

Emergency Planning for a New Hospital with a Multinational Staff

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Objective

At the end of the training the participant will be able to:

- Know the challenges faced when working with a large multi-national staff at a new hospital
- Know the procedures necessary to coordinate department specific emergency plans with building design




**Facilities Program and Quality (FPQ)
CCAD Fire /Life Safety Program**

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Fire/Life Safety Program

- Cleveland Clinic Abu Dhabi is a modern health care facility designed and constructed in accordance with modern building criteria that addresses safety from design through out various phases of operations.
- Life Safety Code (National Fire Protection Agent NFPA 101) is the international code for Fire/Life Safety which CCAD follow as it provides fundamental requirements for the design, operation, and maintenance of healthcare organization and addresses the general requirements for fire protection and systems.
- The fire and life safety program involves numerous activities, programs, and procedures. These program areas include fire prevention, fire suppression, emergency/fire incidents preparedness, preplanning, education, and response. The following information is provided as a general guideline for activities associated with CCAD fire and life safety program:

CCAD Building facts


Snapshot for CCAD 364 bed Hospital (expandable to 494 beds)

- 8 Major Integrated buildings:
 1. Emergency department
 2. Patient tower (10 to 20th floor)
 3. Diagnostic and treatment
 4. Outpatient Clinic
 5. Gallery
 6. ICU (72 beds)
 7. Swing wing
 8. CUP (Central utility plant)
 9. Parking (3180 parking lots)



CCAD Building Facts

Over 1million M2
 Façade (For Maintenance) 122,442.92 M2
 Interior Space 1,500,000 M3
 Rooms 7500+ Nos.
 Mechanical Service Area 69420 M2
 Mechanical Rooms 282 Nos.
 VAV Terminal Units 2965+ Nos.
 Exhaust Control Valves 2667+ Nos.



CCAD Building Facts

Elevators 56 Nos. 13 escalators
Electrical Services Area 12302 M2
Electrical Distribution Boards 1256 Nos.
Emergency Generators (2MW) 12 Nos. 26 transfer switches
Transformers (11kv & 22kv) 55 Nos.
Cooling Load 25,000 Tonnes



CCAD Building Facts

- 700,000 liters of underground tanks stored diesels
- Over 114 customized air handlers
- Over 15000 smoke detectors
- Over 8000 Motorized Smoke/Fire dampers
- 8 fire pumps
- 26 operating rooms
- 55 integrated systems in BMS
- Over 3000 staff including 1500 nurses and 175 Physicians
- 50 nationalities



CCAD Occupancy Timeline

- August 2014, 1st occupants in Swing wing business occupancy
- Preliminary risk assessment for occupancy completed post building hand over April 2014
- Mass on boarding from August 2014 to December 2014
- Cleveland Clinic Team assessment of fire and life safety November 2014
- Interim Building occupancy and mandatory training
- Weekly fire evacuation drills (Total building evacuation) January 2015 to March 2015
- Civil defense fire drill, total building evacuation



CCAD Occupancy Timeline

- Building obtained authority license as Healthcare Facility January 2015
- Building still going through testing and commissioning
- Proactive fire watch all over the facility with deployment of 50 extra security officers
- CCF Team life safety assessment March 2015
- First patient (outpatient) March 2015
- Departmental specific training based on occupancy category, March to April 2015
- First inpatient, May 2015
- Second phase of departmental specific training June 2015
- Fire alarm annunciation amendment and consistency with zones June 2015 to September 2015



Fire/Life Safety Program

The Approach
Post Building Occupancy Evaluation and Assessment

1 Fire System

- ✓ Identification of Fire annunciators functions including locations, training, messages in various scenarios
- ✓ Identification of all smoke detectors (above the ceiling) that need to be changed to supervisory mode
- ✓ Cause and effect analysis
- ✓ Identification of features that are not properly understood (special suppression systems) or that are not functional as intended (inactive door leaves)

2 Facility

- ✓ Identification of Fire Zones per Fire Command Center and approved Civil Defense Drawings.
- ✓ Exit stairs part of egress pathway and stairways pressurization
- ✓ The exit signs, where do they lead, any gap and deficiencies
- ✓ Doors response during fire alarm (cause and effect)
- ✓ Portable Fire extinguishers /hose reels final requirements

Fire/Life Safety Program

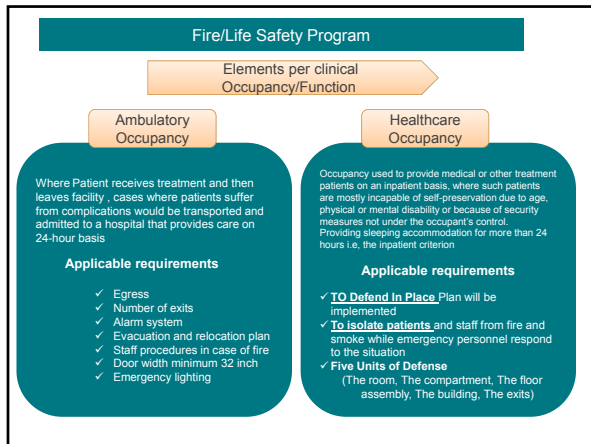
The Approach
Post Building Occupancy Evaluation and Assessment

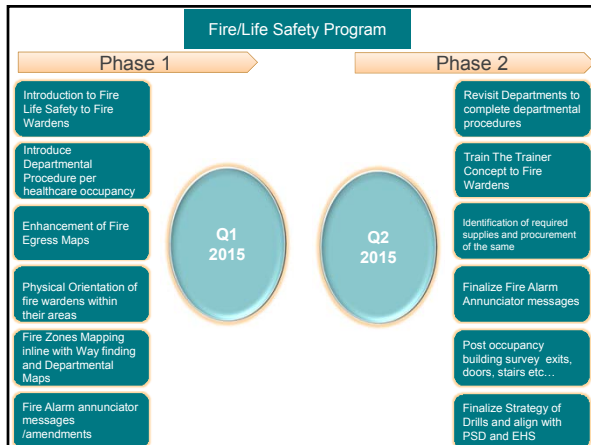
3 Departments

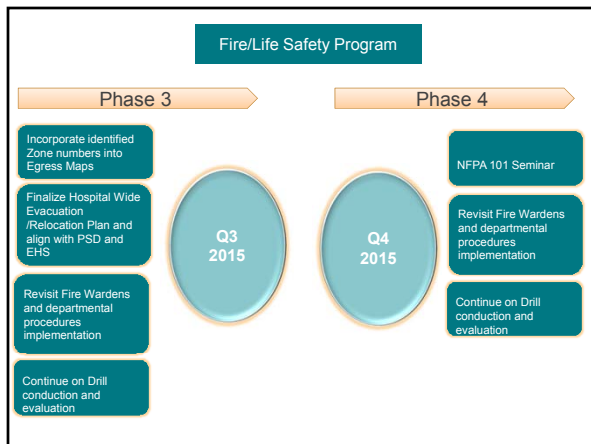
- ✓ Hospital was divided into 33 areas
- ✓ Every department within the above areas was asked to nominate the fire warden within the area to be the main point of contact for Fire /Life Safety programs
- ✓ Physical walkthrough within every department with fire wardens to orient them with primary and secondary egress path, adjacent zones, vertical and horizontal options of relocation

4 Caregivers

- ✓ Introduction to Fire Life Safety
- ✓ Orientation with fire zones and adjacent concept
- ✓ Orientation with current annunciators and how to response based on occupancy type
- ✓ Consistent procedure templates were shared with Fire wardens to be filled and followed.







**Fire Life Safety Program
Fire Drills**

Purpose

The purpose of a fire drill is to test and evaluate the efficiency, knowledge, and response of Caregivers in implementing the facility fire emergency plan. Its purpose is not to disturb or excite patients.

Drills shall be conducted to familiarize CCAD Caregivers with the signals and emergency action required under *varied conditions*.

Fire Drills

Responsibilities & Duties

Administrative

- Ensures training program for Caregivers to know and understand the methods to respond and implement the "code red" (fire/smoke plan) procedures
- Assess evaluations of drills with responsible parties
- Allocates resources for equipment and supplies as needed for drills
- Ensures procedures, fire plans and EOP align with Codes, response and local requirements.

**Department Heads/
Shift Supervisor**

- Oversees department response
- Accounts for all persons
- Reassigns Caregiver duties as needed
- Documents names of Caregivers and Patients as they are evacuated.
- Assigns Caregivers to clear obstructions from corridors.
- Coordinates with support clinical team/Fire Wardens to plan and implement the evacuation drill process

**Fire Drills
Recordkeeping**

Identity of the person conducting the drill
Date and time of the drill,
Notification method used ,
Caregivers on duty and participating
Number/Type of occupants evacuated

Special conditions simulated
Problems encountered
Time required to accomplish complete evacuation/drill

Drills must be evaluated & corrective measures implemented

Introduction

Cleveland Clinic Abu Dhabi is a modern health care facility designed and constructed in accordance with modern building and life safety codes

- › Compartmentation to contain a fire
- › Automatic detection systems to detect a fire
- › Emergency voice communication system to notify you of a fire emergency
- › Automatic sprinkler protection to control and contain a fire



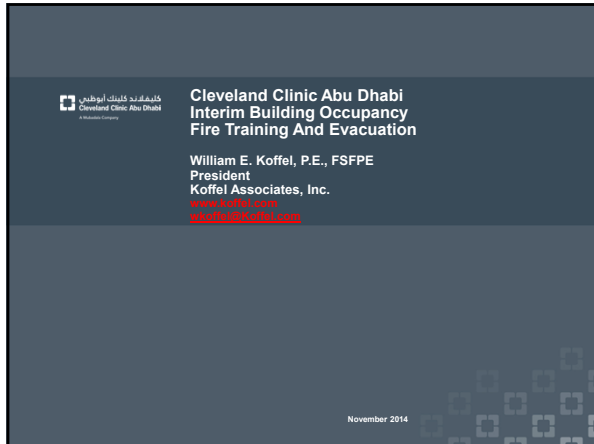
Introduction

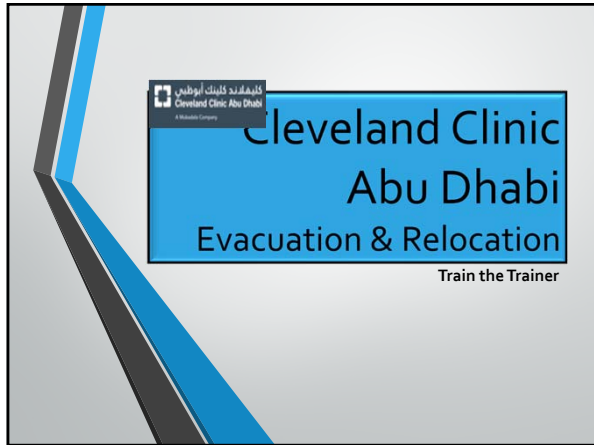
- Interim occupancy fire safety training in November 2014
- Patient care started in March 2015
- Department specific training started in March 2015

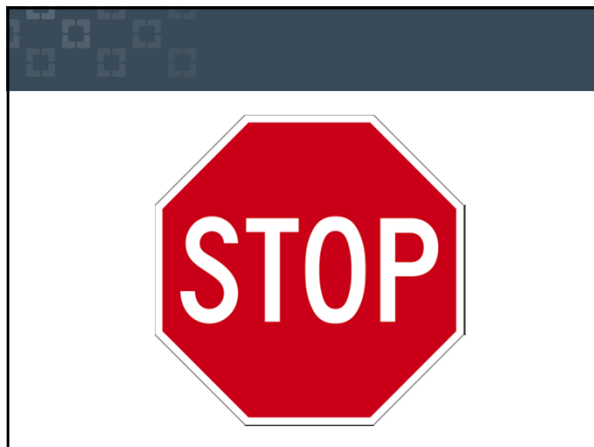


Evacuation Diagrams









Plan B



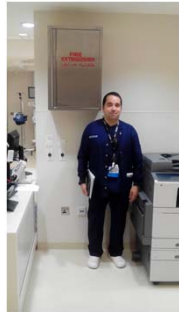
Plan B



Plan B



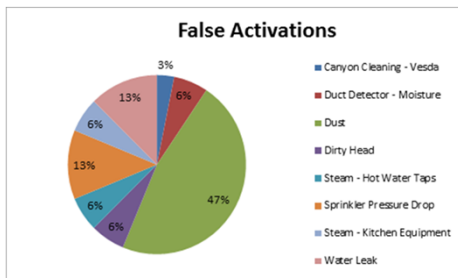
Plan B

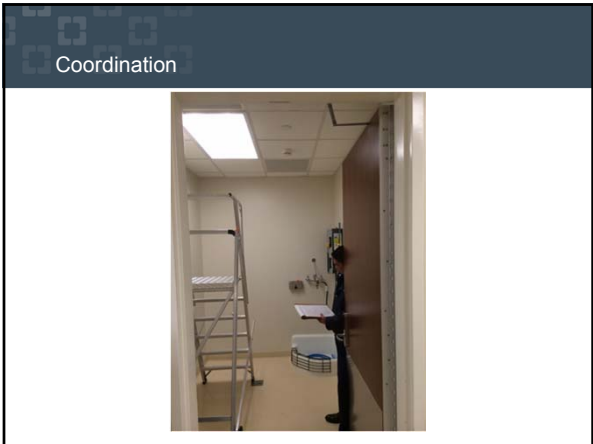


Coordination



Coordination





- Coordination
- Fire alarm notification zones do not coincide with smoke compartments
 - Separate pre-recorded messages for:
 - Fire alarm zone of origin
 - Adjacent zones
 - Remainder of building
 - Single live voice message for entire building
 - Looking at revising the system for voice messaging per building
 - Some departments still want to know.

- Coordination
- Revise the system such that many of the smoke detectors, such as the above ceiling smoke detectors, initiate a supervisory signal

Final Thoughts

Questions and Discussion

- Mohamed Rezqui, MS, CHC, CHSP-FSM
- William E. Koffel, P.E., FSFPE