioning.**

Functioning emergency lighting is imperative during evacuations involving power failures.

**Remedy:** Repair or replace the non-functioning emergency lighting unit and see campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 29.2.9 and 7.9*

### ***Protection Violation***

#### **FINDING #3**

**Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

NOTE: Storage blocked the exit discharging from the kitchen to exterior. This storage was removed at the time of this inspection. Implement policies prohibiting obstructing egress.

## **114 - Sigma Sigma Sigma House**

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

### ***Means of Egress Violation***

#### **FINDING #1**

**One of the doors entering the first-floor exit access corridor lacks its required self-closing devices. This door is located near the laundry room.**

The lack of door-closing devices will permit rapid spread of smoke, heat and flame subsequently blocking exit passageways.

**Remedy:** Install a self-closing device on the door lacking its closing device.

*NFPA 101, Chapter 29.3.6.4*

### ***Protection Violation***

#### **FINDING #2**

**Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively

sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

## **115 - Rachel Jackson House**

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

### ***Means of Egress Violation***

#### **FINDING #1**

**Various doors entering the first-floor east exit access corridors lack required self-closing devices.**

The lack of door-closing devices will permit rapid spread of smoke, heat and flame, subsequently blocking exit passageways.

**Remedy:** Install self-closing devices on every door entering the egress corridors.

*NFPA 101, Chapter 29.3.6.4*

### ***Protection Violation***

#### **FINDING #2**

**Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

## 116 - Alpha Chi Omega House

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

### ***Means of Egress Violation***

#### **FINDING #1**

**One of the doors entering the first-floor exit access corridor lacks its required self-closing devices.**

The lack of door-closing devices will permit rapid spread of smoke, heat and flame, subsequently blocking exit passageways.

**Remedy:** Install self-closing devices on the door missing the closing device.

*NFPA 101, Chapter 29.3.6.4*

### ***Protection Violation***

#### **FINDING #2**

**Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

## 117 - Anne Shaver House

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection

include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

### ***Protection Violation***

#### **FINDING #1**

##### **Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

NOTE: A door was secured open by a device but this was corrected during the inspection. Implement policies prohibiting securing doors in the open position when said doors are intended to remain closed as a means of creating compartmentation, subsequently slowing the spread of heat, flame and smoke.

## **127 - Post Office and Telephone Services**

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This single-story structure is categorized as a business occupancy. It is constructed with a wood frame and has an exterior brick veneer. Fire safety features include a fire detection and alarm system with audio and visual warning, manual pull stations and portable fire extinguishers.

### ***Protection Violations***

#### **FINDING #1**

##### **The fire alarm system lacks the required annual servicing. It was last inspected in October 1999.**

Fire alarm systems must be inspected, serviced and repaired when impairments are noted. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.



**Remedy:** Have the system serviced by a licensed company. Noted deficiencies shall be eliminated. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 39.2.4.1, 4.6.13.1 and 9.6.1.6*

## **FINDING #2**

**The portable fire extinguishers located throughout the building lack required servicing.**

The lack of servicing may result in the extinguishers not performing properly, subsequently endangering staff and leading to increased property damage.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 39.3.5 and 9.7.4.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapters 6.1 and 6.3*

## **128 - Wilson**

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This is a two-story structure categorized as a business occupancy. It is a wood frame building with a brick veneer exterior finish. Fire safety features include exterior stairs, fire alarm system, smoke detection in each office space, emergency lighting and portable fire extinguishers.

### ***Means of Egress Violation***

## **FINDING #1**

**The building lacks required emergency lighting in the balcony area.**

Adequate and functioning emergency lighting is imperative during evacuations involving power failures.

**Remedy:** Install emergency lighting within the balcony area and see campus-wide deficiencies located at the end of this report concerning the lack of, or insufficient, emergency lighting.

*NFPA 101, Chapters 39.2.9, 7.9.1 and 7.9.3.1.3*

## **129 - Frels**

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This three-story structure is categorized as a business occupancy. It was previously used as a dormitory. It has a brick veneer exterior finish and exterior egress consists of

balcony corridors. Fire safety features include portable fire extinguishers on the first floor.

### ***Means of Egress Violations***

#### **FINDING #1**

**The second floor balcony area has a dead-end corridor exceeding maximum allowances. This balcony is treated as a corridor and thus is subject to corridor requirements.**

This dead-end corridor may result in occupants having to reverse their direction of travel, subsequently increasing evacuation time.

**Remedy:** Two alternative corrective measures exist.

Remove all locking devices permitting access to adjacent rooms, which provides access to another balcony.

**Or**

Remove occupants from the dead-end area of the balcony and restrict access.

*NFPA 101, Chapters 39.2.5, 7.5.1.2 and 7.5.1.2.1*

#### **FINDING #2**

**The egress paths involving the balconies and stairs lack required emergency lighting.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Install emergency lighting units within the balcony egress corridors and stairs. See campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 39.2.9 and 7.9*

#### **FINDING #3**

**The balcony and stairs lack acceptable guards.**

Inadequate guards may permit a toddler or young child to pass through an opening and fall, possibly resulting in injury and/or death.

**Remedy:** Install guards that incorporate an intermediate rail or an ornamental pattern that will not permit a sphere four inches in diameter to pass through any opening within the guard to a height not less than 34 inches.

*NFPA 101, Chapters 39.2.2.3.1 and 7.2.2.4.5.3*

### **Building Services Violation**

#### **FINDING #4**

**Mechanical room L00UIA has a junction box that is missing its cover and electrical conductors are protruding from this box.**

Electrical boxes, panels and similar devices must incorporate protective covers to prevent contact with energized conductors.

**Remedy:** Replace the missing cover.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Chapter 408.18*

## **130 - Baldwin House**

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

### **Protection Violation**

#### **FINDING #1**

**Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

## 131 - Creager House

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

### ***Protection Violation***

#### **FINDING #1**

#### **Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

NOTE: Storage under the rear stairwell was removed during the inspection and thus not referenced as a discrepancy. Implement policies prohibiting storage under stairs.

## 132 - Lawrence House

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

### ***Means of Egress Violation***

#### **FINDING #1**

**The doors entering the east exit access corridors lack required self-closing devices.**

The lack of door-closing devices will permit rapid spread of smoke, heat and flame subsequently blocking exit passageways.

**Remedy:** Install self-closing devices on every door entering the egress corridors.

*NFPA 101, Chapter 29.3.6.4*

### **Protection Violation**

#### **FINDING #2**

##### **Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

## **133 - Mitchell House**

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

### **Means of Egress Violation**

#### **FINDING #1**

##### **Various doors entering the first-floor east exit access corridors lack required self-closing devices.**

The lack of door-closing devices will permit rapid spread of smoke, heat and flame, subsequently blocking exit passageways.

**Remedy:** Install self-closing devices on every door entering the egress corridors.

*NFPA 101, Chapter 29.3.6.4*

## **FINDING #2**

### **Combustible storage exists under the stairs.**

This storage will fuel a fire, should one occur, subsequently hindering use of the exit stair.

**Remedy:** Eliminate the combustible storage. Discontinue using egress stair enclosures or any other means of egress component for storage.

*NFPA 101, Chapters 29.3.2, 4.6.1.2 and 7.2.2.5.3*

### **Protection Violation**

## **FINDING #3**

### **Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

## **135 - King Hall**

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King Hall is a four-story building categorized as a dormitory occupancy. It is constructed of masonry with an exterior brick veneer finish. Sleeping quarters are small sleeping rooms for two persons with an adjoining bathroom. Fire safety features include a fire detection and alarm system with audio and visual warning, manual pull stations, emergency lighting, exit signs and portable fire extinguishers.

### **Building Services Violation**

## **FINDING #1**

### **Extension cords are improperly used in living quarters 117, 222, 226 and 312.**

Extension cords are designed and intended for use as temporary wiring. They should not be used as a substitute for permanent wiring.

**Remedy:** Discontinue use of the extension cords and see campus-wide deficiencies located at the end of this report concerning the use of extension cords.

## 136 - Crawford House

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

### **Protection Violation**

#### **FINDING #1**

#### **Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*



## 137 - Mallon House

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

## ***Protection Violation***

### **FINDING #1**

#### **Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

## **138 - Roy Adams House**

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

## ***Protection Violation***

### **FINDING #1**

#### **Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

NOTE: Storage is present under the rear stairwell.



## 147 - Estill Hall

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Estill Hall is a four-story building categorized as a dormitory occupancy. It is constructed of masonry and has a brick veneer exterior. Each dorm room is a sleeping room with its own bathroom. Fire safety features include emergency lighting, exit signs, a fire detection and alarm system incorporating visual strobes and manual pull stations. The building houses a diesel fire pump with standpipe and hose system on each floor and portable fire extinguishers.

### ***Means of Egress Violation***

#### **FINDING #1**

**Fire exit signs in several locations in the building lack required illumination, including the following:**

- **Near room 101.**
- **Near room 209.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations.

**Remedy:** Implement the following corrective measures:

- Restore illumination.
- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 31.2.10 and 7.10.9*

## 148 - Barrett House

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

### ***Protection Violation***

#### **FINDING #1**

**Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

## **149 - Parkhill House**

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

### ***Protection Violation***

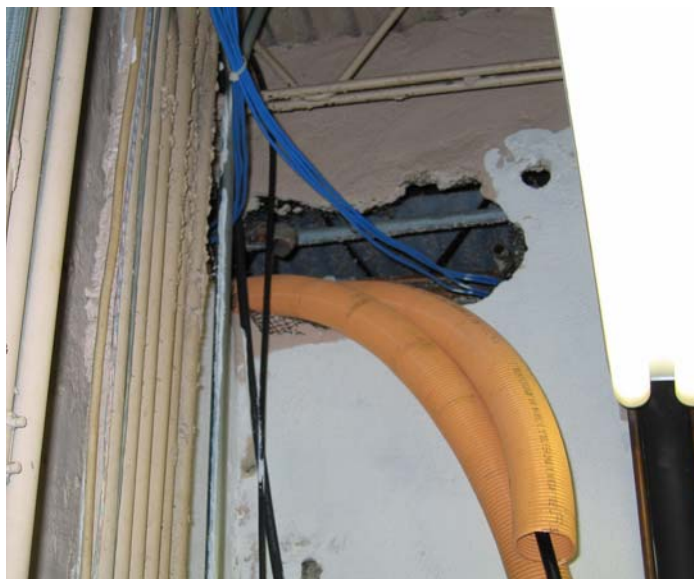
#### **FINDING #1**

#### **Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*



## 150 - Vick House

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

### ***Protection Violation***

#### **FINDING #1**

##### **Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

## 151 - Spivey House

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

### ***Means of Egress Violation***

#### **FINDING #1**

##### **The emergency lighting unit located near the computer room is not functioning.**

Functioning emergency lighting is imperative during evacuations involving power failures.

**Remedy:** Repair or replace the non-functioning emergency lighting unit and see campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 29.2.9 and 7.9*

### **Protection Violation**

#### **FINDING #2**

##### **Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

## **152 - Randel House**

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs.

### **Protection Violation**

#### **FINDING #1**

##### **Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.



## **155 - Aydelotte House**

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on all doors entering the corridors, emergency lighting and illuminated fire exit signs. This building is scheduled for demolition in the summer of 2005.

### ***Protection Violation***

#### **FINDING #1**

##### **Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.

## **158 - McCray House**

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This two-story structure is categorized as a residential occupancy and contains an assembly area on the first floor. It is a wood frame structure with a brick veneer exterior and plaster interior. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Features of fire protection include a fire alarm system with complete smoke detection, portable fire extinguishers, self-closing devices on doors entering the corridors, emergency lighting and illuminated fire exit signs. The McCray House is scheduled for demolition in the summer of 2005.

## ***Protection Violation***

### **FINDING #1**

#### **Mechanical room penetrations are not sealed.**

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be effectively sealed. Heat and smoke can travel through unsealed penetrations into adjoining areas, which will adversely affect egress.

**Remedy:** See campus-wide deficiencies located at the end of this report concerning unsealed penetrations.



*NFPA 101, Chapters 8.2.5.6.1, 8.4.4.1 and 8.5.5.2*

## **168 - White Hall**

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This four-story structure is categorized as a dormitory occupancy and contains an assembly area on the first floor. It is constructed of cinder block and steel and has a brick veneer exterior and drywall interior. Each room generally houses two occupants. Features of fire protection include a fire alarm system with detection throughout, portable fire extinguishers, emergency lighting and illuminated fire exit signs.

### ***Means of Egress Violations***

#### **FINDING #1**

**The doors opening onto the exterior exit access balconies lack required self-closing devices. The windows adjacent to the doors lack the required fire-rating.**

This building incorporates dead-end balconies, which require occupants evacuating rooms to traverse past unprotected openings. The lack of door-closing devices and rated windows will permit rapid spread of smoke, heat and flame from a room into the exterior egress balconies, subsequently blocking egress.

**Remedy:** Install self-closing devices on every door entering dead-end portions of the exterior balconies and replace the existing windows with windows consisting of wired glass or its equivalent.



*NFPA 101, Chapter 29.2.1.1, 29.3.6.4, 7.5.3.3 and 7.5.3.4*

## **FINDING #2**

### **The entrances to the stair enclosures lack required exit signs.**

Inadequate signage and will delay delayed evacuations. Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations. Directional indicators shall be a chevron type that is identifiable as a directional indicator.

**Remedy:** Implement the following corrective measures:

- Install an illuminated exit sign at each door entering the stair enclosures. This illumination shall exist in both the normal and power failure modes and may be supplied by either an internal or external source.
- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 29.2.10, 7.10.1 and 7.10.5*

## **FINDING #3**

### **The stair enclosures lack required emergency lighting.**

**Remedy:** Install emergency lighting units in the stair enclosures and see campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 29.2.9 and 7.9*

## **169 through 179 - Colony Apartments**

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The Colony Apartments comprise 11 buildings; 10 of these buildings are two-story structures housing residential apartments. These apartments consist of two bedrooms, one bathroom, kitchen and a living room. Each apartment has a separate door leading directly to the exterior. The construction is wood frame. All buildings within the Colony are protected by fire detection and an alarm system that is tied into the centrally located office building. The remaining one-story building is categorized as a business occupancy and contains the office and a small laundry facility.

## ***Protection Violations***

### **FINDING #1**

**The fire alarm system located in the office building is in trouble alarm mode due to a ground fault problem.**

Fire alarm systems must be inspected, serviced and repaired when impairments are noted. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the system serviced by a licensed company. Noted deficiencies shall be eliminated. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 31.3.4 and 4.6.13*

### **FINDING #2**

**A propane tank is improperly stored in apartment #200 of Colony building I and a gasoline can is improperly stored in apartment #100 of Colony building H.**

The contents of residential occupancies are classified as ordinary hazard. This prevents storage of flammable substances that might endanger occupants or fire fighters. Propane storage is not permitted. Otherwise, storage of other flammables result in areas being categorized as hazardous areas, which require separation and/or protection in accordance with Chapter 8.7.



**Remedy:** Implement the following corrective measures:

- Remove the propane bottle.
- Provide an approved one hour rated enclosure and/or sprinkler protection for the storage of gasoline or remove it from the building.

*NFPA 101, Chapters 31.1.5, 31.3.2.1 and 8.7.3.2*

## **Building Services Violation**

### **FINDING #3**

**Extension cords are improperly used in buildings that include A, B, D, H, I and J.**



Extension cords are designed and intended for use as temporary wiring. They should not be used as a substitute for permanent wiring.

**Remedy:** Discontinue use of the extension cords and see campus-wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapters 31.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 400.8*

## **193 - Museum Maintenance Barn**

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The Maintenance Barn is a one-story structure categorized as a mixed occupancy consisting of storage and industrial uses. It is a wood frame structure. Fire safety features include a portable fire extinguisher.

### **Protection Violation**

#### **FINDING #1**

**The safety pin on the carbon dioxide fire extinguisher is missing, which may result in inadvertent discharge of this extinguisher.**

Failing to maintain this and other extinguishers may result in them not performing properly, subsequently endangering staff and leading to increased property damage.

**Remedy:** Replace the existing carbon dioxide fire extinguisher with at least one multipurpose dry chemical fire extinguisher having a rating of not less than 2A:10B:C. Contact a company licensed by the State Fire Marshal's Office to inspect and maintain the fire extinguisher at intervals not greater than every 12 months.

*NFPA 101, Chapter 8.7.3 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3*

## **197 - Sam Houston Memorial Museum**

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The Museum is a two-story structure categorized as an assembly occupancy. The lower level contains incidental offices, workrooms and storage areas, whereas the other floor contains a viewing gallery and auditorium. The building is constructed of steel and concrete with a brick exterior. Each floor of the building has exits that discharge at grade. Fire safety features include a fire alarm system, detection, emergency lighting and illuminated exit signs.

## ***Protection Violation***

### **FINDING #1**

**The portable fire extinguisher, located near the submarine model, lacks required servicing. A display table also obstructs access to the extinguisher.**

The lack of annual servicing may result in the extinguisher not performing properly and hindering access delays its use. These conditions endanger staff and may lead to increased property damage.

**Remedy:** Implement the following corrective measures:

- Contact a company licensed by the State Fire Marshal's Office to inspect and maintain the fire extinguisher. Fire extinguishers shall be subjected to maintenance at intervals of not more than one year, at the time of hydrostatic test, or when specifically indicated by an inspection.
- Remove the table obstructing access to the portable fire extinguisher.

*NFPA 101, Chapters 4.6.13.1 and 8.7.3 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3*

## ***Building Service Violation***

### **FINDING #2**

**Unprotected openings exist in circuit breaker panel boards located in the office areas and panels 1, 2, and 3 located in the bottom floor janitor closet #1.**

Unprotected openings may result in accidental contact with energized circuits by personnel or permit the accidental introduction of a foreign object, resulting in electrical shorting and possible ignition of nearby combustibles.

**Remedy:** Install plates that effectively seal the unprotected openings.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electrical Code, Article 408.18*



## **202 - Walker Education Building**

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The Walker Education Building is a two-story structure categorized as an assembly occupancy. It contains museum exhibits, offices and meeting rooms. It is constructed

of steel and has a brick exterior. Each story has some exits that discharge at grade. Fire safety features include a fire alarm system, detection and emergency lighting.

### ***Means of Egress Violations***

#### **FINDING #1**

**The building lacks sufficient emergency lighting in several areas and the unit in room 112 failed to function. The areas lacking emergency lighting include:**

- **The exterior fire escape stairway leading from the auditorium and exhibit gallery to grade level.**
- **The atrium exit pathway leading from the auditorium to the main entrance.**
- **The corridor area leading to the handicap accessible exit.**

Emergency lighting is intended to provide minimum illumination during power failures. This facilitates emergency evacuations.

***Remedy:*** Implement the following corrective measures:

- Install emergency lighting units within the above described areas.
- Repair or replace the non-functioning emergency lighting unit located in room 112.
- See campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 13.2.9.1 and 7.9*

#### **FINDING #2**

**Fluorescent light bulbs have been removed from four emergency lighting fixtures in Room 115. This large meeting room has a capacity of over 100 persons. Maintenance staff stated the bulbs were removed several years ago for energy saving purposes.**

Emergency lighting is intended to provide minimum illumination during power failures. This facilitates emergency evacuations.

***Remedy:*** Implement the following corrective measures:

Replace the missing fluorescent bulbs

**Or**

Install additional emergency lighting units not designed to serve as night lighting, thus permitting cost savings to continue.

*NFPA 101, Chapters 39.2.9.1, 4.5.7 and 7.9.3*

### **FINDING #3**

**The auditorium lighting system is not arranged to provide minimum levels of illumination for emergency evacuation.**

Insufficient illumination may prevent occupants from being able to find their way to exits during an emergency evacuation.

**Remedy:** Examine the Auditorium lighting system controls and reprogram or modify the lighting to provide the minimum illumination of the floor surface areas of egress routes leading to exits. This illumination must meet the following criteria:

- The walking surfaces shall be illuminated to not less than 10.8 lux (one foot-candle) when measured at the surface.
- During periods of performances or projections, the illumination of walking surfaces in the Auditorium may be reduced to not less than 2.2 lux (0.2 foot-candles.) The lighting shall be brought to the required 10.8 lux level when the performance is completed or in the event of an emergency.

*NFPA 101, Chapters 13.2.8 and 7.8*

### **FINDING #4**

**Fire exit signs lack required illumination in the emergency power mode. The locations of these signs include, but may not be limited to, the following:**

- Above the exterior exit discharging from the exhibit gallery.
- At the entrance to room 115.

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations.

**Remedy:** Implement the following corrective measures:

- Restore emergency mode illumination.
- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 13.2.1, 7.10.1.1, 7.10.6.1.1 and 7.10.6.2.1*

### **Protection Violation**

### **FINDING #5**

**The pressure gauge on the fire extinguisher in a cabinet by 115B indicates the loss of operating pressure.**

Portable fire extinguishers must be serviced at least once annually or when deficiencies exist, such as the loss of internal pressure. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapter 4.6.13.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3*

### ***Building Service Violation***

#### **FINDING #6**

**The two 244,000 BTU boilers installed in the lower level outside mechanical room lack required markings or labels indicating registration with the Texas Department of Licensing and Regulation.**

The lack of registration may result in them not being inspected as required by the Texas Department of Licensing and Regulation. Units used in a hot water supply system with BTU ratings exceeding 200,000 and/or a gallon capacity exceeding 120 gallons shall be classified as a boiler, which requires registration and inspection.

**Remedy:** Contact the Texas Department of Licensing and Regulation at 1-800-722-7843 to initiate the registration and inspection process for these boilers.

*Texas Health and Safety Code, Chapter 755.021, Boiler Registration and Inspection*

## **204 - Museum-Gas Shed**

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The Gas Shed is a one-story structure categorized as a storage building. It is constructed of wood and has a metal roof. The building is used to store fuel containers for grounds-keeping equipment.

### ***Protection Violation***

#### **FINDING #1**

**Refueling of equipment takes place adjacent to this building. The building lacks the portable fire extinguishers that are required for areas where flammable liquids are stored and used.**

The lack of a portable fire extinguisher eliminates the ability to possibly extinguish a fire, should one occur.

**Remedy:** Install at least one multipurpose dry chemical fire extinguisher with a rating of not less than 2A:10B:C. This extinguisher shall be serviced at least once annually by a licensed company.

*NFPA 101, Chapter 4.6.13.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3*

## **223 - I45 Horticulture Storage**

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This one-story structure is categorized as a storage occupancy. It is a metal frame structure with a metal exterior and interior. Fire protection features include portable fire extinguishers and a flammable liquid cabinet.

### ***Protection Violation***

#### **FINDING #1**

**The portable fire extinguishers lack required annual servicing.**

Portable fire extinguishers must be serviced at least once annually. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapter 4.6.13.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3.1.4*

## **226 - Gibbs Classroom**

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This one-story structure is categorized as a business area within a multiple occupancy, which includes a shop and storage areas. The structure has a metal frame with metal exterior and plywood interior. The structure lacks fire protection features.

### ***Protection Violation***

#### **FINDING #1**

**The classroom lacks a required portable fire extinguisher.**

Portable fire extinguishers are intended to extinguish small fires.

**Remedy:** Provide a portable 10LB. ABC fire extinguisher.

*NFPA 101, Chapters 39.3.5 and 9.7.4.1*

## **225 - Gibbs Conference Center**

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Gibbs Conference Center is a two-story structure once used for residential purposes but since converted into a conference center with meeting rooms on the first floor and an apartment on the second floor. The apartment has an independent exit stairway that discharges to ground level. Fire safety features include a fire alarm system, heat detectors and portable fire extinguishers.

### ***Means of Egress Violations***

#### **FINDING #1**

**The conference center lacks required exit signs.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations. Directional indicators shall be a chevron type that is identifiable as a directional indicator.

**Remedy:** Implement the following corrective measures:

- Provide exit signs at all egress doors and directional signs where needed.
- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 13.2.1, 7.10.1.1, 7.10.6.1.1 and 7.10.6.2.1*

#### **FINDING #2**

**The conference room lacks required emergency lighting.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Install emergency lighting in the conference room and see campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 13.2.9.1, 7.9.2 and 7.9.3.1.1*

### ***Protection Violations***

### FINDING #3

**The independent fire alarm systems serving the apartment and first floor are not functioning.**

These systems are not required in this building. However, existing features including fire alarm systems, must be inspected, serviced and repaired when impairments are noted. This ensures proper operation in case of a fire. Existing life safety features obvious to the public, if not required by the *Code*, shall be either maintained or removed.

**Remedy:** Two alternatives exist:

Have the system serviced by a licensed company and noted deficiencies eliminated. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

**Or**

Remove the alarm system and all components.

*NFPA 101, Chapters 4.6.13.1 and 4.6.13.2*

### FINDING #4

**The pressure gauges of the dry chemical fire extinguishers located on the countertop in the garage and within the closet of the second-floor apartment indicate a loss of operating pressure.**



Portable fire extinguishers must be serviced at least once annually or when deficiencies exist such as the loss of internal pressure. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapter 4.6.13.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3*



## FINDING #5

The portable carbon dioxide fire extinguisher located in the kitchen has multiple deficiencies, including:

- It is not the appropriate type for the hazards present.
- It lacks a required inspection tag, indicating it has not been serviced within the past 12 months.
- It is not mounted on a wall bracket or located in a cabinet.

**Remedy:** Replace the existing carbon dioxide fire extinguisher with at least one multipurpose dry chemical fire extinguisher having a rating of not less than 2A:10B:C. This extinguisher shall be mounted on the wall or within a cabinet at an elevation not more than five feet from the floor surface. This extinguisher shall be serviced by a licensed company at least once annually.

*NFPA 101, Chapter 4.6.13.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3*

### **Building Service Violation**

## FINDING #6

The electrical system at the Gibbs Conference Center consists of a two-wire system, which has a positive leg and ground leg. This electrical system does not meet current industry standards, which require a positive, neutral and utility ground.

**Remedy:** Have a licensed electrical contractor or qualified university representative examine the building's electrical system and repairs as needed.

*NFPA 101, Chapters 13.5.1 and 9.1.2; NFPA 70, National Electrical Code, Article 200.3*

## **Gibbs Ranch Diesel Aboveground Storage Tanks**

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This complex has two aboveground fuel storage tanks (ASTs). One of the ASTs is an approximately 1,000 gallon steel tank and dispenser assembly used for fueling diesel-powered farm equipment. This system incorporates a suction type pump system. It is located in direct contact with the wood frame barn. The other AST is an approximately 300 gallon steel tank on a steel stand. Fuel is dispensed into diesel-powered farm equipment by gravity flow. The aboveground storage tanks and dispenser assemblies are not in compliance with the less restrictive standards for applicable to farms and ranches located in remote



areas and as per NFPA 30A, *Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapter 13*.

## **Protection Violations**

### **FINDING #1**



**The aboveground storage tanks and dispenser assemblies lack compliance with less restrictive standards permitted for farms and ranches located in remote areas as per NFPA 30A, *Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapter 13*.**

**Remedy:** The following criteria must be met. Inability to comply requires removal of the existing fuel tanks and dispensers. Any new installation must meet minimum standards.

- Both farm ASTs shall be of a single-compartment design.
- Neither tank shall exceed 1,100 gallons in capacity.
- The tanks may not be converted underground tanks.
- The tank shells shall have a minimum 12-gauge plate thickness.
- Tank fill openings shall incorporate closures designed to be locked. Such openings shall be separate from the vent opening.
- The tanks shall each incorporate a free-opening vent that relieves either the vacuum or the pressure developed during normal operation or from a fire exposure.
- The vent for the 1,000 gallon tank shall be not less than three inches in diameter whereas the vent for the 300 gallon elevated tank shall be not less than two inches in diameter.
- Vents shall discharge at points that will prevent the ignition of fumes released from these vents from causing localized overheating of, or direct flame impingement on, any part of the tank.
- Tanks shall be located outside and at least 40 feet from any important building. Tanks shall also be located so that any vehicle, equipment, or container that is filled directly from the tanks is at least 40 feet from any important building.
- Each tank shall be provided with a listed emergency vent meeting the requirements of Chapter 4.2.5.2 of NFPA 30.
- Tanks shall be separated from each other by not less than three feet.
- Tanks and containers shall be conspicuously marked with the name of the product contained and with the following marking:
  - FLAMMABLE — KEEP FIRE AND FLAME AWAY.
- Storage tank areas shall be kept free of weeds and other combustible materials.

- A dry chemical fire extinguisher with a rating of not less than 40B:C shall be installed near each fuel dispensing area.
- Tanks elevated for gravity discharge shall be mounted and equipped as follows:
  - Shall be supported on masonry, concrete or steel supports having adequate strength and designed to provide stability.
  - Discharge connections shall be made to the bottom or to the end of the tank.
  - The discharge connection shall be equipped with a valve that shall automatically close in the event of a fire by means of operation of an effective heat-actuated device. This valve shall be located adjacent to the tank shell. If this valve cannot be operated manually, an additional valve that can be manually operated shall be provided.
- Each component of dispensing systems for Class I (gasoline) liquids shall be listed.
- The nozzle shall be equipped so that it can be padlocked to its hanger to prevent tampering.
- Hose used for dispensing Class II (diesel) shall be equipped with listed self-closing nozzles.

*NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapter 13*



## **233 - Vehicle Storage**

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The Vehicle Storage is also used for maintenance and it is a single-story building categorized as an industrial occupancy. It is of tilt-wall construction with a metal roof system. Fire safety features includes partial fire sprinkler protection within the portion

that once contained a multi-tenant shopping center, fire alarm system, exit signs, emergency lighting and portable fire extinguishers.

### ***Means of Egress Violations***

#### **FINDING #1**

**The combination fire exit sign/emergency light located in Welding Shop room 143 lacks required illumination in both the normal and power failure mode.**

The lack of required illumination may result delaying occupant evacuations. Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations.

**Remedy:** Implement the following corrective measures:

- Restore emergency mode illumination.
- Restore normal illumination.
- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 40.2.10 and 7.10.5.1*

#### **FINDING #2**

**Room 141 contains a 320,000 BTU gas-fired boiler/water heater. This boiler lacks required markings or labels indicating that it is registered with the Texas Department of Licensing and Regulation.**

Any unit with an input BTU rating exceeding 200,000 and/or a capacity exceeding 120 gallons, shall be classified as a boiler and must be registered and inspected.

**Remedy:** Contact the Texas Department of Licensing and Regulation at 1-800-722-7843 to initiate the registration and inspection process for this boiler

*Texas Health and Safety Code, Chapter 755.021, Boiler Registration and Inspection*

## **234 - Physical Plant Shops**

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The Physical Plant Shops building is a single-story building categorized as an industrial occupancy and containing some incidental business offices and storage areas. The building is part of a former multi-tenant shopping center. It is of tilt-wall construction with a metal roof system. Fire safety features include partial fire sprinkler system, fire alarm system, exit signs, emergency lighting and portable fire extinguishers and a paint booth protected by a fixed dry chemical fire extinguishing system.

## ***Means of Egress Violations***

### **FINDING #1**

**The northeast corner exit door discharging from room 167B to the exterior is equipped with unapproved hardware consisting of a chain and padlock.**

Unapproved locking and/or latching devices may hinder egress during emergency evacuations.

**Remedy:** Remove the chain and padlock. Replacement hardware shall not require the use of a key, tool or special knowledge.

*NFPA 101, Chapters 13.2.2.2.1, 7.2.1.6.2 and 4.5.3.2*



### **FINDING #2**

**Fire exit signs in several locations in the building lack required illumination in the emergency power mode. Two locations identified include the following:**

- **The fire exit sign above the south door from property.**
- **The fire exit sign above the exit door from 161C (the normal illumination of this sign is also not working).**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations.

**Remedy:** Implement the following corrective measures:

- Restore emergency mode illumination.
- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 13.2.1, 7.10.1.1, 7.10.6.1.1 and 7.10.6.2.1*

### **FINDING #3**

**The emergency lighting fixtures in Electrical Shop 158 do not function.**

Emergency lighting is intended to provide minimum illumination during power failures. This facilitates emergency evacuations.



**Remedy:** Repair or replace the non-functioning emergency lighting units and see campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

NFPA 101, Chapters 40.2.9.1, 4.16.13.1, 7.9.3.1.1

## Protection Violations

### FINDING #4

Offices and storage mezzanines constructed in areas of the building neglected to include required modification of the fire sprinkler system. These areas include:

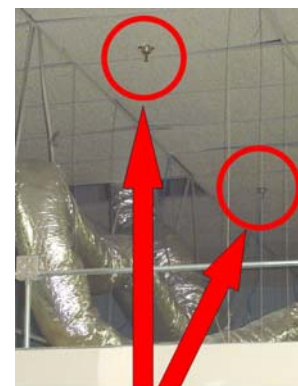
- Office 161C.
- Storage mezzanine in Electrical Shop 158.
- Storage mezzanine in Residence Maintenance 159.



The creation of several large unprotected areas will permit a fire in these areas to grow beyond the extinguishing capability of the fire sprinkler system. This threatens occupants and will result in unnecessary property damage, which may include the complete loss of this building.

**Remedy:** Implement the following corrective measures:

- Contact a state-licensed fire sprinkler firm to survey the fire sprinkler coverage in this



Fire Sprinklers

building. Sprinklers shall be installed under fixed horizontal obstructions over four feet wide, such as ducts, decks, open grate flooring and overhead doors.

- Develop and implement a policy that prevents future changes, such as converting areas to storage, from

adversely affecting existing fire protection features.

*NFPA 101, Chapter 4.6.8 and NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, Chapter 4.1.5*

#### **FINDING #5**

**Boxes and other stored items obstruct access to the fire alarm pull station located beside the door discharging from room 151.**

Impeding access to fire alarm remote pull stations will delay occupant activation of the fire alarm.

Fire protection systems must be inspected, serviced and repaired when impairments are noted. This includes accessibility and ensures proper operation in case of a fire.

**Remedy:** Remove all items obstructing access to the fire alarm pull station. Inspect all buildings regularly to ensure all fire protection systems are accessible.

*NFPA 101, Chapter 4.6.8 and NFPA 72, National Fire Alarm Code, Chapter 5.12.5*

#### **FINDING #6**

**The fire barrier door discharging from Carpentry Shop 151 into the adjacent sprinklered area of the building is kept open.**

Inappropriately keeping this fire barrier door open will permit rapid spread of heat, flame and smoke from a fire occurring in this area to other areas of the building. Doors in fire barriers must be self-closing or automatic-closing and incorporate positive latching. This is necessary to maintain integrity of the fire barrier.

**Remedy:** Remove the device holding the door open. If these doors must remain open for functional purposes, they may be equipped with automatic devices that will release upon activation of the fire alarm system or fire sprinkler system.

*NFPA 101, Chapters 4.6.13.1 and 8.3.3.3*

#### **FINDING #7**

**The pressure gauge on the fire extinguishers in Room 160 and Paint Shop 152 indicate a loss of operating pressure.**

Portable fire extinguishers must be serviced at  
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least once annually or when deficiencies exist such as the loss of internal pressure. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapter 4.6.13.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3*

NOTE: The Carpentry Shop 151 and Paint Shop 152 have the largest risks for fire but lack sprinkler coverage. Future changes, alterations or other substantial changes should extend sprinkler coverage into these areas.

### **Operating Features Violation**

#### **FINDING #8**

Paint shop 152A is a storage room that contains unapproved storage of a large quantity of flammable and combustible paints and solvents. This room fails to meet requirements for inside storage areas as established in Chapter 6.4 of *NFPA 30, Flammable and Combustible Liquids Code*. Deficiencies include:

- Lack of ventilation.
- Lack of spill control.
- Lack of openings in the exterior wall for firefighting.
- Lack of vapor proof electrical and appurtenances such as lighting fixtures.



**Remedy:** Implement the following corrective measures:

- Prohibit dispensing or transfer of liquids unless ventilation and spill control equipment is installed.
- Limit individual containers to not more than a 10 gallon capacity.



- Provide an electrical system meeting requirements for Class I, Division 2 locations if Class I flammable liquids (Flash point less than 100° F) are stored in this room.
- Install devices in the exterior walls to provide ready access for fire-fighting operations by means of access openings, windows or lightweight noncombustible wall panels.

*NFPA 101, Chapter 8.7.3.1 and NFPA 30, Flammable and Combustible Liquids Code, Chapter 6.4*

NOTE: The water supply pressure gauge on the main sprinkler control valve for the shop building indicated zero pressure. This led inspectors to believe the shop area lacked pressure within the sprinkler system. Requiring immediate attention, the tube supplying the gauge was found to be obstructed, which resulted in an inaccurate reading. The sprinkler system water motor gong located above the fire department connection was also missing its cover. The water motor gong is intended as a fail-safe alarm device that will sound even if the building fire alarm system fails to activate. The water gong cover and tube obstruction were corrected during the inspection. However, this situation indicates lack of maintenance of fire protection equipment.

## **235 - Physical Plant**

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The Physical Plant building is a single-story building categorized as mixed occupancy, consisting of business and storage areas. It is part of a former multi-tenant shopping center. It is of tilt-wall construction with a metal roof system. Fire safety features include a fire alarm system, emergency lighting, exit signs and portable fire extinguishers.

### ***Means of Egress Violations***

#### **FINDING #1**

**All exits located along the back of the Physical Plant Administration Building discharge into a fenced area, which incorporates unapproved padlocked gates.**

Unapproved devices such as key padlocks may result in occupants not being able to evacuate an area.

**Remedy:** Any door in a required means of egress from an area shall not require the use of a key, special effort, knowledge or tool. Remove the padlocks from the gates.

*NFPA 101, Chapters 39.2.1.1, 7.2.1.5.2 and 4.5.3.2*

#### **FINDING #2**

The exterior exit from Computing Services 171B discharges onto a wood deck that is elevated above the ground level. This deck lacks required stairs to reach grade.



The lack of required stairs eliminates a safe manner of discharge from the deck. Changes in level in means of egress shall be achieved by a stairway or ramp complying with the dimensional requirements of the Life Safety Code where the elevation difference exceeds 21 inches.

**Remedy:** Install an approved set of stairs or a ramp from the deck.

*NFPA 101, Chapters 39.2.1.1 and 7.1.7.1*

### FINDING #3

The east exit stairs discharging to the exterior from Residence Life Storage B-10 lack a required landing. A significant step down is required upon exiting the door.

The lack of an approved landing may result in occupants falling and injuring themselves. The likelihood of this occurring during an emergency evacuation is substantially increased.

**Remedy:** Install an approved set of stairs or a ramp with a landing equivalent to the door size. The stairs or ramp shall meet the dimensional requirements of the Life Safety Code.

*NFPA 101, Chapters 42.2.2.3.1 and 7.2.2.3.2*



### FINDING #4

Fire exit signs in several locations in the building lack required illumination in the emergency power mode, including:

- The fire exit sign in the break room.
- The fire exit sign near room 110.
- The fire exit sign near 131.
- The fire exit sign in laboratory 177B (Normal lighting also not working).
- The fire exit sign above the exit from 177 to the outside (Normal lighting also not working).

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations.

**Remedy:** Implement the following corrective measures:

- Restore emergency mode illumination.
- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 13.2.1, 7.10.1.1, 7.10.6.1.1 and 7.10.6.2.1*

#### **FINDING #5**

**The emergency lighting units along the north wall of Residence Life Storage B-10 are not functioning.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Repair or replace the emergency lighting units and periodically test for proper function. See campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 40.2.9.1, 4.16.13.1 and 7.9.3.1.1*

#### **Protection Violations**

#### **FINDING #6**

**Fume hood sash deficiencies exist in multiple areas. Some of the specific deficiencies and locations include:**

- **Fume hood sash at EF2 in TRIES laboratory 177C is damaged and will not close.**
- **Fume hood sash at EF6 is in the open position.**
- **Fume hood sash at EF7 is in the open position.**

A failure in the ventilation system will result in the release of flammable or toxic materials. This presents a risk of fire and/or explosion.

**Remedy:** Implement the following corrective measures:

- Repair and/or replace fume hood sashes that will not close. Until such time, these fume hoods shall be removed from service.
- Keep laboratory fume hood sashes in the closed position whenever possible and when unattended, sashes shall remain fully closed.
- See campus-wide notes concerning laboratory functions.

*NFPA 101, Chapter 8.7.4.1 and NFPA 45, Standard on Fire Protection for Laboratories Using Chemicals, Chapter 6.8.3*

## **FINDING #7**

**The gas fired heating boiler in TRIES Environmental Laboratory 100U5A lacks required markings or labels indicating registration with the Texas Department of Licensing and Regulation.**

The lack of registration may result in the boiler not being inspected as required by the Texas Department of Licensing and Regulation. Units used in a hot water supply system with BTU ratings exceeding 200,000 and/or capacity exceeding 120 gallons are classified as a boiler, which requires registration and inspection.

**Remedy:** Contact the Texas Department of Licensing and Regulation at 1-800-722-7843 to initiate the registration and inspection process for this boiler.

*Texas Health and Safety Code, Chapter 755.021, Boiler Registration and Inspection*

## **Physical Plant Complex Fuel Storage and Dispensing System**

Two, 2000 gallon aboveground gasoline storage tanks with associated dispensing mechanisms are located on the parking lot of the Physical Plant complex.

### ***Protection Violations***

## **FINDING #1**

**The aboveground storage tanks lack labels indicating that they are designed and constructed in accordance with recognized engineering standards or approved equivalents.**

Atmospheric tanks, including those incorporating secondary containment, shall be designed and constructed in accordance with recognized engineering standards or approved equivalents.

**Remedy:** Replace the existing ASTs with tanks meeting one of the following standards:

*UL 142, Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids; UL 2080, Standard for Fire Resistant Tanks for Flammable and Combustible Liquids; or UL 2085, Standard for Protected Aboveground Tanks for Flammable and Combustible Liquids*

**Or**

*API Specification 12B, Bolted Tanks for Storage of Production Liquids; API Specification 12D, Field Welded Tanks for Storage of Production Liquids; API Specification 12F, Shop Welded Tanks for Storage of Production Liquids; or API Standard 650, Welded Steel Tanks for Oil Storage*

*NFPA 30, Flammable and Combustible Liquids Code, Chapter 4.2.3.1.1 and NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapter 4.3.2*

## **FINDING #2**

**The aboveground storage tanks lack required emergency pressure relief vents.**

Exposing these tanks to a fire may result in their contents developing sufficient pressure, subsequently resulting in a tank rupture. This endangers firefighters and nearby buildings.

**Remedy:** Replacement of the existing tanks with ones meeting minimum standards requires installation of emergency relief vents.

*NFPA 30, Flammable and Combustible Liquids Code, Chapter 4.2.5.2.1 and NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapter 4.3.2*

## **FINDING #3**

**The normal vents from the two ASTs containing gasoline terminate under a canopy instead of at a required 12 foot elevation above grade and not under eaves, overhangs or other areas that might prevent dissipation of vapors.**

The lack of adequate venting may permit the accumulation of vapors, which may result in a flash fire, should they become ignited.

**Remedy:** Increase the elevation of the normal vents to a height at least 12 feet above grade and an elevation not less than five feet above the highest projection of the canopy.

*NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages*

## **FINDING #4**

**The fuel dispensers are supplied by pipes originating near the bottom edge of the ASTs.**

A disruption of the dispensing mechanism may permit an uncontrolled flow of fuel. Openings in aboveground tanks shall be above the maximum liquid level. Bottom outlets are not permitted.

**Remedy:** Installation of an approved AST shall incorporate approved piping.

*NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapter 4.3.6.1*

## FINDING #5

The aboveground storage tanks are filled by a fuel tanker that is often parked less than the required 25 feet from the AST.

Any emergency occurring during filling operations may result in a fire involving the tank and fuel truck.

**Remedy:** Provide an area that permits a minimum 25 feet separation from the ASTs and the delivery vehicle.



*NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapter 9.2.2.2*

**Advisory Note:** A recent fire/explosion incident in Lamesa, Texas, claimed the life of the delivery truck driver and caused extensive damage. The fuel delivery truck was parked less than five feet from the AST during filling operations

## FINDING #6

The AST fill inlet lacks a required liquid-tight connection. The tank is currently filled by a dispensing nozzle from the fuel tanker.

Liquid-tight fill connections prevent accidental spills, limits release of vapors and facilitates operation of overfill alarms.

**Remedy:** Provide the tank-fill connection with a check valve or shutoff valve that incorporates a quick-connect coupling or a check valve that incorporates a dry-break coupling. This shall be located at the tank-fill inlet unless the system is altered to include piping. In this case, the connection to the piping shall be equipped as addressed above. In either case, the connection device shall be protected from tampering and physical damage and it shall incorporate a spill containment device of noncombustible construction that shall be installed at each fill connection.

*NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapter 9.2.2.5*

## FINDING #7

The ASTs lack required means of sounding an alarm when the fuel level approaches the full level while being filled.

The lack of an approved overfill alarm may result in an AST being overfilled, subsequently resulting in a fuel spill and possible fire.

**Remedy:** Provide an audible overfill alarm device meeting the following criteria for each AST:

- Shall sound an audible alarm when the liquid level in the tank reaches 90 percent of capacity.
- Shall automatically stop the flow of liquid into the tank when the liquid level in the tank reaches 98 percent capacity or restrict the flow of liquid into the tank to a maximum flow rate of 2.5 gpm when the liquid in the tank reaches 95 percent capacity.
- These provisions shall not restrict or interfere with the operation of either the normal vent or the emergency vent.

*NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapter 4.3.6.3*

**NOTE:** The preceding listed AST discrepancies require replacement of the existing ASTs with ones meeting minimum requirements established in NFPA 30A, *Code for Motor Fuel Dispensing Facilities and Repair Garages*, and any referenced codes. The following operational violations shall be corrected prior to final disposition of the fuel tanks.

## **FINDING #8**

**The fuel dispensing hoses lack required emergency breakaway devices. Breakaway devices are designed to retain liquid on both sides of the breakaway point.**

A vehicle driven away without removing the dispensing nozzle will result in severing the hose and/or damage to the tank or dispenser. This could result in an uncontrolled fuel spill.

**Remedy:** Install listed emergency breakaway devices.

*NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapter 6.5.2*

## **FINDING #9**

**The remote emergency fuel cutoff is located in an area where it may be obstructed by parked vehicles. There is no sign to clearly indicate the location of the cutoff switch.**

Emergency shutoff devices or electrical disconnects shall be clearly identified and accessible to ensure rapid shutdown of fuel dispensing during emergencies.

**Remedy:** Install a sign above the emergency switch. This sign shall meet the following criteria:

- Located not less than 8 feet above the ground.
- Contain white lettering with a red background.
- Lettering with sufficient size as to be readily visible from the fuel dispensing island.
- Contain the following words and symbols:  
“EMERGENCY FUEL SHUTOFF”

*NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapter 6.7*

## **FINDING #10**

**The operating instruction and warning signs posted in the fuel dispensing area lack required information.**

The lack of adequate operating instructions and warning signs may hinder emergency actions.

**Remedy:** Conspicuously post operating and warning signs in the dispenser area. These signs shall include:

- Operating instructions that include location of emergency controls and a requirement that the user stay outside of the vehicle and in view of the fueling nozzle during dispensing.
- Warning signs that incorporate the following or equivalent wording:

### **WARNING**

It is unlawful and dangerous to dispense gasoline into unapproved containers.

No smoking.

Stop motor.

No filling of portable containers in or on a motor vehicle.

Place container on ground before filling.

Discharge your static electricity before fueling by touching a metal surface away from the nozzle.

Do not re-enter your vehicle while gasoline is pumping.

If a fire starts, **do not** remove nozzle — back away immediately.

Do not allow individuals under licensed age to use the pump.

### **Emergency Instructions**

In case of fire or spill

(1) Use emergency stop button.

(2) Report accident and location by calling (*specify local fire number and location on the sign*)



A telephone or other approved, clearly identified means to notify the fire department shall be provided on the site in a location accessible during any hours of operation of the fuel dispensing area

*NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, Chapters 9.2.5.4*

## **236 - UPD and Small Business Center**

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The Small Business Center/University Police building is a single story structure categorized as a business occupancy. It is part of a former multi-tenant shopping center. It is of tilt-wall construction with a metal roof system. Fire safety features include a fire alarm system, illuminated exit signs, portable fire extinguishers and an emergency generator that provides emergency power to specific sections of the building.

### ***Means of Egress Violation***

#### **FINDING #1**

**Fire exit signs in several locations in the building lack required illumination in the emergency power mode, including:**

- **The fire exit signs near the University Police main entrance.**
- **The fire exit sign in Room 118.**
- **The fire exit signs at both ends of the University Police office corridor.**
- **The front and rear fire exit signs in the Small Business Center.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations.

**Remedy:** Implement the following corrective measures:

- Restore emergency mode illumination.
- See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 13.2.1, 7.10.1.1, 7.10.6.1.1 and 7.10.6.2.1*

**NOTE:** This building is equipped with an emergency generator. Occupants reported the generator malfunctioned during the last power failure and took several minutes to start and provide emergency lighting. Apparently it is the only source of emergency power for the building. It is not known exactly what areas this generator supplies. However, if it is determined that it supplies power to critical systems such as the University Police dispatch center, it should be inspected, tested and maintained in accordance with NFPA 110, *Standard for Emergency and Standby Power Systems*.

## ***Protection Violation***

### **FINDING #2**

**The Halon® portable fire extinguisher installed in the University Police dispatch center lacks required servicing. The service tag is dated 2002.**

The lack of annual servicing may result in the extinguisher not performing properly, subsequently endangering staff and leading to increased property damage.

**Remedy:** Contact a company licensed by the State Fire Marshal's Office to inspect and maintain the fire extinguisher. Fire extinguishers shall be subjected to maintenance at intervals of not more than one year, at the time of hydrostatic test, or when specifically indicated by an inspection.

*NFPA 101, Chapter 4.6.13.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3*

## **240 - LadyKat Softball Concession**

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The concession building serves an accessory use to the LadyKat softball field. It is a single-story structure constructed with concrete block and a wood roof system. Fire safety features are limited to portable fire extinguishers.

### ***Building Services Violation***

#### **FINDING #1**

**A small refrigerator and microwave obstruct access to the electrical panel box.**

Hindering access delays disconnection of service during an emergency.

**Remedy:** Remove all storage from around the panel box, allowing at least a 36" clearance.

*NFPA 101, Chapters 39.5.1 and 9.1.2 and NFPA 70, National Electric Code, Table 110-26(a)*

## **241 - Forensic Psychology Building**

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This building is a one-story structure categorized as a business occupancy. It is constructed of metal and has a metal exterior and drywall interior. Fire protection features include a full fire detection and alarm system, portable fire extinguishers, emergency lights and illuminated fire exit signs.

## ***Protection Violation***

### **FINDING #1**

#### **Fire extinguishers in the building lack required servicing.**

Portable fire extinguishers must be serviced at least once annually. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 4.6.13.1, 39.3.5 and 9.7.4.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.3*

## **242 - Blackwood Law Enforcement Management Institute of Texas (LEMIT)**

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The LEMIT building is a three-story structure categorized as a business occupancy. It is constructed of concrete. This building has an atrium that connects all three floors. Fire safety features include a fire sprinkler/standpipe system, fire alarm system, detection, portable fire extinguishers and emergency lighting.

### ***Means of Egress Violation***

#### **FINDING #1**

#### **Inoperative emergency lighting units exists in the following locations:**

- Emergency light in room 321 above copy machine.
- Emergency light (left hand unit) installed near 214C/Elevator A.
- Emergency light installed in stairway 2 from first to second floor DOOR 16.
- Emergency light installed near door 104S1 to Stair 1.

**Remedy:** Repair or replace the inoperative emergency lighting unit and see campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 39.2.9, 7.9.2, 7.9.3.1.1, 4.6.13.1 and 4.5.7*

## ***Protection Violations***

### **FINDING #2**

**The latching hardware on stair door 206S1 has been damaged. The latch is retracted and thus fails to provide required positive latching.**

The lack of required positive latching will permit the pressure developed by a fire to open the door, subsequently permitting smoke, heat and flame to enter the stair enclosure.

**Remedy:** Repair or replace the door hardware and latch mechanism on door 206S1.

*NFPA 101, Chapters 39.3.1.1 and 7.1.3.2 and NFPA 80, Standard for Fire Doors and Fire Windows, Chapter 2-1.4.1*

### **FINDING #3**

**The main sprinkler control valve has a label that indicates the sprinkler system has 337 sprinkler heads. One cabinet with six spare heads is provided, which fails to provide the required number of spare heads.**

The lack of sufficient spare sprinkler heads prevents the system from being placed back into service without delay after a fire.

**Remedy:** Contact a licensed fire sprinkler firm to survey the building fire sprinkler system and install a cabinet that contains at least 12 spare sprinkler heads and any specialized wrenches necessary to replace the heads. A minimum of two sprinklers of each type and temperature rating should be provided.

*NFPA 101, Chapter 9.7.5 and NFPA 13, Standard for the Installation of Sprinkler Systems, Chapters 6.2.9.5 and 6.2.9.6*

### **FINDING #4**

**The cover plate for a concealed fire sprinkler head near room 111 is improperly caulked in place.**

These caps are designed to dislodge upon activation of the sprinkler heads. Caulking such caps may prevent the caps from releasing, preventing the sprinkler head from extinguishing a fire.

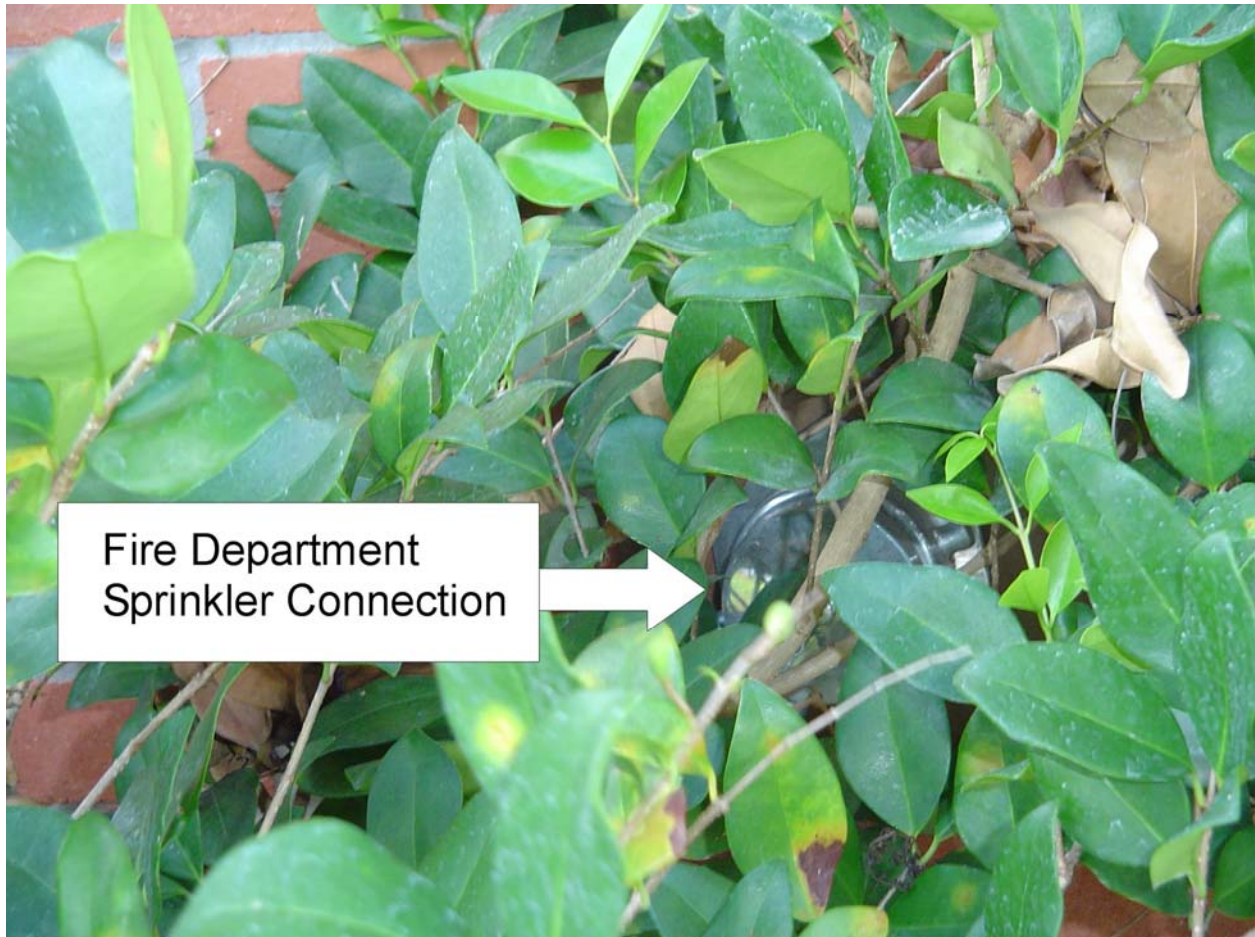
**Remedy:** Contact a licensed fire sprinkler company to replace the cover plate on the fire sprinkler head.

*NFPA 101, Chapter 9.7.5 and NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, Chapter 5.2.1.1.1*

## FINDING #5

The sprinkler system fire department connection is covered by bushes and thus not readily visible from the street.

The lack of visibility may delay fire department access, subsequently delaying its suppression efforts.



**Remedy:** The following corrective measures are necessary:

- Remove the landscaping obstructing the fire department connection.
- Develop a program of regular inspection of fire department connections to meet the following criteria:
- SHSU shall inspect fire department connections at least once quarterly. This inspection shall verify the following:
  - Visibility and accessibility of fire department connections.
  - Verify couplings and swivels are not damaged and rotate smoothly.
  - Plugs or caps are in place and undamaged.
  - Gaskets are in place and in good condition.
  - Identification signs exist.



- The check valve is not leaking.
- The automatic drain valve is in place and operating properly.
- The fire department connection clapper(s) is in place and operating properly.
- See campus-wide notes concerning fire department examination of hydrants and fire department connections.

*NFPA 101, Chapter 9.7.5 and NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, Chapter 12.7.1*

**NOTE:** The fire pump test header for the fire sprinkler system is covered with bushes and is not readily accessible to perform flow testing. Remove bushes from around the fire pump test header to facilitate regular pump testing.



#### **FINDING #6**

**The fire department standpipe connection is located several hundred feet from the closest fire hydrant.**

Fire department connections must be within 100 feet of the nearest fire hydrant. Hydrants permit fire departments to supplement the water supply and pressure to the standpipe system during firefighting operations.

**Remedy:** The location of the fire department connection shall be permitted to exceed 100 feet subject to the approval of the Huntsville Fire Department. Contact the Huntsville Fire Department to determine if the current arrangement of fire hydrants and fire department connections is acceptable. Install additional water mains and fire hydrants as necessary to meet fire department requirements. See campus-wide notes concerning the review of hydrants and fire department connections.

*NFPA 101, Chapter 9.7.5 and NFPA 14, Standard for the Installation of Standpipe and Hose Systems, Chapters 6.3.5.4 and 6.3.5.4.1*

## **FINDING #7**

**A carbon dioxide fire extinguisher sitting on the floor of custodial closet 207 lacks its required discharge hose and horn.**

Use of this fire extinguisher may be hazardous and will not perform as designed due to the lack of its required discharge hose.

**Remedy:** Remove the fire extinguisher from this room or contact a licensed extinguisher firm to make necessary repairs.

*NFPA 101, Chapter 9.7.4.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapter 6.2.1*

## **243 - Agriculture Mech & Technology Center**

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This one-story structure is categorized as a business occupancy. It is a metal frame structure with a metal exterior and interior. It is used primarily for the instruction of cutting, welding, and metal fabrication. Fire protection features include portable fire extinguishers, emergency lights and illuminated fire exit signs.

### ***Means of Egress Violation***

## **FINDING #1**

**The south door near room 111 can be mistaken for an exit.**

Doors that can be mistaken for an exit may result in delaying egress due to occupants having to reverse their travel upon finding the door is not an actual exit.

**Remedy:** Install a sign above the door stating “not an exit.”

*NFPA 101, Chapters 40.2.10 and 7.10.8.3.1*

## 252 - Observatory Classroom

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The Observatory Classroom is a windowless, single-story structure. It is a metal building utilized for astronomy construction. The building has one large open room with two exits opening directly to the exterior. Fire safety features include exit signs and portable fire extinguishers.

### ***Means of Egress Violation***

#### **FINDING #1**

**The rear exit from the Observatory Classroom opens directly to the outside and lacks a required landing or step. This exit has an approximate one foot elevation drop to the exterior ground level.**

Changes in level in means of egress not in excess of 21 inches shall be achieved either by a ramp or by a stair complying with the dimensional requirements of the Life Safety Code. Stairs are required to have landings at door openings equivalent in width and length to the width of the door.

**Remedy:** Install an approved set of stairs or a ramp with a landing equivalent to the door size. The stairs or ramp shall meet the dimensional requirements of the Life Safety Code.

*NFPA 101, Chapters 39.2.1.1, 7.1.7.2 and 7.2.2.3.2*

## 256 - Industrial Technology Lab

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This one-story structure is categorized as a business occupancy. It is a metal frame structure with a metal exterior and interior. Fire protection features include portable fire extinguishers, emergency lights and illuminated exit signs.

### ***Means of Egress Violation***

#### **FINDING #1**

**One of the required exits discharges into a locked fenced area, which lacks a door or other approved opening permitting access to a public way.**

The lack of a required exit discharge from the enclosed fenced area eliminates the ability to distance one's self from the building during an evacuation.

**Remedy:** Provide an opening in the fenced area. If provided with a gate for security, this door must be side hinged and locking and/or latching devices shall not require the use of a key, tool or special knowledge.



## **263 - Fish Hatchery Field Stat. Residence**

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This private residence is a single-story structure categorized as a one- and two-family dwelling. It contains three bedrooms, two bathrooms, living room, dining room and a kitchen. It is of wood frame construction with a brick veneer exterior. Fire safety features include secondary means of escape from the windows and two exits

### ***Protection Violation***

#### **FINDING #1**

**This residence once contained required smoke detectors throughout but they have been removed.**

The lack of required smoke detection delays occupant notification of a fire, should one occur. Early warning alerts occupants quickly, which facilitates escape.

***Remedy:*** Install smoke detectors in the following locations:

- Sleeping rooms.
- Outside of each separate sleeping area or in the immediate vicinity of the sleeping areas.
- On each level of the dwelling unit, including basements.

*NFPA 101, Chapter 24.3.4.1*

### ***Building Services Violation***

#### **FINDING #2**

**An extension cord is improperly used. It extends from an outside receptacle, across the lawn, to a hot fence connection that surrounds a chicken coop.**

Extension cords are designed and intended for use as temporary wiring. They should not be used as a substitute for permanent wiring.

***Remedy:*** Discontinue use of the extension cords and see campus-wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapters 24.5 and 9.1.2 and NFPA 70, National Electrical Code, Article 400.8*

## 270 - South Paw

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South Paw is a single-story structure categorized as an assembly occupancy with an occupant load exceeding 100 people. It is constructed with a steel frame and has a brick veneer exterior. The building contains food service equipment and dining areas. Fire safety features include a fire alarm system, detection and several fixed fire suppression systems protecting commercial cooking equipment.

### ***Means of Egress Violations***

#### **FINDING #1**

**The main entrance/exit doors are equipped with thumb latch type locks instead of key operated locks.**

Unapproved hardware may hinder evacuations during an emergency. If these doors are accidentally locked, occupants may not be able to access this exit during an emergency.

**Remedy:** Remove the thumb release locking devices. The primary entrance/exit discharging to the exterior may incorporate key-operated locks. These locks must meet the following criteria:

- Incorporate a readily visible and durable sign adjacent to the door with letters not less than one inch high on a contrasting background. This sign shall state "THIS DOOR TO REMAIN UNLOCKED WHEN THE BUILDING IS OCCUPIED."
- The key locking device shall be a type readily distinguishable as locked.
- A key is immediately available to any employee inside the building when it is locked.

*NFPA 101, Chapters 13.2.2.2.3 and 7.2.1.5.4*

#### **FINDING #2**

**The dining room east exit door lacks required panic hardware and incorporates an unapproved thumb latch locking device.**

Unapproved hardware may prevent rapid evacuation during an emergency. Egress doors subject to 100 or more occupants must incorporate panic hardware to facilitate rapid evacuations.

**Remedy:** Remove the existing locking hardware and install approved panic or fire exit hardware. See campus-wide deficiencies located at the end



of this report concerning unapproved locking and/or latching devices.

*NFPA 101, Chapters 13.2.1, 13.2.2.2.3 and 7.2.1.7*

### ***Protection Violation***

#### **FINDING #3**

**Two vent hood fire suppression system pull stations are installed adjacent to each other but lack required labeling indicating which hood system each of the systems serves.**

In case of a fire involving the cooking equipment, the lack of labeling may result in inadvertently activating the wrong suppression system, subsequently increasing property damage.

***Remedy:*** Clearly identify each manual pull with signage. This signage shall identify the system each of the manual pulls serves.

*NFPA 101, Chapter 9.7.3.1 and NFPA 96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, Chapter 10.5.1*

## **273 through 285 - BearKat Village**

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The BearKat Village is comprised of 13 buildings, 11 of which are three-story structures and categorized as residential apartment buildings. The apartments contain two bedrooms, one bathroom, kitchen and a living area. They are masonry construction. Fire safety features include complete sprinkler protection, fire detection, alarm system, emergency lighting and portable fire extinguishers located in the exterior exit passageways. The other two buildings consist of a clubhouse, which is a single-story structure encompassing offices and a small laundry facility. It has exit signs and emergency lights. The remaining building is a small single-story structure that is separated from other buildings and houses laundry facilities.

### ***Means of Egress Violation***

#### **FINDING #1**

**Emergency lighting units located in, but not limited to, building K are not operable.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

***Remedy:*** Repair or replace the emergency light fixtures and periodically test for proper function. See campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 13.2.9.1, 7.9.2, 4.5.7, 4.16.13.1 and 7.9.1.2*

### ***Protection Violation***

#### **FINDING #2**

**The portable fire extinguishers located throughout buildings A-M lack required servicing.**

The lack of servicing may result in the extinguishers not performing properly, subsequently endangering staff and leading to increased property damage.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 30.3.5 and 4.6.13.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapters 6.1 and 6.3*

## **286 - University Hotel**

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The University Hotel is a four-story structure categorized as a motel/hotel occupancy. This structure has a brick exterior finish. Fire safety features include two stair enclosures, complete sprinkler coverage, fire alarm system, smoke detection, portable fire extinguishers, exit signs and emergency lighting. The sleeping rooms also contain evacuation maps.

### ***Means of Egress Violation***

#### **FINDING #1**

**The enclosed stairs appear to lack emergency lighting. It could not be determined if the fluorescent lighting contained emergency support.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Verify the existence of emergency lighting in the stair enclosures. If lacking, emergency illumination must be installed. See campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 29.2.9.1 and 7.9*

## ***Protection Violation***

### **FINDING #2**

**The portable fire extinguishers located throughout the building lack required servicing.**

The lack of servicing may result in the extinguishers not performing properly, subsequently endangering staff and leading to increased property damage.

**Remedy:** Have the portable fire extinguishers serviced by a licensed company. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 29.3.5 and 4.6.13.1 and NFPA 10, Standard for Portable Fire Extinguishers, Chapters 6.1 and 6.3*

## ***Building Services Violation***

### **FINDING #3**

**Extension cords are improperly used in various areas, including the following locations:**

- Back office behind the front desk.
- Rooms 306.
- Room 326.
- Room 405.



Extension cords are designed and intended for use as temporary wiring. They should not be used as a substitute for permanent wiring.

**Remedy:** Discontinue use of the extension cords and see campus-wide deficiencies located at the end of this report concerning the use of extension cords.

*NFPA 101, Chapters 30.5 and 9.1.2 and NFPA 70, National Electrical Code, Article 400.8*

## **287 - Continuing Education Building**

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This one-story structure is categorized as a business occupancy. It is a wood frame structure with a brick exterior veneer finish and a wood paneling interior finish. Fire protection features include a combination fire and burglar alarm system and portable fire extinguishers.

## ***Means of Egress Violations***

### **FINDING #1**

**The rear exit door does not open easily and is provided with an unapproved double cylinder key locking device.**

Locks shall be openable from the egress side of the door without the use of a key, a tool or special knowledge from the egress side of the door. This prevents accidental locking of an individual within these areas.

**Remedy:** Adjust the door so that it opens easily and see campus-wide deficiencies located at the end of this report concerning non-functioning, excessive, unapproved and improperly installed locking and/or latching devices and non-functioning closing mechanisms.

*NFPA 101, Chapters 39.2.2.2.1 and 7.2.1.5.2*

### **FINDING #2**

**The rear door lacks a required illuminated exit sign.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations. Directional indicators shall be a chevron type that is identifiable as a directional indicator.

**Remedy:** Install an illuminated exit sign and see campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 39.2.1, 7.10.1.1, 7.10.6.1.1 and 7.10.6.2.1*

### **FINDING #3**

**An inoperative emergency lighting unit exists near room 126.**

**Remedy:** Repair or replace the inoperative emergency lighting unit and see campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 39.2.9.1, 7.9.2, 4.6.13.1 and 4.5.7*

## ***Protection Violation***

### **FINDING #4**

**The smoke detector lacks a battery.**

Fire protection equipment must be maintained. This includes equipment not required.

**Remedy:** Replace the missing battery and continuously maintain the smoke detector or remove it.

*NFPA 101, Chapter 4.6.13.2*

## **288 - Riverside Campground Pavilion**

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This one-story structure is categorized as an assembly occupancy. It is constructed with a steel frame and partial brick veneer exterior finish. This building is currently being renovated.

### ***Means of Egress Violation***

#### **FINDING #1**

##### **The exit doors lack required panic hardware.**

These doors are subject to 100 or more occupants and thus require panic hardware. Inappropriate exit door hardware will delay evacuations.

**Remedy:** Install panic hardware on all exit doors except for the primary entrance. The primary door may be equipped with a key operated locking device, provided the door does not incorporate any other type of releasing and/or latching mechanism. See campus-wide deficiencies located at the end of this report concerning unapproved locking and/or latching devices.

*NFPA 101, Chapters 13.2.1, 13.2.2.2.3 and 7.2.1.7.3*

#### **FINDING #2**

##### **The rear egress doors lack required illuminated exit signs.**

Exit signs are intended to provide building occupants with visual indication of the means of egress within a structure, assisting in emergency evacuations. Directional indicators shall be a chevron type that is identifiable as a directional indicator.

**Remedy:** Install illuminated exit signs at the two rear egress doors. These signs must incorporate illumination in both the normal and power failure conditions. See campus-wide deficiencies located at the end of this report concerning marking of means of egress with exit signs.

*NFPA 101, Chapters 13.2.10 and 7.10*

#### **FINDING #3**

##### **The building lacks required emergency lighting.**

Emergency lighting provides automatic illumination of exit pathways in the event of a failure of normal lighting.

**Remedy:** Install emergency lighting and see campus-wide deficiencies located at the end of this report concerning the lack of or insufficient emergency lighting.

*NFPA 101, Chapters 13.2.9 and 7.9*

#### **FINDING #4**

**The egress doors discharging to the exterior improperly open against the direction of egress travel.**

Doors subject to 50 people or more must open in the direction of egress travel. Otherwise, numerous people reaching a door simultaneously during an emergency evacuation will prevent the doors from being opened, subsequently trapping occupants.

**Remedy:** Change the door pivot so that all three egress doors open in the direction of egress travel.

*NFPA 101, Chapters 13.2.1 and 7.2.1.4.2*

NOTE: This building has an occupant load exceeding 300 people but lacks the required fire alarm system. However, the building has an open floor plan. A fire occurring anywhere in the building will be readily visible to occupants. Therefore, this is not referenced as a discrepancy.

NOTE: This building is currently under renovation. It is important to note that acceptable plan reviews prior to this renovation would have eliminated the above noted discrepancies.

## **301 - Parking Garage**

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The Parking Garage is a five-level, open concrete storage structure. The building is equipped with a non-supervised dry firefighting standpipe system and a fire detection and alarm system.

### ***Protection Violations***

#### **FINDING #1**

**The smoke detector located in the first-floor mechanical/electrical/telecom equipment room is covered with a protective cap.**

Protective caps are temporarily installed during construction and other operations such as painting. They are necessary to prevent damage during these operations but are



removed after such operations to ensure they sense smoke from a fire, should one occur.

**Remedy:** Remove the protective cap from the smoke detector. Future acceptance inspections by university personnel or their representatives shall include complete inspection of all fire protection features.

*NFPA 101, Chapter 9.6.1.3 and NFPA 72, National Fire Alarm Code, Chapter 10.3*

## **FINDING #2**

**The fire alarm system lacks required annual servicing. It was last inspected in September 2003.**

Fire alarm systems must be inspected, serviced and repaired when impairments are noted. This ensures proper operation in case of a fire. Any device, equipment, system, condition, arrangement, level of protection, or any other feature required for compliance with the provisions of the Life Safety Code shall thereafter be permanently maintained unless the Life Safety Code exempts such maintenance.

**Remedy:** Have the garage fire alarm system serviced by a licensed company. Noted deficiencies shall be eliminated. See campus-wide deficiencies located at the end of this report concerning maintenance and testing of fire protection equipment.

*NFPA 101, Chapters 4.6.13.1 and 9.6.1.3 and NFPA 72, National Fire Alarm Code, Chapter 10.1*

## **BUILDINGS LACKING NOTED DISCREPANCIES**

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### **9 - Estill Hall Pool House**

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The Estill Hall Pool House is a one-story, wood frame building with wood interior and exterior and a shingle roof. The building is used to store pool maintenance supplies and equipment and also contains restroom facilities. There are no features of fire protection present.

### **15 - West Power Plant**

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The West Power Plant is a one-story, metal frame, cinder block building with a brick veneer exterior. This building is classified as an industrial occupancy by the *Life Safety Code*. Features of fire protection include a fire alarm system with manual pull stations, portable fire extinguishers, fire exit signs and emergency lights.

### **16 and 17 - Holleman Dugout(s)**

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The dugouts are accessory structures of the Holleman baseball field, which is classified as assembly occupancy. Holleman dugout(s) consist of masonry construction on three walls with an open front and a wood framed roof.

## **23 - Pritchett Ticket Office**

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The ticket office is a single-story structure of masonry construction with a wood frame roof. The ticket office is an accessory structure to the Pritchett soccer field. The building was being used for storage at the time of inspection.

## **25 - Pritchett Field Concessions**

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The concession building is a single-story building that serves as an accessory structure to the Pritchett soccer field, which is an assembly occupancy. It is constructed with concrete block and has a steel roof system. The building is used as storage at this time.

## **26 - Pritchett Women Restroom**

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This building is a single-story, accessory use building serving the Pritchett soccer field, which is an assembly occupancy. It is constructed with concrete block and has a steel roof system.

## **29 - LadyKat Softball Locker**

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The softball locker is a single-story building that is an accessory storage structure to the LadyKat softball field, which is categorized as an assembly occupancy. It is constructed of masonry.

## **32 - Holleman Field Dressing Room**

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This single-story building is an accessory use building for the Holleman baseball field, which is categorized as an assembly occupancy. It is constructed of masonry.

## **33 - Holleman Field Press box/Concessions**

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The Hollerman Field Pressbox/Concessions complex is a two-story building constructed of cinder block with brick veneer exterior. There are no features of fire protection present.

## **45 - P.E. Equipment Storage McAdams Tennis Complex**

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The P.E. Equipment Storage at the McAdams Tennis Complex is a one-story, wood frame structure with metal exterior and interior. This building is used to store various sports related equipment. There are no features of fire protection present.

## **54 - Counseling Center/ADA Services**

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The Counseling Center is a single-story brick, steel, and concrete structure. The building is classified as a business occupancy. The building has a fire alarm system, illuminated exit signs, and portable fire extinguishers.

## **60 - Archery 1 IM Field 1**

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This single-story building is categorized as a storage occupancy. It is of wood frame construction. Access could not be obtained, so the building was not inspected.

## **61 - Bowers Ticket Booth (S.E.)**

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The Bowers Ticket Booth (S.E.) is a one-story structure constructed of brick. This building is large enough for one occupant only and is currently being used for storage of supplies and equipment. There are no fire protection features.

## **62 - Bowers Ticket Booth (S.W.)**

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The Bowers Ticket Booth (S.W.) is a one-story structure constructed of brick. This building is large enough for one occupant only and is currently in use. There are no fire protection features.

## **63 - Intramural Field Restrooms**

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The Intramural Field Restrooms is a one-story brick structure. This building is currently being used as a restroom facility. There are no fire protection features.

## **65 - Bowers Ticket Booth (N.)**

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The Bowers Ticket Booth (N.) is a one-story brick structure. This building is large enough for one occupant only and is currently being used for storage of supplies and equipment. There are no fire protection features.

## **67 - McAdams Tennis Restrooms**

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The McAdams Tennis Restrooms is a one-story brick structure. This building is currently being used as a restroom facility. There are no fire protection features.

## **68 - Agricultural Greenhouse #2**

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The greenhouse is a single-story structure categorized as a storage occupancy. It has large ventilation fans in the wall and is of polycarbonate construction.

## **70 - Agricultural Greenhouse #1**

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The greenhouse is a single-story structure categorized as a storage occupancy. It contains large ventilation fans in the wall and is of polycarbonate construction.

## **74 - Observatory Telescope Building**

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The Observatory Telescope Building is a rotating domed structure housing a telescope for astronomical exploration.

## **75 - Art Lab E**

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The Art E building is a one-story, metal frame building with metal exterior, metal roof, and sheet rock interior. Fire protection features include a full fire detection and alarm system, portable fire extinguishers, emergency lights and illuminated fire exit signs.

## **76 - Power Plant CJC**

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Power Plant CJC is located in the basement of the Criminal Justice Center, which is constructed of brick and masonry with metal frame. This building is classified as an industrial occupancy by the Life Safety Code. Features of fire protection include a full sprinkler system and fire alarm system, portable fire extinguishers, emergency lights and illuminated fire exit signs.

## **78 - Vending Storage**

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The vending building is categorized as a storage occupancy. It is of pre-manufactured wood frame construction.

## **84 - Archery 2 IM Field 1**

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This single-story building is categorized as a storage occupancy. It is of wood frame construction. Access could not be obtained, so the building was not inspected.

## **89 - Swine Building**

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The Swine building is a single-story structure categorized as a storage occupancy. It is of wood frame construction. The building is not in use at this time.

## **90 - Layer and Breeder Building**

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The layer and breeder building is a single-story structure categorized as a storage occupancy. The building is not in use at this time.

## **94 - Abattoir Lab (Meat Lab)**

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This single-story building is categorized as an industrial occupancy. The building is used for processing and packaging meat products. Its layout includes one large room for industrial operations and a large room consisting of a walk-in freezer for blood operations. The structure is of steel frame construction. Fire safety features include exit signs, emergency lighting and portable fire extinguishers.

## **95 - Horse Management Building**

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The horse management building is a single-story wood frame unenclosed building categorized as a storage occupancy. The building contains stables for horses and other animals with a small room for supplies and feed.

## **96 - Grounds Greenhouse 1**

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Grounds Greenhouse 1 is a one-story, wood frame structure with an opaque covering. The structure has front and rear exits and is used to store various plants. Fire protection features include portable fire extinguishers.

## **97 - Grounds Greenhouse 2**

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Grounds Greenhouse 2 is a one-story, wood frame structure with an opaque covering. The structure has front and rear exits and is used to store various plants. Fire protection features include portable fire extinguishers.

## **98 - Grounds Chemical Storage**

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Grounds Chemical Storage is a one-story, wood frame structure with metal roof and siding where chemical supplies and equipment are stored. There are no fire protection features present. Also located on the property is an aboveground diesel storage tank.

## **154 - Allen House**

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The Allen House is a two-story, cinder block structure with brick veneer exterior and plaster interior. This building is classified as a residential occupancy by the *Life Safety Code* and contains a large assembly area on the first floor. Each room generally houses two occupants. There are mechanical rooms containing gas operated water heaters in each facility. Fire protection features include a full fire detection and alarm system with smoke detectors in sleeping quarters and hallways, portable fire extinguishers, self closing devices on all hallway doors, emergency lighting and illuminated fire exit signs.

## **159 through 166 - Gintz Apartments (1- 8)**

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The Gintz Apartment complex is a collection of eight, one-story buildings constructed of cinder block with brick veneer exterior. These buildings are generally classified as residential occupancies by the Life Safety Code and each apartment contains a single family. There are 52 separate apartments with front and rear exits in each. At the end of each apartment complex is a laundry and storage room containing gas operated water heaters and gas operated laundry dryers. Features of fire protection include hard wired smoke detectors in each apartment. Building Number 2 is currently unoccupied and the entire Gintz complex is scheduled for demolition in the summer of 2005.

## **190 - Bearkitten 1009 13th Street**

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This is a wood frame, single-story building with basement formerly used as a residence. The building is currently used for offices and is classified as a business occupancy. The building has a combination fire detection/security system.

## **191 - Bearkitten 1003 13th Street**

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This is a wood frame, single-story building formerly used as a residence. The building is currently used for offices and is classified as a business occupancy. The building has a combination fire detection/security system.

## **192 - Residence - 1310 Avenue J**

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This is a wood frame, single-story building formerly used as a residence. The building is currently vacant and is in deteriorating condition, the ceiling having collapsed in several locations. If this building is to be utilized in the future, it shall be brought into compliance with the applicable chapters of the Life Safety Code prior to occupancy.

## **194 - Museum - Sam Houston's Law Office**

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Sam Houston's Law Office is a log cabin structure operated as a museum. The building is classified as a business occupancy and has a combination fire/security alarm system.

## **195 - Museum - Eliza's Kitchen**

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Eliza's Kitchen is a log cabin structure operated as part of the museum. The building has a working fireplace and is used for cooking demonstrations. The building is classified as a business occupancy and has a combination fire/security alarm system.

## **196 - Museum - Joshua's Blacksmith Forge**

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The Blacksmith Forge is a wood frame and log open structure operated as a museum; blacksmithing demonstrations are held here. The building is classified as a business occupancy. A water hose is available for blacksmith use and as fire protection.

## **198 - Museum - Woodland Home**

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This is a two-story historic wood frame residence used as a museum. The public is restricted from entering the building; viewing areas from the exterior are provided. This building has a fire detection and alarm system and is classified as a business occupancy.

## **199 - Museum - Exhibit Hall**

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The Exhibit Hall is a single-story, wood frame building used as a museum. The building is equipped with a fire detection and alarm system and portable fire extinguishers and is classified as an assembly occupancy.

## **200 - Museum - Steamboat House**

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The Steamboat House is a large two-story historic residence used as a museum. The building is classified as a business occupancy. The public is restricted from entering the building interior and exterior viewing openings are provided. The building has a fire detection and alarm system.

## **201 - Museum - Corn Crib**

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The Corn Crib is an open, log construction building operated as part of the museum. It is classified as a storage occupancy and is currently being used for drying vegetables. The building has a combination fire alarm and security system.

## **203 - Museum - Garden Shed**

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The Garden Shed is a wood frame storage building utilized for garden tool storage.

## **205 - Museum - Fort Sam Houston (new Army Cabin)**

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This is a wood frame and log cabin operated as part of the museum. There is no fire alarm system in this small building, which is classified as a business occupancy.

## **207 - Museum - Demonstration Cabin**

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This is a wood frame and log cabin operated as part of the museum. There is no fire alarm system in this small building, which is classified as a business occupancy.

## **208 - Museum - Guerrant Family Cabin**

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This is a wood frame and log cabin operated as part of the museum. There is no fire alarm system in this small building, which is classified as a business occupancy.

## **214 - Gibbs Hog Storage**

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Gibbs Hog Storage is a one-story, cinder block containment structure used for storage of farm implements. There are no fire protection features.

## **215 - Gibbs Rodeo Arena**

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The Gibbs Rodeo Arena is an outdoor, gated area used for recreation-type activities such as roping and horseback riding. There are no fire protection features.

## **224 - Feed Barn**

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The Feed Barn is a one-story, wood frame barn with wood interior and exterior and a metal roof. There are no fire protection features. The building is used for storage of hay, grain, and other various small farm implements and supplies.

## **226 - Gibbs Classroom**

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Gibbs classroom is a business occupancy within a multiple occupancy. It is situated between a shop and storage areas. It is constructed with a metal frame and metal exterior.

## **228 - Gibbs Mobile Storage**

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Gibbs Mobile Storage is a metal frame, metal exterior and interior containment structure. There are no fire protection features. The container is used for storage of hay and other various small farm implements and supplies.

## **232 - Gibbs Feed Storage**

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Gibbs Feed Storage is a one-story, wood frame building with metal exterior and a plywood interior. The building was previously used as the water well pump house and is now used for storage of wood materials. There are no fire protection features. Also located on the property is an aboveground diesel storage tank.



## **241 - Psychological Services Center**

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The Psychological Services Center is a one-story, metal frame building with metal exterior and sheet rock interior. Fire protection features include a full fire detection and alarm system, portable fire extinguishers, emergency lights and illuminated fire exit signs.

NOTE: Candles were discovered during the inspection.

## **244 and 245 - LadyKat Dugouts**

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The LadyKat dugout(s) is an accessory use for the LadyKat softball field, which is categorized as an assembly occupancy. It is constructed with a wood frame walls on three sides and a wood frame roof system. It has an open front.

## **246 - University Police Traffic Safety Storage**

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University Police Traffic Safety Storage is a small wood frame portable building used to store traffic control equipment such as barricades and cones. The building is classified as a storage occupancy with an occupant load of 5 or less.

## **247 - Gibbs Sheep and Goat Barn**

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The Gibbs Sheep and Goat Barn is an outdoor, gated area used to contain animals. There are no fire protection features.

## **248 - Physical Plant Paint Storage**

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Physical Plant Paint Storage is a small wood frame portable building formerly used to store asbestos waste. The building is currently vacant but is classified as a storage occupancy with an occupant load of five or less.

## **253 - Observatory #2**

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Observatory #2 is a small wood frame shed housing a large telescope. The building is mounted on tracks and may be rolled to one side for use of the telescope.

## **254 - Observatory #3**

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Observatory #3 is a small wood frame shed housing a large telescope. The building is mounted on tracks and may be rolled to one side for use of the telescope.

## **255 - Observatory #4**

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Observatory #4 is a small wood frame shed housing a large telescope. The building is mounted on tracks and may be rolled to one side for use of the telescope.

## **257 - Agricultural 145 Greenhouse**

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The greenhouse is a single-story structure categorized as a storage occupancy. It has large ventilation fans contained in the wall and is of polycarbonate construction.

## **258 - Gibbs White House on Wire Rd.**

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Gibbs White House is a one-story, wood frame structure with a shingle roof, wood siding exterior, and wood paneling interior. The building is used for storage of paper and hardcopy records. There are no fire protection features.

## **260 - Grounds Storage Building**

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The Grounds Storage Building is a one-story, wood frame structure with metal roof and siding where chemical supplies, fertilizer, and equipment are stored. There are no fire protection features.

## **266 - Fish Hatchery Field Stat. Storage Building**

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This single-story, wood frame structure was previously categorized as a storage occupancy but is currently under renovation and being converted to a one- and two-family dwelling occupancy.

## **267 - Fish Hatchery Field Stat. Well House**

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This building is a single-story, a wood frame structure categorized as a storage occupancy. It houses water filtration tanks and systems.

## **268 - Fish Hatchery Field Stat. Maintenance Building**

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This three-car garage is a single-story building categorized as a storage occupancy. It has three overhead doors on the front side and a small workshop with a walk-in door at one end. It is a wood frame structure.

## **269 - Grounds Wood Chopper Building**

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This building is a three sided, single-story structure categorized as a storage occupancy. It is of wood frame construction.

## **271 - Visitors Center (Not constructed yet)**

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## **272 - Fish Hatchery Greenhouse**

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The greenhouse building is a half-moon shaped, single-story structure with a poly covering and categorized as a storage occupancy. It contains large ventilation fans in the wall.

## **299 - Sam Houston Village**

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The Sam Houston Village consists of three buildings categorized as residential apartments. The buildings have walkways inter-connecting them and rest atop a single-level parking structure. Each apartment contains two bedrooms, kitchen, bathroom and a living room. The structures are of wood frame construction with a stucco exterior. Fire safety features include complete sprinkler protection, a fire alarm system, fire detection, emergency lighting, exit signs and portable fire extinguishers in the corridors.

## **300 - New Science Building (Currently under construction)**

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## **302 - Holleman Field Storage**

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This single-story, wood frame structure is classified for storage and is an accessory building for Holleman baseball field, which is assembly occupancy.

## **303 - Counselor Education Center**

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This one-story structure is categorized as a business occupancy. It is a steel structure with metal studs, drywall interior and a brick veneer exterior finish. Fire protection features include a fire alarm system, smoke detection, HVAC shutdown and portable fire extinguishers.

## **304 - Intramural Shed One**

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This single-story building is categorized as a storage occupancy. It is constructed of wood.

## **305 - Pritchett Rugby Field Storage**

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The rugby storage building is a single-story structure categorized as a storage occupancy.

## **310 - Gibbs White House Equipment Storage on Wire Rd.**

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Gibbs White House Equipment Storage is a two-story, wood frame barn with wood interior and exterior and a metal roof. There are no fire protection features. The building is used to store hay and other various small farm implements.

## **312 - Texas Police Corps**

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The Texas Police Corps building is a one-story, cinder block structure with plaster interior. This building is classified as a business occupancy by the Life Safety Code. Fire protection features include portable fire extinguishers, emergency lights and illuminated fire exit signs.

## **313 - Gibbs Portable Rent House**

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Gibbs Portable Rent House is a one-story, wood frame structure with a shingle roof, wood siding exterior, and wood paneling interior. The building is currently not being used. There are no fire protection features.

## **Structures not located and/or no longer existing**

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100 - Parking Lot Maintenance Grounds  
222 - Gibbs Red Barn Ag. Dem. Lab  
229 - Gibbs Conference Storage  
230 - Gibbs Barnhouse  
231 - Gibbs Portable Feed  
249 - Gibbs Milk Equip. Storage  
261 - Gibbs Rodeo Arena Restrooms

## **Campus-wide Deficiencies**

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### ***Excess Fire Load***

Large amounts of combustible papers, boxes, files, etc., are present in rooms and offices throughout the campus. The extent of this material exceeds what is typically found within offices. A fire occurring in an office with extensive combustibles could spread rapidly through the office and into the building, endangering occupants and firefighters. Rooms protected by sprinkler systems may be at risk due to these sprinkler systems not being adequate to overcome a fire fueled from this material.

- Establish and enforce policies to prevent excessive fuel loads.
- Occupants, or staff in control, of offices with excessive buildup of combustible material shall remove as much combustible material as possible from the

offices. This is necessary to reduce the fire load, subsequently limiting heat, flame and smoke production into the remainder of the building. Otherwise, install fire barrier separations or sprinkler protection.

*NFPA 101, Life Safety Code, Chapter 8.4.1.1*

### ***Means of Egress (egress obstructions and impediments)***

The means of egress is obstructed in many structures. These obstructions are created by storage, furniture, etc. Corrective measures include:

- Continuously maintain the means of egress free of all obstructions or impediments.
- Remove all impediments to egress. Implement a policy that requires continued compliance concerning maintenance of means of egress.

*NFPA 101, Life Safety Code, Chapter 7.1.10.1 and 4.5.3.2*

### ***Means of Egress (locking, latching devices and closing mechanisms)***

Multiple deficiencies involving locking and/or latching devices exist throughout the campus.

These deficiencies hinder egress and fail to comply with applicable NFPA standards. In many situations, the appropriate devices exist but they are not maintained whereas in others, they simply do not function as intended. It is imperative that doors within a means of egress are arranged so that they can be readily opened from the egress side and under all lighting conditions and shall not require a special knowledge, key or tool but instead incorporate a releasing mechanism having an obvious method of operation. Corrective measures include:

- Repair all non-functioning locking and/or latching mechanisms.
- Eliminate excessive locking and/or latching devices. Except for some residential type occupancies, egress doors are limited to a single releasing mechanism.
- Remove and/or replace unapproved locking devices. Devices shall not require the use of a key, tool or special knowledge unless permitted by the occupancy chapter.
- Adjust and/or replace non-functioning door closing devices.

- Eliminate locking and/or releasing mechanisms not released upon using panic and/or fire rated hardware located on these doors.
- The height of locks and/or releasing mechanisms for new installations and where addressed within the report, shall be not less than 34 inches or more than 48 inches from the floor.
- Implement a procedure that requires all new installations of locks, latches and/or releasing mechanisms to comply with minimum requirements. New installations shall be under the strict control of the university and shall not occur without university review and authorization.

*NFPA 101, Life Safety Code, Chapters 7.2.1.5.1, 7.2.1.5.4, 7.2.1.5.6, 4.5.3.2, 4.5.7, 4.6.12 and 7.2.1.7*

### ***Means of Egress (panic and/or fire rated hardware)***

Numerous doors located at fire barriers are provided with panic hardware instead of fire rated hardware. Panic hardware is equipped with devices that permit holding the latch in the retracted position. This will permit the rapid spread of heat, flame and smoke. Only approved fire exit hardware shall be used on fire doors. Corrective measure includes:

- Replace the unapproved panic hardware with fire rated hardware unless otherwise noted within the report.

*NFPA 101, Life Safety Code, Chapter 7.2.1.7*

### ***Means of Egress (delayed and access controlled devices)***

Where permitted by the Life Safety Code, magnetic locking devices shall either meet the requirements for delayed egress or access controlled. These devices are strictly prohibited unless all requirements are complied with. Remedies include:

#### Delayed Egress Requirements

- Requires the existence of a supervised automatic fire detection system in accordance with section 9.6 **OR** an approved supervised automatic sprinkler system in accordance with section 9.7 of the Life Safety Code. An approved detection system shall incorporate smoke detection within all habitable spaces.
- The doors shall unlock upon actuation of not more than two smoke detectors and upon loss of power controlling the lock or locking mechanism.

- A force not greater than 15 lb. shall release the lock within 15 seconds and this force shall not be required to be continuously applied for more than three seconds.
- Initiation of the release process shall activate an audible alarm in the vicinity of the door.
- Unlocking the door by application of force to the releasing device shall require re-locking by manual means.
- A sign shall be located on the door and adjacent to the releasing device. This sign shall be readily visible, durable and have lettering not less than 1 inch and stroke widths not less than 1/8 inch. The sign shall have a contrasting background and read as follows: "PUSH UNTIL ALARM SOUNDS, DOOR CAN BE OPENED IN 15 SECONDS."
- Installation of emergency lighting at each door incorporating such device.

#### Access Controlled Requirements

- Require either a fire detection or suppression system.
- Incorporate a sensor on the egress side, which unlocks the door upon detecting an approaching occupant or upon loss of power to the sensor.
- Unlock upon loss of power to any part of the access control system or upon activation of the fire protective signaling, sprinkler or detection systems.
- Shall not incorporate re-locking capabilities prior to completing a manual reset of the fire protective system.
- Incorporate a manual release device that is readily accessible and clearly identified by a sign that reads "PUSH TO EXIT." When used, the manual release device shall interrupt power to the lock in a manner independent of the access control system electronics and the doors shall remain unlocked for not less than 30 seconds.

*NFPA 101, Life Safety Code, Chapters 39.2.2.2.4, 7.2.1.6.1, 7.9.1.1(4), 39.2.2.2.5 and 7.2.1.6.2*

### ***Means of Egress (marking of means of egress, exit signs)***

Exits, other than main exterior exit doors that obviously and clearly are identifiable as exits, shall be marked by an approved sign readily visible from any direction of exit access. The lack of signage may result in confusion during an emergency, subsequently delaying evacuations. Corrective measures include:

- Identify access to exits with approved and readily visible signs. Sign placement shall be such that no point in an exit access corridor is in excess of 100 ft. (30 m) from the nearest externally illuminated sign or in excess of the marked rating for internally illuminated signs.
- Provide signage having a size, distinctive color and design that it is readily visible. These signs shall also have a contrasting appearance to decorations, interior finish or other signs.
- Eliminate decorations, furnishings or equipment that obscure visibility of a sign.
- Remove other brightly illuminated signs for other purposes such as display or when in the line of vision of a required exit sign.
- Install exit signs with directional indicators when the direction of travel to reach an exit is not apparent.
- Provide and/or repair non-illuminated signs. Normal illumination is permitted to consist of an external or internal source. Occupancies requiring emergency lighting shall also incorporate exit signs with illumination under power failure conditions and this emergency illumination may also consist of an internal or external source.
- Accessible light switches controlling the internal or external emergency illumination are prohibited.

*NFPA Life Safety Code 101-7.10*

### ***Means of Egress (emergency illumination of means of egress)***

In some instances, battery-powered emergency lighting fixtures are not functional. Building occupants may encounter difficulty when attempting to exit a building during a loss of normal lighting if the emergency lighting fails. Corrective measures include:

- Conduct a survey of all campus buildings to identify buildings deficient and/or lacking emergency lighting sources or lacking appropriate installation. This process shall incorporate a plan of correction.
- Emergency lighting shall be arranged to provide the required illumination automatically in the event of an interruption of normal lighting, opening of a single circuit breaker or fuse, or manual act(s), including accidental opening of a switch controlling normal lighting facilities.
- Emergency illumination shall be provided for not less than 90 minutes in the event of failure of normal lighting.



- Repair or replace all non-functional emergency lighting units.
- Implement a maintenance and testing program. The program shall be under the supervision of a responsible person and conducted at specified intervals per applicable NFPA standards or as directed by the State Fire Marshal's Office.
  - A functional test shall be conducted on every required emergency lighting system at 30-day intervals for not less than 30 seconds.
  - An annual test shall be conducted on every required battery-powered emergency lighting system for not less than 90 minutes.
  - Equipment shall be fully operational for the duration of the test.
  - Emergency generators providing power to emergency lighting systems shall be installed, tested, and maintained in accordance with NFPA 110, *Standard for Emergency and Standby Power Systems*. Records of testing and maintenance shall be maintained by the University.
  - The Life Safety Code permits an exception from testing requirements: Self-testing/self-diagnostic, battery-operated emergency lighting equipment that automatically performs a test for not less than 30 seconds and diagnostic routine not less than once every 30 days and indicates failures by a status indicator shall be exempt from the 30-day functional test, provided that a visual inspection is performed at 30-day intervals.
  - Maintain written records of visual inspections, tests and maintenance.

*NFPA Life Safety Code, Chapters 7.8, 7.9, 7.9.3 and 4.6.12.4*

### ***Fire Barriers/Smoke Compartmentation (securing doors - open position)***

The original design of several buildings includes fire and smoke compartmentation and/or separation of areas. Openings through these walls are provided with rated doors that incorporate closing mechanisms. These doors and closures are intended to prevent a fire occurring within one area to immediately spread and affect other areas and/or egress. Several of these doors are secured in the open position, which defeats their intended purpose.

- Remove all devices that prevent doors within fire or smoke barriers from fully closing. For convenience purposes, doors may be held open by magnetic hold-open devices, provided the doors are released upon activation of the fire alarm system.

### ***Storage in HVAC, Mechanical/Electrical Equipment Rooms***

Mechanical rooms are used to store items not related to the operation of building mechanical equipment rooms. These rooms are intended for housing heating, ventilating and air conditioning (HVAC) equipment. Items stored in these rooms eliminate access to electrical equipment and other equipment and affects transformer cooling. This storage also impedes egress, interferes with fire department personnel access and will provide fuel for a fire, should one occur. Fire occurring in a mechanical room will spread smoke, heat and flame through the HVAC duct system. Corrective measures include:

- Remove all stored items from mechanical equipment rooms.
- Maintain sufficient access and working space.
- Dedicate spaces for all switchboards, panel boards, distribution boards and motor control centers.

*NFPA 101, Life Safety Code, Chapters 9.1.2 and 9.2.1 and NFPA 70, National Electrical Code, Article 110.26 (F) and NFPA 90A; Standard for the Installation of Air Conditioning and Ventilating Systems, Chapter 4-3.10.1.1*

### ***Extension Cords***

There is excessive use of extension cords and multi-outlet power strips within many campus buildings. These cords are connected to devices having high-amperage demands. Overloading of extension cords and power strips may result in overheating, subsequently igniting combustible items. These cords should not be used as permanent wiring.

- Eliminate use of unapproved extension cords. Cords shall not run through walls or doorways, under carpets or above ceilings.
- Discontinue inappropriate use of power strips. These strips shall incorporate integral circuit protection and shall be plugged directly into a wall receptacle.
- Provide additional electrical circuits and outlets to permit direct plug-in of appliances and other items.

*NFPA 101, Life Safety Code, Chapter 9.1.2 and by NFPA 70, National Electrical Code, Article 400-8*

## ***Maintenance and Testing of Fire Protection Equipment***

The State Fire Marshal's Office (SFMO) does not differentiate between private fire protection contractors and university personnel as to the level of work that must be performed when testing and maintaining these critical systems.

If the University chooses to perform its own testing and maintenance, the State Fire Marshal's office expects personnel to conform to applicable National Fire Protection Association standards in the same manner as private contractors. This includes performing every test and scheduled maintenance at time intervals established within NFPA standards. University personnel maintaining fire systems should receive adequate training from fire protection manufacturers.

Deficiencies identified during the inspection include inadequate and/or lack of maintenance, unapproved alteration of systems, sprinkler head obstructions, etc. Maintaining the effectiveness of sprinkler systems and other fire protection features is imperative. Corrective measures include:

- Maintain records of all testing and maintenance.
- When conducting in-house maintenance and/or servicing, incorporate the use of service tags and a labeling system similar to what is required of licensed contractors. Using these brightly colored service tags will facilitate inspections by the University Safety Office and SFMO personnel. It also provides documentation.
- Develop policies and a monitoring process to ensure all systems are serviced annually, including those serviced by outside contractors.
- Remove all items within 18 inches of any sprinkler head.

*NFPA 101, Life Safety Code, Chapter 4.6.12, 4.5.7 and NFPA 13, Chapter 8.5.4*

## ***Fire Department Connections, Access and Hydrants***

In many cases fire department connections to sprinkler systems and stand pipe systems are not available. In some instances the connections are not identified as to their type. This situation is compounded due to the lack of required hydrants. The university must communicate and seek consultation from the City of Huntsville Fire Department concerning these issues. This professional department has the expertise and certainly will provide guidance concerning the installation of additional water supply and hydrants and the identification and visibility of fire department connections.

## ***Places of Assembly***

Numerous deficiencies exist in the assembly occupancies. Large assembly occupancies shall be operated in compliance with Life Safety Code operating procedures. Large groups of people in indoor and outdoor places of assembly pose special life safety problems. Crowd behavior is unpredictable and thus requires special consideration to ensure occupant safety. Corrective measures are as follows:

- Provide an audible announcement or a projected image prior to the start of each program in assembly occupancies having occupant loads exceeding 300. This notification is intended to make occupants aware of emergency exits.
- Provide crowd managers and/or crowd manager supervisors for assembly occupancies exceeding 1000 occupants. The ratio of crowd managers shall be not less than one manager/supervisor for every 250 occupants. The authority having jurisdiction may reduce the ratio if an approved, supervised automatic sprinkler system exist and the nature of the event warrant the reduction.
- The crowd manager shall receive approved training in crowd-management techniques.
- The training program in crowd management shall develop a clear appreciation of factors involving space, energy, time, information and metering techniques. Published guidelines on these factors and techniques are found in the *Society of Fire Protection Engineers (SFPE) Handbook of Fire Protection Engineering, Section 3, Chapter 13*.
- Owners and/or operators shall become familiar with operating requirements established in *LSC, Chapter 13.7*. These operating requirements include:
  - Special requirements for food service operations including portable cooking appliances.
  - Safe use of open flame devices.
  - Pyrotechnics and flame effects.
  - The use of furnishings, decorations and scenery including foam plastics.
  - Exhibitions and expositions.
  - Maintenance of grandstands and seating assemblies.

*NFPA 101, Life Safety Code, Chapter 13.7*

## ***Vertical and Horizontal Penetration Violations***

Numerous unsealed penetrations of fire-rated and/or smoke compartment barriers, floors, and ceilings exist throughout many buildings. Should a fire occur, these openings will permit the rapid spread of flame, heat and smoke. This endangers occupants and will increase fire damage.

Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be protected.

- The space between the penetrating item and the fire barrier shall meet one of the following conditions:
  - It shall be filled with a material that is capable of maintaining the fire resistance of the fire barrier.
  - It shall be protected by an approved device that is designed for the specific purpose.
- Where the penetrating item uses a sleeve to penetrate the fire barrier, the sleeve shall be solidly set in the fire barrier, and the space between the item and the sleeve shall meet one of the following conditions:
  - It shall be filled with a material that is capable of maintaining the fire resistance of the fire barrier.
  - It shall be protected by an approved device that is designed for the specific purpose.
- Insulation and coverings for pipes and ducts shall not pass through the fire barrier unless one of the following conditions is met:
  - The material shall be capable of maintaining the fire resistance of the fire barrier.
  - The material shall be protected by an approved device that is designed for the specific purpose.

*NFPA 101, Chapter 8.2.3.2.4.2*

## ***Laboratories***

It is imperative that laboratories are maintained in accordance with NFPA 45 and other related standards. Laboratories are inherently dangerous due to the hazards associated with the laboratory activities and use of unsafe substances. Many discrepancies involving fume hood sashes, lack of testing, chemical storage, open

doors, lack or required separation, unsecured compressed gas cylinders, etc., exist in buildings having laboratories.

- The fume hoods in laboratories require an annual inspection to ensure proper and safe performance. Malfunctioning fume hoods may allow flammable and/or dangerous chemical vapors to escape the hood enclosure and enter the laboratory and the building. This test may be done by qualified University personnel or a private firm. These tests shall incorporate appropriate labeling on the hood stating the last inspection date and approval for use. Additional tests shall be done if a system is modified. The following inspections and tests, as applicable, shall be made:
  - Check laboratory hood face velocity profile or hood exhaust air quantity after any adjustment to the ventilation system balance.
  - Air system flow detectors, if installed, shall be inspected and tested annually. Increase inspection and test frequencies where potentially corrosive or obstructive conditions exist. Hood flow measuring devices shall incorporate low airflow and loss-of-airflow alarms.
  - Inspect air supply and exhaust fans, motors, and components at least annually. Where airflow detectors are not provided or airflow-rate tests are not made, fan belts shall be inspected quarterly. Replace frayed or broken belts promptly. When double sheaves and belts are employed, the inspection frequency shall be permitted to be semiannual. Visual inspection of the physical condition of the hood interior, sash, and ductwork.
  - Monitor changes in work area conditions that might affect hood performance
- Activity within a hood shall be restricted to the capability of the hood.
  - Develop and implement an educational program for laboratory students and personnel. This program should stress the importance of keeping hood sashes closed when not in use or when unattended. In case of a power loss or fan failure, flammable or dangerous chemical vapors may be released into the interior of the building. A fire originating in an unattended hood with an open sash may spread flames and smoke from burning chemicals into the building.
  - Develop and implement an educational program for laboratory students and personnel that stresses the importance of keeping laboratory doors closed. Should a fire occur within one of the labs, an open door would permit the immediate spread of heat, flame and smoke into the egress corridor.

- In some instances, laboratory units are not separated from other non-laboratory areas and/or egress corridors by a minimum one hour fire barrier assembly because they lack the required 45 minute rated doors.
- Secure the numerous compressed gas cylinders located throughout many labs. A falling compressed cylinder may accidentally shear the valve, resulting in a release of gas and causing the cylinder to act as a projectile. This projectile may cause damage resulting in a threat to life and property.

*NFPA 101, Life Safety Code, Chapters 39.3.2.1, 8.7.4.1, 8.7.3, 4.6.2.1 and 4.6.13.1; NFPA 58, Liquefied Petroleum Gas Code, Chapter 5.3.1; NFPA 55, Standard for the Storage, Use and Handling of Compressed and Liquefied Gases in Portable Cylinders; NFPA 58, Liquefied Petroleum Gas Code, Chapter 5.3.1, and NFPA 45, Standard On Fire Protection For Laboratories Using Chemicals, Chapters 3.1.3, 3.3.3, 3.4.1, 6.8.3, 6.13.1 through 6.13.5.1, 7.2.2.5 and 7.2.3.1*