



BUREAU OF FIRE PROTECTION

VOLUME 5

Fire Safety *for* Business Establishments



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Standardized Public Fire Education Manual



BUREAU OF FIRE PROTECTION

**Volume 5: Fire Safety for Business Establishments
Standardized Public Fire Education Manual**

The BFP Standardized Public Fire Education Manual will serve as a reference guideline in conducting fire safety education lectures and seminars in the community.

Module 8: Occupancy-Specific Fire Safety Seminars

This Fire safety module will provide fire safety lectures for specific types of occupancy such as hospital, manufacturing, BPO and others. These lectures will differ from normal fire subjects as it gives emphasis to safety precautions tailored for their specific occupancy.

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**Standardized
Public Fire
Education
Manual**

**Volume 5:
Fire Safety for Business Establishments**

Preface

Volume Overview

Fire safety education stands as a beacon of paramount significance in our ever-evolving societal landscape. Awareness and comprehension of fire safety concepts are key aspects of establishing a safer environment for individuals and the general public. Potential fire threats have increased in tandem with the rapid technological advancements. Hence, in order to meet these challenges, there is indeed a necessity for the innovation on fire safety education.

To take action, Module 8 sets a strategic imperative to address these emerging challenges: ensuring that employees and employers are aware about fire prevention, hazard identification, emergency evacuation processes, and the proper use of firefighting equipment. The module also anticipates the occupants' perception that sustaining fire safety begins with themselves, as well as the relevance of fire safety in guaranteeing the continuity of work operations by safeguarding both the well-being of the employees and the safety of the building and its components.

This preface sets the stage for an exploration of fire safety education in different occupancies. Through the following lessons, we delved into the specific challenges and solutions relevant to each setting, recognizing the universal importance of fostering a fire-safe environment. As we navigate the diverse areas of multi-occupancy facilities, healthcare facilities, manufacturing facilities, business process outsourcing (BPO), general business occupancy/offices, public markets and residential occupancies, the underlying message remains constant: Fire Safety Education is the key to mitigate fire hazards in creating a safer and more resilient occupancies.

Volume Objective

In this volume, the objectives are the following:

1. Visualize the lessons from past incidents and relate their importance to fire safety.
2. Identify the common hazards of every distinct type of occupancy.
3. Enumerate the fire safety requirements that are most needed in every specific type of occupancy.
4. Familiarize yourself with the evacuation planning suitable for different types of occupancies.
5. Demonstrate the proper use of a fire extinguisher following the sequence of twist, pull, aim, squeeze, and sweep (T.P.A.S.S.).
6. Evaluate the occupant's capability through the conduct of an evacuation drill critiquing.

Audience and Specific Use

The audience of this module ranges from young adults to adults who are either employers, employees, or occupants of specific types of occupancy. This module is utilized during the conduct of seminars and drills in specific types of occupancies, such as multi-occupancy facilities, healthcare facilities, manufacturing facilities, business process outsourcing (BPO), general business occupancy/offices (government or private), public markets, and residential occupancies. The first drill in a year will have a seminar through the use of this module subsequently followed by drills to be scheduled for the rest of the remaining of the year.

Acknowledgment

Volume 5: Fire Safety for Business Establishments

Standardized Public Fire Education Manual

Module 8: Occupancy-Specific Fire Safety Seminars

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MODULE 8

Fire Safety Seminars for Business Establishments



In this Module 8...

Goal

For the participants to accomplish a safe to zero-fire incident in specialized occupation by learning fire safety measures, becoming familiar with standard operating procedures of evacuation, and mitigating fire hazards by making fire safety and resiliency a workplace habit.

Objectives

At the end of the session, the participants will be able to:

1. Identify the typical fire risks seen in workplace settings.
2. Enumerate about the fire safety requirements for every specific type of occupancy.
3. Familiarize the existing evacuation plan in each specific type of occupancy.
4. Demonstrate the proper procedures of portable fire extinguisher using Twist, Pull, Aim, Squeeze, and Sweep (TPASS) technique and
5. Identifying applicable fire extinguisher for different classes of fire.

Subject Aids Needed:

Primary Tools

1. Multimedia Projector
2. Powerpoint Presentation
3. Audio Visual Presentation (AVP)
4. Evacuation Plan (if applicable)
5. Evacuation Checklist

Secondary Tools

6. Visual Aids
 - Snippets

Total Time of Delivery:

3 Hours

Lesson Overview

Purpose: Participants will be provided with information in hazard identification and risk assessment of their workplace, as well as standard operating procedures for evacuation in this type of work setting, to acquaint them with current laws and mandates pertaining to the particular occupancy.

General Guidance: Observe the time duration written in the subject outline of this module; Refrain from using highly technical terminologies unless it was needed in the discussion; Use simple words that can be easily comprehend by the participants; Allot time for questions and answers to ensure proper delivery of the lecture.

Things to Consider: Our participants are all hardworking adults, and we are committed to providing them with clear and straightforward lessons, avoiding confusing technical jargon. We aim to make the importance of the topics we cover evident, helping our learners grasp the significance of the provisions. Our lectures are designed to familiarize participants with these provisions in a practical way, making learning accessible and engaging. We approach teaching with enthusiasm and professionalism, encouraging audience engagement to gauge attentiveness and recall. We stay focused on the module's scope, ensuring the learning experience is efficient and effective for our dedicated participants.

Cheat Sheet

Lesson Outline

Audio/Visual Aids	Outline	Notes
PREPARATORY		
PPT cover	<ol style="list-style-type: none">I. Opening PrayerII. Greet the participants and start by introducing your name and your teammates.	The lecturer will establish rapport
MOTIVATION		
PPT cover	<p>The motivation for this subject may vary depending on the occupancy type that the lecture is being conducted. It may include the following:</p> <ol style="list-style-type: none">I. Occupancy Related Past Fire IncidentsII. AVP (News Clips of Occupancy Related Past Fire Incidents)III. Finding HazardsIV. Interactive questions	<p>Have an interactive discussion with the participants about the past incidents related to this occupancy. Present fire incidents related to the occupancy involved.</p> <p>If videos are not available, the facilitator may browse clippings on the internet as an alternative.</p>
Selecting what motivation to use, refer to lesson guide for that specific occupancy.		See Lecture Guide for Reference
PRESENTATION OF OBJECTIVES		
PPT cover	Present Subject Goal and Objectives	Refer to Goal and Subject Objectives
LESSON 1: GENERAL CONCEPTS		
PPTS-2	<ol style="list-style-type: none">I. Chemistry of Fire<ul style="list-style-type: none">• What is Fire?• What is Combustion?	Before the discussion, assess prior knowledge of the participants about fire

Lesson Outline...1

Audio/Visual Aids	Outline	Notes
PPTS-4 LG 1-2	II. Fire Triangle and Fire Tetrahedron	FAQ: What is the difference between Fire Triangle and Fire Tetrahedron? Ans: Oxygen, Heat, and Fuel are frequently referred to as the "Fire Triangle." Add in the fourth element, the Chemical Reaction, and you actually have a fire "Tetrahedron."
PPTS-5 LG 1-3	III. Elements of Fire <ul style="list-style-type: none">• Heat• Fuel• Oxygen• Chemical Chain Reaction	
PPTS-10 LG 1-4	IV. Products of Combustion <ul style="list-style-type: none">• Smoke• Heat• Light• Toxic Gases	FAQ: What is the common cause of death in fire incident? Ans: Most of the victim died in suffocation before they got burned.
PPTS-12 LG 1-5	V. Characteristics of Fire <ul style="list-style-type: none">• Fire is Fast• Fire is Hot• Fire is Deadly• Fire is Dark	
PPTS-17 LG 1-6	VI. Classification of Fire <ul style="list-style-type: none">• Class A• Class B• Class C• Class D• Class K	FAQ: Why is it important to know the classes of fire? Ans: In order to know how to properly extinguished a fire.
PPTS-19 LG 1-7	VII. Stages of Fire <ul style="list-style-type: none">• Ignition• Growth• Fully Developed• Decay	The lecturer may give fire safety tips on what to do at early stage of fire.
PPTS-24 LG 1-8	VIII. Principles of Fire Spread <ul style="list-style-type: none">• Direct Contact• Convection• Radiation	FAQ: How fire spread from its point of origin?

Cheat Sheet

Audio/Visual Aids	Outline	Notes
PPTS-26 LG 1-9	IX. Methods of Extinguishment <ul style="list-style-type: none">• Cooling• Starvation• Smothering• Inhibition of Chemical Reaction	The lecturer may give sample scenario on each method of how to extinguish a fire. At the end of the discussion the facilitator may ask the participants if they have questions or any clarifications.

LESSON 2: OCCUPANCY SPECIFIC DISCUSSION

Note: At this portion of the lecture the facilitator shall refer to the occupancy specific lesson attached in this module.

The Occupancy specific discussion includes the following:

LESSON 2.1: MALLS, PUBLIC MARKET, AND OTHER RELATED MERCANTILE OCCUPANCIES	The lecturer may utilize the provision of RA 9514 to discuss about the Mercantile as a type of an occupancy.
---	--

PPTS-3

LG 2.1-1

I. Fire Safety in Mercantile Occupancies

The lecturer may utilize the provision of RA 9514 to discuss about the Mercantile as a type of an occupancy.

PPTS-6

LG 2.1-2

II. Fire Safety Concepts

• Fire Prevention Measures

- Fire Hazard Identification and Risk Assessment Steps
 - » Step 1: Early Detection of Fire Hazard
 - » Step 2: Identifying People at Risk
 - » Step 3: Risk Evaluation
 - » Step 4: Record Plan and Training
 - » Step 5: Review

Discuss the fire safety concept and its relation to the Fire Prevention Measures, Fire Protection Features and the Fire Response Procedures (Lesson 3) in mercantile Occupancies.

• Fire Protection Features

- > Fire detection and Alarm System
- > Fire Suppression Equipment
- > Exit Markings
- > Evacuation Plan

Lesson Outline...2

Audio/Visual Aids	Outline	Notes
	<ul style="list-style-type: none">> Emergency Lighting> Exit Doors> Means of Egress	
LESSON 2.2: HOSPITALS AND OTHER HEALTH CARE OCCUPANCIES		
PPTS-2 LG2.2-1	I. What is Hospital	The lecturer must clearly define the meaning and describe the complexity and uniqueness of a healthcare occupancy.
PPTS-4 LG2.2-2	II. Define the complexity and uniqueness of a healthcare occupancy <ul style="list-style-type: none">• Vulnerable Occupants• Medical Equipment• Fire Spread Control• Evacuation Challenges• Staff Training• Fire Prevention• Emergency Power Systems:• Regulatory Compliance	
PPTS-5 LG2.2-3	III. Discuss the importance of Fire Safety in a healthcare facility	S/he must emphasize the importance Fire Safety in a Healthcare Facility.
PPTS-0 LG2.2-4	IV. Discuss what is a Fire Hazard and what are the common fire Hazards in Healthcare Facilities? Begin the discussion with: "What are the possible fire hazards in your workplace?" "Can you identify fire hazards specific on your work place?" Discuss the following Fire Safety Hazards in	S/He can engage participant by asking their perspective and insight about fire hazard in their work area. The instructor can identify the

Cheat Sheet

Audio/Visual Aids	Outline	Notes
<p>PPTS-11 LG2.2-5</p>	<p>a healthcare facility and discourse Fire Safety management with each specific fire hazards.</p> <p>Briefly discussion about the Five (5) steps to carrying out a Risk assessment in type of occupancy which includes:</p> <p>V. Fire Risk and Hazard Assessment</p> <ul style="list-style-type: none">Step 1: Early Detection of Fire HazardStep 2: Identifying People at RiskStep 3: Risk EvaluationStep 4: Record Plan and TrainingStep 5: Review	<p>following common fire hazards and can give a generalized to specific fire safety management.</p>
<p>PPTS-13 LG2.2-6</p> <p>PPTS-15 LG2.2-7</p>	<p>VI. Fundamental Requirements and Special Units Consideration in relation to Hospital Fire Safety</p> <p>VII. Probations and Fire Protection of a healthcare facility</p> <ul style="list-style-type: none">• Exit Details<ul style="list-style-type: none">> Means of Egress Fire Suppression Equipment<ul style="list-style-type: none">» Exit» Exit Access» Exit Discharge> Number of Egress> Travel Distance> Access to Exit> Doors<ul style="list-style-type: none">» Stairs and smoke-proof enclosure> Horizontal Exits> Ramps> Emergency Lighting> Exit Markings• Fire Detection and Alarm System• Automatic Fire Sprinkler System<ul style="list-style-type: none">> Sprinkler Systems> Gaseous Fire Suppression Systems> Foam Systems> Water Mist Systems> Powder Fire Suppression Systems• Emergency Evacuation Plan	<p>The instructor can have a brief discussion regarding fire risk and hazard identification and highlighting the vital part of hazard identification to hospital fire safety.</p>
		<p>The instructor must discourse the probation of a healthcare infrastructure in respect to fire protection. This will give the participant a deeper understanding of the available fire protection features of the structure.</p>

Lesson Outline...3

Audio/Visual Aids	Outline	Notes
PPTS-29 LG2.2-8	VIII. Define Compartmentation	The instructor can also elaborate the importance of Compartmentation probation in a healthcare facility.
PPTS-31 LG2.2-9	IX. Discuss Sheltering	Have a detail interpretation of Sheltering and defend in place which is very vital component of fire evacuation in a hospital.
PPTS-33 LG2.2-10	X. Describe Defend in Place Strategy	
PPTS-35 LG2.2-11	XI. Define Horizontal Evacuation	
PPTS-37 LG2.2-12	XII. Special consideration and tasking during a fire incident in a healthcare institute <ul style="list-style-type: none">• At the Sound of the Alarm• Type of Evacuation Movement<ul style="list-style-type: none">> Vertical> Horizontal> Shelter in Place• Evacuation Routes• Level of Evacuation• Personnel Resources• Patient Special Needs• Evacuation Transport Equipment	The instructor must clearly state the expected response or actions of each staff and individual during an evacuation.
PPTS-46 LG2.2-13	XIII. Discuss the role and responsibilities of staff during and evacuation <ul style="list-style-type: none">• Evacuation Coordinator• Role / Staff Assignment• Tracking<ul style="list-style-type: none">> Patient Tracker> Medical Records> Patient Status> Family Notification	Duties and responsibilities of personnel can be clearly stated.

Cheat Sheet

Audio/Visual Aids	Outline	Notes
PPTS-2 LG2.3-1	LESSON 2.3: INDUSTRIAL OCCUPANCY I. What is a Industrial Occupancy?	The lecturer will define what is a Industrial Occupancy?
PPTS-4 LG2.3-2	II. Sub-classification of industrial occupancy <ul style="list-style-type: none">General Industrial OccupancySpecial Purpose Industrial OccupancyHigh Hazard Industrial OccupancyOpen Industrial Structures <i>Short Activity:</i> Find what is wrong in the picture?	The lecturer will enumerate and differentiate each sub-classification of industrial occupancy
	<i>Instruction:</i> The lecturer will show image that presents scenario in a workplace and the participants will identify what hazards were present in the image.	The lecturer will explain the instruction of the activity
PPTS-10 LG2.3-3	<i>Follow up questions:</i> <ul style="list-style-type: none">What are the possible fire hazards in your workplace?Are the following hazards existing in your offices? III. Identifying Hazards in Manufacturing Facilities and its Preventive Measures Discuss what is Fire Hazard	(Participants answer may vary)
	<i>Inspection Goals:</i> The inspection process should identify, reduce, or eliminate hazards. This helps control fire and fire spread, and limits losses.	The lecturer will emphasize the importance of fire safety inspection to promote fire safe workplace.
	Fire Hazards in Manufacturing Facility <ul style="list-style-type: none">Ignition Source<ul style="list-style-type: none">> Electrical Hazard> Open Flame (Hot Works Operation)> Smoking	The lecturer will discuss the following Ignition Sources and its preventive measures.

Lesson Outline...4

Audio/Visual Aids	Outline	Notes
PPTS-36 LG2.3-4	<ul style="list-style-type: none">> Wood Shop> Conveyor System> Spraying and Dipping Operations• Hazardous Materials<ul style="list-style-type: none">> Flammable and Combustible Liquids> Compressed Gas> Various Chemicals• Preventive Measures<ul style="list-style-type: none">> Storing> Handling> Labeling> Use of Appropriate Container	The lecturer will ask participants for other examples of each hazardous materials.
PPTS-46 LG2.3-5	<p>IV. Work Risk Assessment</p> <p><i>Step 1: Early Detection of Fire Hazard</i></p> <p><i>Step 2: Identifying People at Risk</i></p> <p><i>Step 3: Risk Evaluation</i></p> <p><i>Step 4: Record Plan and Training</i></p> <p><i>Step 5: Review</i></p> <p>V. Fire Code Provisions Related to Manufacturing Facility Evacuation</p> <ul style="list-style-type: none">• Means of Egress<ul style="list-style-type: none">> Exit access> Exit> Exit discharge> Door> Travel Distance• Lightning and Signages <p>Detection</p> <ul style="list-style-type: none">• Fire Detection and Alarm System (FDAS)<ul style="list-style-type: none">> Manual Fire Alarm> Automatic Fire Alarm	Establish an interactive type of discussion with the participants and provide a series of questions (fire risk assessment) provided in the slides. Let the participants answer the given question. After that, provide supplemental advice and emphasize the necessity of it for their safety. The italic font after the questions explains its significance.

Cheat Sheet

Audio/Visual Aids	Outline	Notes
PPTS-2 LG2.4-1	<p>Suppression</p> <ul style="list-style-type: none">• Automatic Fire Suppression System (AFSS)• Portable Fire Extinguisher• Stand Pipe <p>The Facilitator may relate the Characteristics of Fire to the Discourse of Safety and Tragedy Diagram. Emphasize each fire safety feature corresponding to each characteristic.</p>	
PPTS-17 LG2.4-2	<p>LESSON 2.4: BUSINESS PROCESS OUTSOURCING (BPO)</p> <p>I. What is Hazard?</p> <p>Start by showing different pictures of workplace, then the participants will identify those hazards in the picture.</p> <p><i>Short Activity:</i> Spot the Hazards</p> <p>Common Hazards in BPO</p> <p><i>Discuss the common hazards in a BPO setting.</i></p> <ul style="list-style-type: none">• Electrical Hazards• Poor Housekeeping• Means of Egress• Problems or Lack of Fire Safety Features in Establishments• Human Negligence <p>II. Risk Assessment</p> <p><i>Step 1: Early Detection of Fire Hazard</i> <i>Step 2: Identifying People at Risk</i> <i>Step 3: Risk Evaluation</i></p>	<p>Let the audiences identify the following fire hazards existing in the workplace, then let them discuss what they had seen in the picture.</p> <p>Ask the participants if the following fire hazards exist in their workplace and ask them their best practices to remove these hazards. Afterwards, proceed with the discussion.</p> <p>Provide different types of hazards exist in a BPO and similar type of occupancy and discuss its corresponding preventive measure. In every discussion, verify if the participants practice this preventive measures. <i>*Provide picture or illustration of below-mentioned hazards*</i></p> <p>Establish interactive type of discussion to the participants and provide series of questions (fire risk assessment) provided</p>

Lesson Outline...5

Audio/Visual Aids	Outline	Notes
PPTS-27 LG2.4-3	<p><i>Step 4: Record Plan and Training</i> <i>Step 5: Review</i></p> <p>III. Fire Safety Provisions <i>Discuss the fire safety provisions related to BPOs and its importance to fire safety.</i></p> <ul style="list-style-type: none">• Means of Egress• Doors• Fire Detection, Alarm and Communication System• Automatic Fire Suppression System• Fire Extinguisher• Emergency Evacuation Plan	<p>in the slides. Let the participants answer the given question. After that, provide supplemental advice and emphasize the necessity of it for their safety. The italic font after the questions explains its significance.</p>
PPTS-2 LG2.5-1	<p>LESSON 2.5: GENERAL BUSINESS OCCUPANCY / OFFICES (GOVERNMENT OR PRIVATE), PRIVATE EDUCATIONAL INSTITUTIONS' BUSINESS ENDS</p> <p>I. What is Hazard? Start by showing different pictures of workplace, then the participants will identify those hazards in the picture.</p> <p><i>Short Activity:</i> Spot the Hazards</p> <p>Common Hazards in Offices Begin the discussion with: “What are the possible fire hazards in your workplace?” “Are the following hazards existing in your offices?”</p> <ul style="list-style-type: none">• Electrical Hazards<ul style="list-style-type: none">> Faulty Electrical Equipment	<p>Discuss the difference between exit access, exit, and exit discharge for a better understanding of the provisions discussed in the fire code.</p> <p>After discussion, explain briefly the significance of the following slides in fire safety.</p> <p>The lecturer may give brief time to ask the participants to give examples of possible causes of fire in offices. Then proceed to lecture by showing the audience a photo of the common hazards in offices.</p>

Cheat Sheet

Audio/Visual Aids

Outline

Notes

- > Overloading power sockets
- **Poor Housekeeping**
 - > Improper storing of files etc.
 - > Improper Storage Ceiling Clearance
- **Means of Egress**
 - > Absence of Fire Exits
 - > Blocked Fire Exits
 - > Open Fire Doors
- **Problems or Lack of Fire Safety Features in Establishments**
 - > Untested Fire Alarms
 - > Defective Smoke Detector
 - > Absence of FDAS and AFSS (*if applicable)
 - > Absence or ineffective smoke management
- **Other Fire Safety Requirements.**
 - > Absence of Emergency Lights and Directional Signages
 - > Absence of evacuation plan
- **Human Negligence**
 - > Lack of Awareness to evacuation plan and
 - > Lack of knowledge in fire safety features of the building
- **Smoking**
 - > Careless Disposal of Smoking Materials.
 - > Smoking in Bed
 - > Improper Use of Ashtrays

emphasized to the audience after giving pictorial examples.

And associate how would they eliminate identified hazards by presenting the preventive measures in the guide.

II. Risk Assessment

Provide simple discussion about the Five (5) steps to carrying out a risk assessment in the office setting which includes:

- Step 1: Early Detection of Fire Hazard
- Step 2: Identifying People at Risk
- Step 3: Risk Evaluation
- Step 4: Record Plan and Training
- Step 5: Review

The participant was guided on how to conduct risk assessment on their office setting, which is also become a baseline on what are their actions with these identified problems.

PPTS-25

LG2.5-2

PPTS-35

LG2.5-3

III. Fire Safety Provisions

- Means of Egress
- Doors
- Fire Detection, Alarm and Communication

Lesson Outline...6

Audio/Visual Aids	Outline	Notes
	<ul style="list-style-type: none">• System• Automatic Fire Suppression System• Fire Extinguisher• Emergency Evacuation Plan	
LESSON 2.6: RESIDENTIAL OCCUPANCIES		
PPTS-1 LG 2.6-1	I. What is Residential Occupancy?	
PPTS-1 LG 2.6-2	II. Sub-classifications of Residential Occupancy	
PPTS-2 LG 2.6-3	III. What is Hazard? Start by showing different pictures of workplace, then the participants will identify those hazards in the picture. <i>Short Activity:</i> Spot the Hazards	After discussion, explain briefly the significance of the following slides in fire safety.
	Common Hazards in Hotels Begin the discussion with: “What are the possible fire hazards in your workplace or residence?” “Are the following hazards existing in your workplace or residence?” <ul style="list-style-type: none">• Electrical Hazards<ul style="list-style-type: none">> Faulty Electrical Equipment> Overloading power sockets• Poor Housekeeping<ul style="list-style-type: none">> Improper storing of files etc.> Improper Storage Ceiling Clearance	The lecturer may give brief time to ask the participants to give examples of possible causes of fire in residential occupancies. Then proceed to lecture by showing the audience a photo of the common hazards in residential occupancies.
		And associate how would they eliminate identified hazards by presenting the preventive measures in the guide.

Cheat Sheet

Audio/Visual Aids	Outline	Notes
PPTS-25 LG 2.6-4	<ul style="list-style-type: none">• Means of Egress<ul style="list-style-type: none">> Absence of Fire Exits> Blocked Fire Exits> Open Fire Doors• Problems or Lack of Fire Safety Features in Establishments<ul style="list-style-type: none">> Untested Fire Alarms> Defective Smoke Detector> Absence of FDAS and AFSS (*if applicable)> Absence or ineffective smoke management• Other Fire Safety Requirements.<ul style="list-style-type: none">> Absence of Emergency Lights and Directional Signages> Absence of evacuation plan• Human Negligence<ul style="list-style-type: none">> Lack of Awareness to evacuation plan and> Lack of knowledge in fire safety features of the building• Smoking<ul style="list-style-type: none">> Careless Disposal of Smoking Materials> Smoking in Bed> Improper Use of Ashtrays	Ask if they know their designated exit route. Reiterate familiarisation on fire protection especially sound of the alarm they have. Emphasize the role of identifying hazard in preventing destructive fire.
PPTS-25 LG 2.6-4	IV. Risk Assessment Provide simple discussion about the Five (5) steps to carrying out a risk assessment in the office setting which includes: <i>Step 1: Early Detection of Fire Hazard Step 2: Identifying People at Risk Step 3: Risk Evaluation Step 4: Record Plan and Training Step 5: Review</i>	The participant was guided on how to conduct risk assessment on workplace or residence setting, which is also become a baseline on what are their actions with these identified problems.
PPTS-35 LG 2.6-5	V. Fire Safety Provisions <ul style="list-style-type: none">• Means of Egress• Doors• Fire Detection, Alarm and Communication	Reiterate familiarization on fire protection especially sound of the alarm and exits they have.

Lesson Outline...7

Audio/Visual Aids	Outline	Notes
	<ul style="list-style-type: none">• System• Automatic Fire Suppression System• Fire Extinguisher• Additional Building Protection• Emergency Evacuation Plan	
LESSON 3: EMERGENCY RESPONSE PROCEDURES		
PPTS-3 LG3-1	I. Response Planning 4A's of Fire Response <ul style="list-style-type: none">• Alert• Action• Assembly• Assess	Provide participants with visualization of the significance and relevance of the following procedures during evacuation and fire emergencies.
PPTS-5 LG3-2	II. Evacuation Planning Evacuation Planning Steps <i>Step 1: Organize a Team</i> <i>Step 2: Gather Information</i> <i>Step 3: Draft and share the Plan</i> <i>Step 4: Practice the Plan</i> <i>Step 5: Review and Update the Plan</i>	Contents of an Evacuation Plan
	The Types of Evacuation <ul style="list-style-type: none">• Protect-In-Place• In-Building-Relocation• Partial and Total Evacuation• Vertical Evacuation• Horizontal Evacuation	
PPTS-8 LG3-3	III. Alert Phase <ul style="list-style-type: none">• CALL FOR HELP!• Manual Call Points Activation• "Break it" "Press it" "Pull it"• Whistle Codes for Emergency• "Blow the Whistle"• Call the Nearest Fire Station <i>INFORMATION:</i>	

Cheat Sheet

Audio/Visual Aids	Outline	Notes
PPTS-11 LG3-4	<ul style="list-style-type: none">> Name of Caller> Phone Number> Emergency> Address> Landmark <p>IV. Action Phase</p> <ul style="list-style-type: none">• Incident Management• Emergency Response Team (ERT)• Rescue (if safe)• Fire Extinguishment<ul style="list-style-type: none">S.A.F.E.-P.M.> Safety Concerns> Awareness> Familiarity> Effectiveness> Prevent Fire Spread> Minimize Property Damage• Proper Handling• Exit at the Back (Indoors)• Wind Direction (Outdoors)• “T.P.A.S.S”<ul style="list-style-type: none">> Twist the Pin> Pull the Pin> Aim the Nozzle> Squeeze the lever> Sweep Side to Side• Evacuation Procedures<ul style="list-style-type: none">> When the Smoke is Around Stay Low and Go! “Low, Low, Low”> When Someone Catches Fire Stop Drop and Roll “S.D.R”> When Using the Staircase or the Fire Exit Stairs Right Side Walking “Make it Right”> In Case Trapped Inside “Check, Seal and Call”> Don’ts During Fire Emergency Evacuation	
PPTS-25 LG3-5	<p>V. Assembly Phase</p> <ul style="list-style-type: none">• Assembly Point• Accounting	

Lesson Outline...8

Audio/Visual
Aids

Outline

Notes

PPTS-27
LG3-6

VI. Assess Phase

- After Fire Assessment

APPLICATION

I. Fire Drill

II. T.P.A.S.S.

EVALUATION

I. Post Drill Analysis

End the Subject

Lesson 1

Fire Safety for Business Establishments

General Concepts

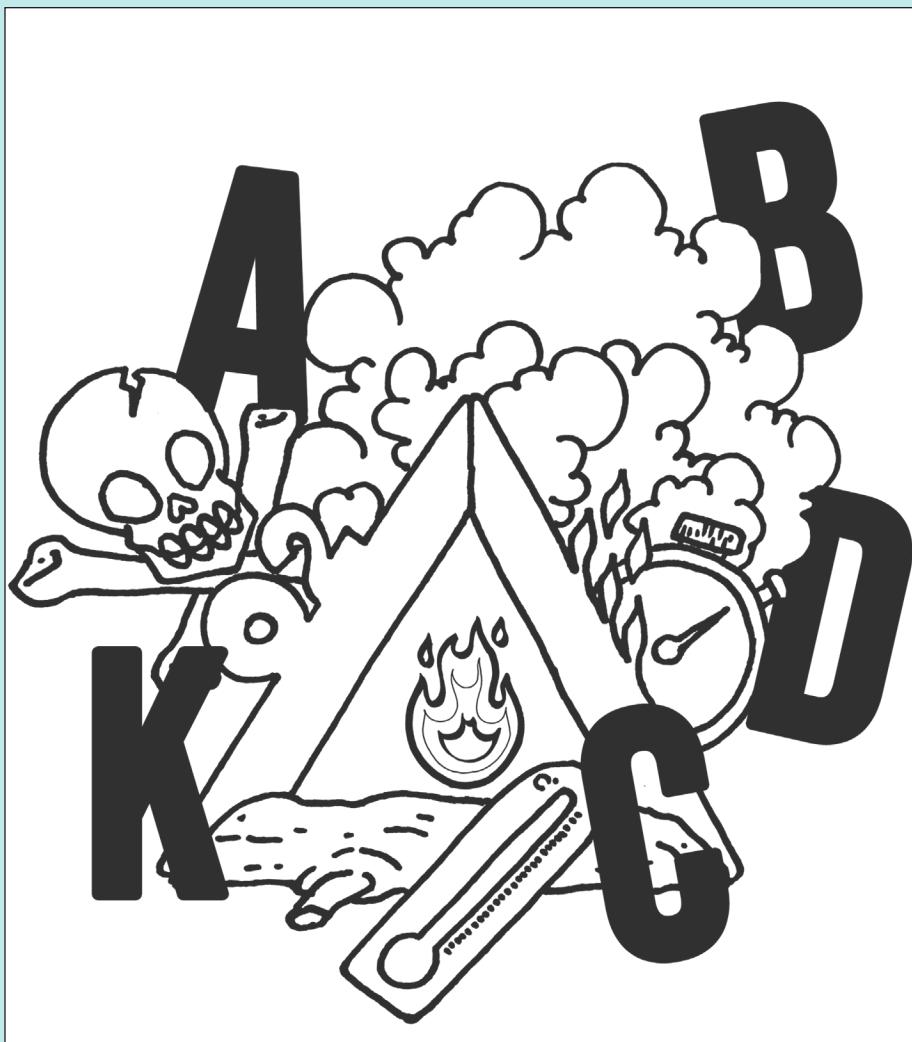


ILLUSTRATION BY: FO1 Christian Joedine Guañizo

I. Chemistry of Fire [1/9]

Facilitator's Note [1/3]

Before the discussion, assess the prior knowledge of the participants about fire

What is Fire?

Fire is a chemical reaction that combines fuel and oxygen and applies sufficient heat to cause ignition. A rapid oxidation accompanied by light and heat.

What is Combustion?

Chemical reaction or series of reactions in which heat and light are evolved. A rapid chemical reaction that gives off energy or products that cause further reaction.



II. Fire Triangle & Fire Tetrahedron [2/9]

Oxygen, Heat, and Fuel are called the “Fire Triangle.” Add the fourth element, the Chemical Reaction, and you have a fire “Tetrahedron.” The critical thing to remember is to take any of these four things away, and you will not have a fire, or the fire will be extinguished.

III. Elements of Fire [3/9]

HEAT (Fire Initiator)

For a fire to start, sufficient heat must be from an initiator or ignition source. Sources of ignition can be found in every workplace and home.

These ignition sources could be open flames, hot surfaces, electrical sparks (internal or external), electricity-generated arcs, friction (machinery) chemical reactions, or even the compression of gases.

Based on statistics, the following have been considered as the primary initiators that started a fire:

- ✓ Smoker's materials
- ✓ Cigarette lighters
- ✓ Matches
- ✓ Cooking appliances
- ✓ Heating devices
- ✓ Electrical distribution
- ✓ Other electrical/electronic appliances
- ✓ Candles

In addition to the above sources, other familiar sources of heat in the workplace include:

- ✓ Electrostatic discharges
- ✓ Ovens, kilns, furnaces, incinerators, or open hearths
- ✓ Boilers, internal combustion engines, or oil-burning equipment
- ✓ Lightning

FUEL

Based on the principle of the fire tetrahedron and concerning the triangle of fire, some contents will burn if adequate heat and existing conditions are available within an area. Without a fuel source, fire will not even propagate or initiate. There are different types of fuel sources and are sometimes subdivided, namely;

SOLIDS. Often referred to as carbonaceous materials (carbon-based), these include wood, cardboard, paper, hardboard soft furnishings such as carpets and curtains, and materials such as plastics, foam rubber, and even metal.

LIQUIDS. They are far more susceptible to supplying fuel for a fire due to their ability to release vapor. Liquids, including petrol, paraffin, alcohol, thinners, varnish, and paints, present a significant risk. Chemicals such as twin-pack adhesives, acetone, and toluene also release vapors, and these liquids, due to their low flashpoint, present an even greater risk.

GASES. Flammable gases, including natural gas and liquefied petroleum gas (LPG), are common throughout workplaces. As with the flammable vapors given off by flammable liquids, not only do gases present a significant risk of fire, but they also present an explosion risk. Gases do not always come in containers and can be produced by chemical reactions such as the degradation of waste materials within a refuse dump, which produces methane.

OXYGEN

The third element of the fire tetrahedron is oxygen. Oxygen is an element within the air we breathe (19.6%) and, therefore, is available in any area where humans can live. Oxygen is an oxidizing agent that yields oxygen or other oxidizing gases during a chemical reaction. Oxidizers are not combustible but support combustion when combined with fuel.

CHEMICAL REACTION

Combustion is a complex reaction that requires a fuel (in the gaseous or vapor state), an oxidizer, and heat energy to come together in a specific way. Once flaming combustion or fire occurs, it can only continue when enough heat energy is produced to cause the continued development of fuel vapors or gases. Scientists call this type of reaction a “chain reaction.” A chemical chain reaction is a series of reactions that occur in sequence, resulting in each reaction being added to the rest.

IV. Products of Combustion [4/9]

- ✓ Smoke – byproduct of combustion
- ✓ Heat – thermal and radiant
- ✓ Light – radiance illuminated by heat
- ✓ Toxic gases – carbon monoxide, carbon dioxide, hydrogen cyanide, water vapor.

V. Characteristics of fire [5/9]

Fire is FAST.

It only takes minutes for thick black smoke and flames to fill a house.

Fire is HOT.

A fire's heat can kill. Room temperature can be 100°F at the floor level and rises to 600°F near the ceiling.

Fire is DARK.

The fire starts bright but quickly produces black smoke and complete darkness until pitch black.

Fire is DEADLY.

Smoke and toxic gases kill more people than flames do.

VI. Classifications of fire [6/9]

Fires are classified in terms of their types. These classifications assist in recognizing the types of fire and the kind of extinguishing medium that will need to be utilized to extinguish or suppress the fire.

Class A

Fire involves solid materials, usually of an organic nature, such as wood, cardboard, paper, hardboard, and soft furnishings such as carpets and curtains, in

which combustion usually occurs with the formation of glowing embers.

Class B

Fires involve liquids such as petrol, paraffin, alcohol, thinners, varnish, and paints. In simple terms, these types are “flammable or combustible liquids.”

Class C

Fires involving energized electrical equipment.

Class D

Fires involve metals such as sodium, lithium, manganese, and aluminum when in the form of powder. In simple terms, these terms, these types are “combustible metals.”

Class K

Fires that involve cooking mediums such as vegetables or animal oil and fats in cooking appliances. Such fires are complicated to extinguish as they retain considerable heat, allowing the chemical reaction to restart.

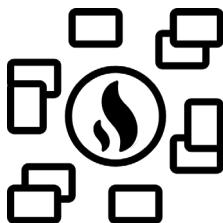
VII. Stages of fire [7/9]

1. **IGNITION STAGE**, wherein the parts of the fire (Fuel, Heat, and Oxygen) come together and initiate reactions.
2. **GROWTH**. Shortly after induction, a fire plume forms above the burning fuel. As the plume develops, it draws or entrains air from the surrounding space into the column. This is where the fire involves all the combustible materials within a room or area, known as the flashover point. The time taken to arrive at this flashover point will vary depending on the prevailing conditions, such as the size of the room or area, surface linings, the availability of oxygen, and a variety of complex chemical reactions. During this period, before reaching its next stage, there is a severe risk of flashover due to the layering of hot gases beneath the ceiling and oxygen concentration in the air being normal.
3. In the **FULLY DEVELOPED STAGE** of a fire, while the reactions are most rapid as the growth stage, the fires continue to burn violently, consuming the available oxygen supply and fuel sources. This is characterized by massive flames and very high temperatures (over 3000°C). It is, in fact, at this time that the fire is controlled not by the amount of fuel that it has to burn but by the amount of oxygen it has on which to feed.

Facilitator's Note [2/3]

The lecturer may give fire safety tips on what to do at early stage of fire.

4. DECAY. Where having consumed all the available fuel, the fire dies down and eventually is extinguished, can be the direct result of the fire services intervention or no more fuel to support the combustion process.



VIII. Principles of fire spread [8/9]

DIRECT burning or HEAT TRANSFER
is the transfer of heat from one body to another through direct flame contact.

Conduction

is a process of heat transfer in materials. This happens by the vibrations of particles in the solid, passing on their energy. Bonds connect the atoms. This allows the vibrations to be transmitted along the structure, and the greater the object's temperature, the greater the amplitude of the particles.

Convection

air that is hotter than its surroundings rises. Air that is cooler than its surrounding sinks. It is the most common cause of fire spread within buildings and structures.

Radiation

is the last form of heat transfer that occurs by radiation. As we have already seen, heat energy can be transmitted directly when molecules collide and cause the wave of heat energy to travel.

VIII. Methods of extinguishment [9/9]

Facilitator's Note [3/3]

The lecturer may give sample scenario on each method of how to extinguish a fire.

Cooling

► One of the primary methods of fire extinguishment is cooling, which involves reducing the fire's temperature to the point where it can no longer sustain itself. The most common approach for cooling is to use water, which effectively absorbs heat and lowers the temperature of the fire and its surroundings. By cooling the fuel source, this method ensures that it doesn't produce enough vapor to support combustion, thus extinguishing the fire. Cooling is a fundamental and widely used technique in firefighting, offering a rapid and effective means of fire control and prevention.

Starvation

Another vital method of fire extinguishment is starvation, which involves removing the available fuel that the fire needs to sustain itself. This can be achieved by physically stopping the flow of liquid or gaseous fuels or removing solid fuels from the fire's path. In some cases, allowing the fire to burn until it consumes all available fuel is a controlled way to achieve starvation. This method is particularly effective when no continuous fuel source sustains the fire, ultimately leading to its extinguishment. Starvation as a fire extinguishment technique emphasizes the importance of depriving a fire of the necessary elements to burn, thereby rendering it unable to continue its destructive course.

Smothering

Smothering is another essential method of fire extinguishment, focusing on excluding oxygen from the combustion process. By reducing the availability of oxygen, a vital component for sustaining a fire, smothering effectively curtails the fire's growth and can lead to its eventual extinction. This method can be achieved by physically separating the fire from the fuel source or covering it with materials that create an oxygen barrier. For instance, firefighters often use foam to blanket a fire, cutting off its access to oxygen and rendering it unable to continue burning. Smothering highlights the significance of depriving a fire of its essential element, oxygen, to control and ultimately extinguish it.

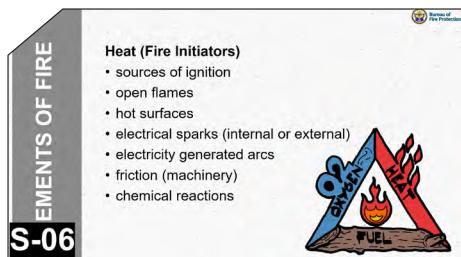
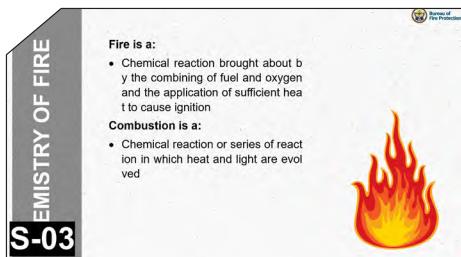
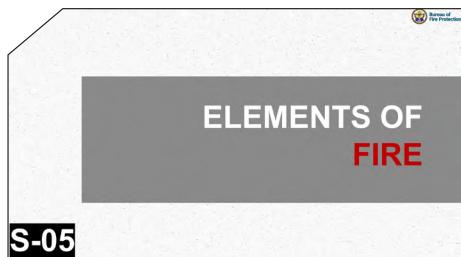
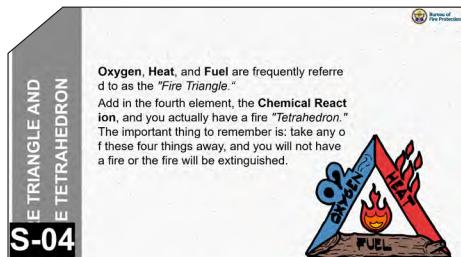
Inhibition of Self-Sustained Chemical Chain Reaction

The inhibition of a self-sustained chemical chain reaction is a critical method for fire extinguishment, focusing on breaking the cycle that allows a fire to persist. Fires often involve a chemical chain reaction that requires three key elements: fuel, heat, and an oxidizing agent, typically oxygen. By removing or interrupting any of these essential agents, it becomes impossible for the fire to sustain its self-sustaining chemical reaction. This method underlines the importance of identifying and disrupting the balance of these elements to halt the fire's progression and ensure its extinguishment, effectively breaking the cycle of com.

Lesson 1

Fire Safety for Business Establishments

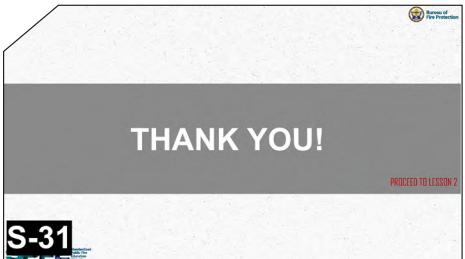
Powerpoint and Visual Aids



<p>ELEMENTS OF FIRE</p> <p>S-07</p> <p>Fuel - propagates fire</p> <ul style="list-style-type: none"> • Solids • Liquids • Gas 	<p>PRODUCTS OF COMBUSTION</p> <p>S-11</p> <ul style="list-style-type: none"> • Smoke – byproduct of combustion • Heat – thermal and radiant • Light – radiance illuminated from heat • Toxic gases – carbon monoxide, carbon dioxide, hydrogen cyanide, water vapor. 
<p>ELEMENTS OF FIRE</p> <p>S-08</p> <p>Oxygen</p> <ul style="list-style-type: none"> • the third element of the fire tetrahedron • acts as an oxidizing agent 	<p>CHARACTERISTICS OF FIRE</p> <p>S-12</p>
<p>ELEMENTS OF FIRE</p> <p>S-09</p> <p>Chemical Chain Reaction</p> <p>a series of reactions that occur in sequence with the result of each individual reaction being added to the rest.</p> 	<p>CHARACTERISTICS OF FIRE</p> <p>S-13</p> <p>Fire is FAST</p> <p>It only takes minutes for thick black smoke and flames to fill a house</p> 
<p>PRODUCTS OF COMBUSTION</p> <p>S-10</p>	<p>CHARACTERISTICS OF FIRE</p> <p>S-14</p> <p>Fire is HOT</p> <p>A fire's heat can kill. Room temperature can be 100°F at the floor level and rises up to 600°F near the ceiling.</p> 

<p>CHARACTERISTICS OF FIRE</p> <p>S-15</p> <p>Fire is DARK Fire starts bright, but quickly produces black smoke and complete darkness until it's pitch black.</p> 	<p>STAGES OF FIRE</p> <p>S-19</p>
<p>CHARACTERISTICS OF FIRE</p> <p>S-16</p> <p>Fire is DEADLY Smoke and toxic gases kill more people than flames do.</p> 	<p>STAGES OF FIRE</p> <p>S-20</p> <p>Ignition Phase Combination of 3 elements</p> 
<p>CLASSIFICATION OF FIRE</p> <p>S-17</p>	<p>STAGES OF FIRE</p> <p>S-21</p> <p>Growth a fire plume begins to form above the burning fuel.</p> 
<p>CLASSIFICATION OF FIRE</p> <p>S-18</p> <ul style="list-style-type: none"> A  Class A <ul style="list-style-type: none"> • Fire that involves solid materials B  Class B <ul style="list-style-type: none"> • fires that involve liquids C  Class C <ul style="list-style-type: none"> • fires involving energized electrical equipment D  Class D <ul style="list-style-type: none"> • fires that involve metals K  Class K <ul style="list-style-type: none"> • Fires that involve cooking mediums 	<p>STAGES OF FIRE</p> <p>S-22</p> <p>Fully Developed fires continue to burn violently consuming the available oxygen supply and fuel sources.</p> 

<p>S-23</p> <p>STAGES OF FIRE</p> <p>Decay consumed all the available fuel, the fire dies down and eventually is extinguished</p>	<p>S-27</p> <p>METHODS OF FIRE EXTINGUISHMENT</p> <p>Cooling reducing temperature</p>
<p>S-24</p> <p>PRINCIPLES OF FIRE SPREAD</p>	<p>S-28</p> <p>METHODS OF FIRE EXTINGUISHMENT</p> <p>Starvation removal of fuel</p>
<p>S-25</p> <p>PRINCIPLES OF FIRE SPREAD</p> <p>Conduction is a process of heat transfer in materials. This happens by the vibration of particles in the solid, passing on their energy.</p> <p>Convection air that is hotter than its surroundings rises</p> <p>Radiation Heat energy can be transmitted directly when molecules collide one another and cause the wave of heat energy to travel</p>	<p>S-29</p> <p>METHODS OF FIRE EXTINGUISHMENT</p> <p>Smothering removal of oxygen</p>
<p>S-26</p> <p>METHODS OF FIRE EXTINGUISHMENT</p>	<p>S-30</p> <p>METHODS OF FIRE EXTINGUISHMENT</p> <p>Inhibition of Chain Reaction removal of any of the three agents, not to sustain chain reaction</p>



Lesson 2.1

Fire Safety for Business Establishments

Malls, Public Market, and other Related Mercantile Occupancies



ILLUSTRATION BY: FO1 Christian Joedine Guañizo

1. Fire Safety in Mercantile Occupancies [1/2]

According to the RIRR of R.A. 9514, Rule 10.2.3.8. Mercantile establishments include markets, stores, and other rooms or structures for the display and sale of merchandise. Mercantile occupancies include malls, supermarkets, department stores, shopping centers, flea markets, restaurants of less than fifty (50) person capacity, public/private dry and wet markets, water refilling stations, drugstores, hardware/construction supplies, showrooms, and auction rooms.

What can you See?



Source: a href="https://www.vecteezy.com/free-vector/market" Market Vectors by Vecteezy

Facilitator's Note [1/5]

Create an interactive discussion with the participants. Discuss the definitions and refer to the provisions from RA 9514 on the types of occupancy. Show the example picture of the occupancy and discuss what they can see, ask the following questions, and let the participants answer the questions to let them relate more to the flow of discussion.

When Fire Happens?

- ✓ How well-prepared are the occupants for fire emergencies, given the variety of items they handle?
- ✓ Are there effective fire prevention measures in place for this occupancy?
- ✓ Is there proper protection for the occupants and the various goods and materials in the area?
- ✓ Do the occupants have established plans to respond to fires?

All mercantile occupancies, whether they are large malls accommodating multiple tenants or smaller public markets and various establishments, are of paramount concern when it comes to fire safety. The safety of clients, workers, and property always takes top priority, whether it's a large retail mall or a small neighbourhood market.

All these commercial places must work closely with local authorities to ensure regular safety checks, inspections, training, and coordinated responses during fire incidents. Collaborative and collective efforts in public awareness activities are crucial to educating shoppers, workers, and

vendors about fire safety and what to do in an emergency to keep everyone safe.

Ensuring fire safety in establishments is a collective responsibility. Creating fire-safe commercial spaces involves a combination of preventive measures, ongoing training, and community engagement.

II. Fire Safety Concepts [2/2]

Three fundamental ideas can be used to assemble the practices, measures, and procedures for fire safety



A. Fire Prevention Measures

B. Fire Protection Features

C. Fire Response Procedures

Talking Points: Introducing this concept will simplify the understanding of the practices and procedures that should be done to achieve fire safety as a whole. It can be a valuable and practical strategy to give awareness and improve understanding of the need for fire safety measures and how to implement them.

Keywords: Fire Prevention Measures; Hazards and Risks; Hazard Identification and Risk Assessment

A. Fire Prevention Measures

In the setting of Mercantile Occupancy, fire preventive measures are intended to lower the chances of a fire happening and minimize its possible impact. These measures primarily involve identifying hazards and assessing associated risks.

Talking Points: Hazards are any situation or thing that can cause harm or danger. Risks are the possible consequences that result from those identified hazards.

Hazards Identification and Risk Assessment

Step 1: Look for Hazards

Step 2: Evaluate Risks

Step 3: Control Measures

Step 4: Monitor and Review

Step 5: Document and Communicate

Talking Points: An effective hazard identification and risk assessment in mercantile Occupancies can lead to developing strategies to control hazards and reduce risks, ultimately enhancing fire safety and preparedness while ensuring the safety of vendors, visitors, and the entire community.



Facilitator's Note [2/5]

Utilize the picture to discuss identifying the hazards in public markets and relate their answers/ideas with their setting or area.

**STEP 1: Look for Hazards**

Common Public Market Hazards: Electrical issues, Cooking and heating Equipment, Poor House Keeping, different Combustibles, Overcrowding, Blocked Exits, No Evacuation plan, No Emergency Response Plan, No Fire Protection features, Smoking, Occupants unsafe Behaviors and Practices, None Compliance to Fire code.



Talking Points: Fire hazards in public markets can vary depending on the specific market, its layout, and the activities that take place therein.

Facilitator's Note [3-4/5]

Show the participants the pictures of examples of identified hazards and let them share their ideas and discuss with the group their answers about the possible consequences.

Ask the participants and discuss with their answers what preventive measures or Actions they may think or apply to reduce or eliminate the given hazards and risks that were tackled previously.

STEP 2: Evaluate Risk

Blocked Fire Exit



Overcrowding



Presence of Combustible Materials

Vulnerable People:
Pregnant, Children,
People with Disabilities, Elderlies

Talking Points: Assess the likelihood and severity of potential harm or damage from the identified hazards. Determine the possible consequences, what might be involved, and who might be at risk, such as vendors, customers, or staff.

STEP 3: Control Measures

Talking Points: Improve and apply actions to reduce or eliminate hazards and related risks. It may involve proper training, compliance with the Fire code, Drills/Simulation exercises, Good Housekeeping, and others.

Common Hazards and Risks	Control Measures
Electrical Issues Overloaded outlets, faulty wiring, and electrical equipment malfunctions can lead to electrical fires.	Avoid overloading outlets and circuits. Distribute the load evenly and use surge protectors where necessary. Schedule routine inspections by qualified electricians to identify and address any electrical issues.
Poor Housekeeping Clutter and blocked exit paths can impede evacuation and firefighting efforts.	Implement a regular cleaning schedule to reduce clutter and remove flammable materials from the premises. Ensure that all items are stored in an organized and non-obstructive manner, especially in exit paths.
Flammable Materials such as paper, cardboard, textiles, or chemicals can increase the fire risk.	Store flammable materials in approved containers and areas designed for their safe storage.
Combustible Decorations Decorative materials, such as curtains, drapes, and wall coverings, can add to the fire load	Check decorations for wear and tear, replacing any damaged items that may pose a fire risk.
Smoking Improperly discarded cigarette butts or smoking in prohibited areas can lead to fires.	Enforce a strict no-smoking policy in areas where smoking is prohibited.
Blocked and Obstructed Exit Routes Blocked or unclear exit paths may hinder safe evacuation during a fire	Use clear signage to mark exit routes and ensure they are visible to all occupants.
	Regularly inspect exit paths and ensure they are free from obstructions or clutter.

Common Hazards and Risks	Control Measures
Cooking oils and Equipment In establishments with kitchens or food service areas, cooking equipment and greases can pose fire risks.	Train kitchen staff in fire safety procedures, including how to use fire extinguishers for cooking-related fires.
Fire Protection Equipment Inadequate maintenance or non-functioning fire protection systems can be a significant hazard. Poor maintenance leading to non-functional fire extinguishers can impede initial fire response.	Inspect fire extinguishers regularly to ensure they are functional and within expiration dates. Schedule regular maintenance and inspection of fire protection systems, including alarms and sprinklers. Smoking is prohibited.

STEP 4: Monitor and Review

Monitor all the preventive measures implemented to address the identified hazards and evaluate their effectiveness in reducing potential risks.

STEP 5: Document and Communicate

Keep records of the identified hazards, risk assessments, and control measures. Ensure that everyone is informed about safety procedures and potential risks.

Talking Points: In completing the Hazard identification and risk assessment, the gathered essential information is necessary for creating comprehensive and effective fire preparedness and emergency plans, which are critical to every occupancy. This particular measure enables us to address specific fire-related hazards and risks, develop strategies to minimize these risks, and, ultimately, contribute to a safer environment in mercantile occupancies.

Keywords: Fire Protection Systems Features; RA 9514 Fire Code of the PhilippinesRisks; Hazard Identification and Risk Assessment

Facilitator's Note [5/5]

Refer to the specific provisions of the fire code when discussing fire protection features with the participants. This approach helps participants gain a basic understanding of the required fire

B. Fire Protection Features

To provide a safer and more secure environment for the inside vendors, clients, and marketers, Mercantile Occupancies must be equipped with the necessary fire protection systems and features under the Revised Implementing rules and regulations under RA 9514, also known as the New Fire Code of the Philippines.

Talking Points: The Fire Protection Features in mercantile occupancies are vital in the early detection and early suppression/extinguishment of fire, which can aid

in evacuation procedures and other responses to fire emergencies.

Fire Detection and Alarm System

According to the RIRR of R.A. 9514, Rule 10.2.6.6 is a comprehensive system comprising various equipment, including automatic detectors, audio and visual alarms, annunciators, manual call points, and a control panel. This system is designed to detect and alert occupants during a fire emergency efficiently.

Fire Suppression Equipment

According to the RIRR of R.A. 9514, Rule 10.2.6.7, it is designed to activate and contain fires, thereby preventing potential damages caused by fire incidents. Examples of such equipment include automatic fire sprinkler systems, fire hose reels or cabinets, and portable fire extinguishers.

Exit Markings

preventing potential damages caused by fire incidents. Examples of such equipment include automatic fire sprinkler systems, fire hose reels or cabinets, and portable fire extinguishers. Under the RIRR of RA 9514, Rule 10.2.5.12 of EXIT MARKING, paragraph B, and Rule 10.2.5.13 of EMERGENCY EVACUATION PLAN, paragraph B, the recommended material for exit signs and emergency evacuation plans is a photo-luminescent background. This choice of material ensures that the signage remains readable even in the event of a power failure, contributing to the safety of building occupants during emergencies. Also refers to electronic equipment or materials strategically installed or posted to guide occupants in locating escape routes or fire exits during evacuations.

The Evacuation Plan

According to the RIRR of R.A. 9514, Rule 10.2.5.13, it is prominently displayed in noticeable areas of the building. This plan provides detailed information on your current location, the designated evacuation routes, key points to be aware of, and instructions on what to do during a fire emergency evacuation.

Emergency Lighting

According to the RIRR of R.A. 9514, Rule 10.2.5.11, it is designed to automatically provide essential illumination during interruptions in standard lighting, ensuring that crucial areas like fire escapes, exit routes, exit doors, and other critical locations remain adequately lit, especially in fire incidents and various emergencies.

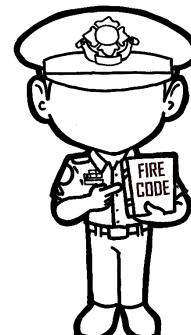
Emergency exits

According to the RIRR of R.A. 9514, Rule 10.2.15.2, these are marked and strategically located for a safe and easy path to the safety of the occupants.

Facilitator's Note [5/5]

protection features they should be aware of within their area. It's also important to acknowledge that fire protection features can differ depending on the type of mercantile occupancy, so instructors should adhere to the provisions outlined in the fire code while introducing any other applicable regulations for a particular setting. This approach ensures that participants receive relevant and accurate information regarding fire safety in their specific context.

Refer to LESSON 3 of this Module for the FIRE EMERGENCY RESPONSE PROCEDURES



40 MODULE 8 Fire Safety for Business Establishments

Means of Egress

According to the RIRR of R.A. 9514, Rule 10.2.5.2, it refers to the entire network of exit access, exits, and exit discharge that can be utilized to ensure safe and effective conduct of evacuation during fire emergencies.

Lesson 2.1

Malls, Public Market, and other Related Occupancies

Powerpoint and Visual Aids

**FIRE SAFETY IN
MALLS, PUBLIC MARKET, AND
OTHER MERCANTILE OCCUPANCIES**

S-01

**RE SAFETY IN
MERCANTILE OCCUPANCY**

WHAT CAN YOU SEE?

WHEN FIRE HAPPENS?

- How well-prepared are the occupants for fire emergencies, given the variety of items they handle?
- Are there effective fire prevention measures in place for this occupancy?
- Is there proper care and protection for both the occupants and the various goods and materials in the area?
- Do the occupants have established plans to respond to fires?

S-04

**MERCANTILE
OCCUPANCY**

S-02

RA 9514 Revised IRR 2019 Section 10.2.3.8

Mercantile

a. Mercantile occupancies include stores, markets, and other rooms, buildings, or structures for the display or storage of merchandise.

b. Mercantile occupancies include malls, supermarkets, department stores, shopping centers, flea markets, restaurants of less than fifty (50) person's capacity, public/private dry and wet markets, water refilling stations, drugstores, hardware/construction supplies, showrooms, and auction rooms.

**RE SAFETY IN
MERCANTILE OCCUPANCY**

The safety of clients, workers, and property always takes top priority.

All these commercial places must work closely with local authorities (BFP)

A fire-safe commercial spaces involves combined efforts

S-05

**FIRE SAFETY IN
MERCANTILE OCCUPANCY**

S-03

FIRE SAFETY CONCEPTS

S-06

42 MODULE 8 Fire Safety for Business Establishments

<p>FIRE SAFETY CONCEPTS</p> <p>S-07</p> <p>Fundamental ideas of FIRE SAFETY</p> <ul style="list-style-type: none">Fire Prevention MeasuresFire Protection FeaturesFire Response Procedures	<p>FIRE SAFETY: FIRE PREVENTION MEASURES</p> <p>S-11</p> <p>Fire Hazard and Risk Assessment steps</p> <p>Step 1. Look for Hazards</p>																		
<p>FIRE SAFETY: FIRE PREVENTION MEASURES</p> <p>S-08</p>	<p>FIRE SAFETY: FIRE PREVENTION MEASURES</p> <p>S-12</p> <p>Fire Hazard and Risk Assessment steps</p> <p>Step 2. Evaluate Risk</p>																		
<p>FIRE SAFETY: FIRE PREVENTION MEASURES</p> <p>S-09</p> <p>Measures intended to lower the chances of a fire happening and minimize its possible impact.</p>	<p>FIRE SAFETY: FIRE PREVENTION MEASURES</p> <p>S-13</p> <p>Fire Hazard and Risk Assessment steps</p> <p>Step 3. Control Measures</p> <table border="1"><thead><tr><th>Common Hazards and Risks</th><th>Control Measures</th></tr></thead><tbody><tr><td>Electrical Issues</td><td>Avoid overloading, use protectors, Schedule routine inspections</td></tr><tr><td>Poor Housekeeping</td><td>Regular cleaning, schedule review, Flammable materials. Ensure that all items are stored, organized and non-obstructive</td></tr><tr><td>Flammable Materials</td><td>Store flammable materials properly</td></tr><tr><td>Combustible Decorations</td><td>Check decorations for wear and tear, replacing any damaged items</td></tr><tr><td>Smoking</td><td>Strict no-smoking policy</td></tr><tr><td>Blocked and Obstructed Exit Routes</td><td>Use clear signage to mark exit routes and inspect exit paths for obstructions</td></tr><tr><td>Cooking oils and Equipment</td><td>Train kitchen staff in fire safety procedures</td></tr><tr><td>Fire Protection Equipment</td><td>Inspect fire safety equipment</td></tr></tbody></table>	Common Hazards and Risks	Control Measures	Electrical Issues	Avoid overloading, use protectors, Schedule routine inspections	Poor Housekeeping	Regular cleaning, schedule review, Flammable materials. Ensure that all items are stored, organized and non-obstructive	Flammable Materials	Store flammable materials properly	Combustible Decorations	Check decorations for wear and tear, replacing any damaged items	Smoking	Strict no-smoking policy	Blocked and Obstructed Exit Routes	Use clear signage to mark exit routes and inspect exit paths for obstructions	Cooking oils and Equipment	Train kitchen staff in fire safety procedures	Fire Protection Equipment	Inspect fire safety equipment
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<p>Hazards Identification and Risk Assessment Steps</p>	<p>FIRE SAFETY: FIRE PREVENTION MEASURES</p> <p>S-14</p> <p>Fire Hazard and Risk Assessment steps</p> <p>Step 4. Monitor and Review</p> <p>Monitor all the preventive measures implemented to address the identified hazards and evaluate their effectiveness in reducing potential risks.</p> <p>Step 5. Document and Communicate</p> <p>Keep records of the identified hazards, risk assessments, and control measures. Ensure that everyone is informed about safety procedures and potential risks.</p>																		

**FIRE SAFETY:
FIRE PROTECTION FEATURES**

S-15

Emergency Evacuation Plan
SECTION 10.2.5.13 EMERGENCY EVACUATION PLAN

FIRE ESCAPE PLAN

LEGEND:

- Voice evacuation system
- Emergency exit
- Assembly point
- First aid station
- Emergency telephone
- Fire alarm control panel
- Fire hose reel
- Fire extinguisher
- Fire emergency telephone

Evacuation plan

Evacuate via stairs or elevators

S-19

**RE SAFETY:
FIRE PROTECTION FEATURES**

Fire Detection and Alarm System (FDAS)
RA 9814 SECTION 10.2.6.6 FIRE DETECTION, ALARM, AND COMMUNICATION SYSTEMS

S-16

**RE SAFETY:
FIRE PROTECTION FEATURES**

Emergency Lighting
SECTION 10.2.5.11 ILLUMINATION OF MEANS OF EGRESS

S-20

**RE SAFETY:
FIRE PROTECTION FEATURES**

Fire Suppression Equipment
SECTION 10.2.6.7 AUTOMATIC SPRINKLERS AND OTHER EXTINGUISHING EQUIPMENT

S-17

**RE SAFETY:
FIRE PROTECTION FEATURES**

Emergency Exits
SECTION 10.2.15.2 EXIT DETAILS

S-21

**RE SAFETY:
FIRE PROTECTION FEATURES**

Exit Markings
SECTION 10.2.5.12 EXIT MARKING

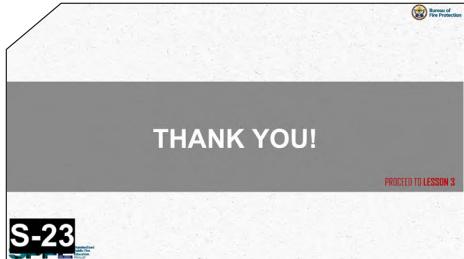
In accordance with SECTION 10.2.5.12 of EXIT MARKING, paragraph B, and SECTION 10.2.5.13 of EMERGENCY EVACUATION PLAN, paragraph B, the recommended material for exit signs and emergency evacuation plans is a photo-luminescent background. This choice of material ensures that the signage remains readable even in the event of a power failure, contributing to the safety of building occupants during emergencies.

S-18

**RE SAFETY:
FIRE PROTECTION FEATURES**

Means of Egress
DIVISION 5. MEANS OF EGRESS, SECTION 10.2.5.2 GENERAL PROVISIONS

S-22



Lesson 2.2

Fire Safety for Business Establishments

Hospitals and other Healthcare Occupancies

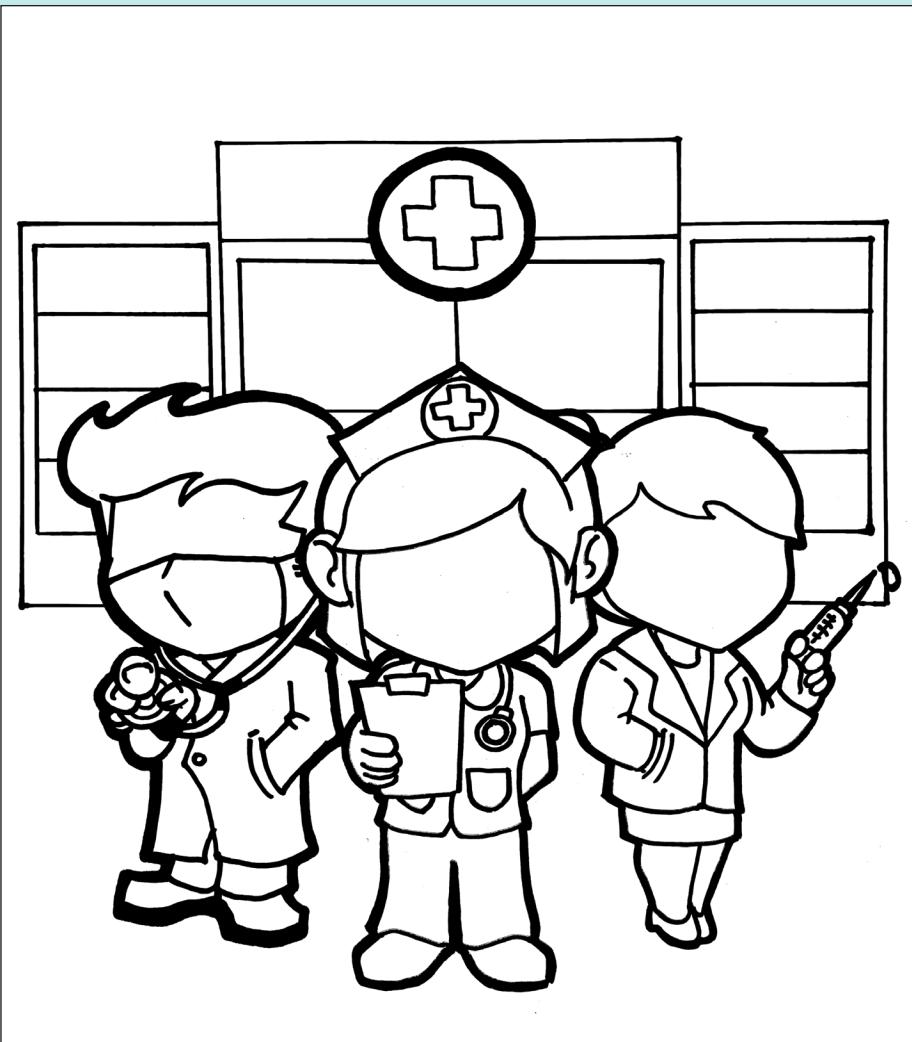


ILLUSTRATION BY: FO1 Christian Joedine Guañizo



I. What is Hospital [1/13]

A hospital is a specialized facility designed for diagnosing and treating illnesses and injuries, as well as providing temporary housing for patients. Modern hospitals often include outpatient, emergency, psychiatric, and rehabilitation services. Some hospitals focus solely on outpatient care and day surgery, where patients come in for short appointments or stay for a day before being discharged for follow-up care. In developed countries, hospitals have evolved into complex institutions with advanced technology, a wide range of diagnostic and treatment options, and highly trained staff.

II. What makes Healthcare Facilities Complex and Unique [2/13]

Healthcare buildings pose unique fire safety challenges due to vulnerable patients and medical equipment. Specialized evacuation plans, fire barriers, and staff training are crucial. Hospitals must follow strict fire prevention rules and maintain reliable emergency power systems. Adherence to regulations is essential. To ensure safety, hospitals need tailored safety plans, specific training, and strict rule adherence.

III. What is the Importance of Fire Safety in a Healthcare Occupancy [3/13]

Fire safety in healthcare facilities is a paramount concern, touching the very core of patient well-being and community security. Hospitals and clinics are vital hubs of healthcare, housing not only patients but also many sensitive equipment and crucial medical records. In this article, we delve into the critical reasons why ensuring fire safety in healthcare facilities is not just a necessity but a moral obligation.

Ensuring Patient Safety: Healthcare facilities serving a diverse patient demographic, including the elderly, the ill, and those with limited mobility, face challenges in swift evacuation during fires. Essential fire safety measures, encompassing accessible evacuation routes and trained

staff, are imperative to guarantee the safety and well-being of these individuals.

Protecting Medical Equipment: Modern hospitals rely on susceptible medical devices vulnerable to damage from smoke and heat during fires, potentially disrupting medical services and causing patient care delays. Regular maintenance and strict adherence to fire safety protocols are paramount to safeguard these critical assets.

Preserving Medical Records: Patient information vital to healthcare facilities stored in medical records faces significant risk during fires. The loss of this data hampers healthcare professionals' ability to provide timely and appropriate care. This underscores the necessity for robust fire safety measures to ensure data preservation.

Safeguarding Healthcare Professionals: Healthcare professionals, including doctors, nurses, and support staff, often work in high-stress environments. Comprehensive fire safety measures, including proper training and well-defined protocols, empower these professionals to respond effectively and safely in fire-related emergencies, ensuring uninterrupted patient care.

Preventing the Spread of Infections: Fires create situations conducive to close human interaction, increasing the risk of disease transmission. In healthcare environments where infection control is paramount, fire safety protocols are critical in maintaining orderly evacuations, reducing the risk of infection spread during emergencies.

Legal and Regulatory Compliance: Healthcare facilities operate within stringent legal frameworks and regulations. Adhering to fire safety guidelines is a moral obligation and a legal requirement. Compliance ensures facilities operate within the law, reinforcing the commitment to the safety of patients and staff.

Ensuring Community Safety: Fires in healthcare facilities extend risks to neighboring buildings and homes. Uncontained fires can endanger lives and property. Prioritizing fire safety not only protects the immediate facility but also significantly contributes to the overall safety of the community.

Building Public Trust: High safety standards, including robust fire safety measures, are integral to building and maintaining public trust. Patients and their families require assurance that healthcare facilities have stringent measures, fostering confidence in the healthcare system's ability to protect them during emergencies.

IV. What is Fire Hazard? [4/13]

Per the National Fire Protection Association (NFPA), a fire hazard is any condition, substance, process, or action that increases the likelihood of a fire ignition and its potential to cause harm to people, property, or the environment. NFPA provides guidelines and standards to assess and manage fire hazards in various settings, including residential, commercial, and industrial areas.

Define as Any condition or act that increases or may cause an increase in the probability of the occurrence of fire or which may obstruct, delay, hinder, or interfere with firefighting operations and the safeguarding of life and property as per Republic Act No. 9514, 2019.

Facilitator's Note [1/14]

REMEMBER: Managing fire hazards in hospitals involves a combination of regular inspections, staff training, emergency preparedness, proper equipment installation, patient-specific protocols, regulatory compliance, and technological advancements. By addressing these aspects, hospitals can minimize fire risks and protect the lives and well-being of everyone within their premises.

Common Fire Hazards in a Healthcare Facility

In hospitals, the safety of patients, staff, and visitors is paramount, but various fire hazards persist within these facilities. Implementing rigorous safety management strategies is crucial to identifying and mitigating these risks effectively. Here's a detailed overview of the common fire hazards in hospitals and the corresponding safety management practices:

Common Hazards

Control Measures

Electrical Equipment:

Hospitals use a wide range of electrical devices, and malfunctioning or overloaded line can lead to fires.

Regular Inspections:

Hospitals conduct routine inspections of electrical systems, medical devices, and fire safety equipment to identify and address potential hazards.

Medical Equipment:

Sensitive medical devices can be damaged by smoke or water, potentially jeopardizing patient care

Proper Training:

Staff, including healthcare professionals and support staff, receives regular training on fire safety protocols, evacuation procedures, and the use of firefighting equipment.

Flammable Substances:

Hospitals store various chemicals and gases for medical use, some of which are flammable and pose a fire risk.

Proper Installation:

Have qualified electricians install equipment following guidelines and local codes. Place equipment away from flammable items, ensuring good ventilation.

Oxygen Supply:

While crucial for patients, oxygen supports combustion and can intensify fires if not handled

Ground Fault Circuit Interrupters (GFCIs):

Install GFCIs in areas with water-electricity contact. Test GFCIs

Common Hazards	Control Measures
properly.	periodically to ensure they work correctly.
Patient Rooms: Bedding materials, curtains, and other items in patient rooms can catch fire easily.	Fire Safety Equipment: Hospitals install and maintain fire alarms, smoke detectors, fire extinguishers, and sprinkler systems. These systems are regularly tested to ensure they function correctly.
Kitchen and Laundry Areas: Hospitals have kitchens and laundry facilities where high temperatures and flammable materials are present.	Clutter Control: Clear Pathways: Ensure all escape routes, corridors, and exits are free of clutter and obstruction. Clutter can impede evacuation during a fire.
Building Design: Complicated layouts, multiple floors, and interconnected corridors can impede evacuation efforts.	Storage Areas: Store materials properly in designated areas. Avoid piling items in a way that blocks fire exits or emergency equipment.
	Proper Waste Disposal: Regular Disposal: Dispose of waste, especially combustible materials, regularly and safely.
	Flammable Materials: Store flammable materials, such as cleaning agents and solvents, in approved containers away from heat sources.
	Patient Safety Protocols: Special care is taken to ensure patients with limited mobility or medical conditions are evacuated safely. Hospitals have evacuation plans specific to different patient populations.
	Compliance with Regulations: Hospitals adhere to strict fire safety regulations and codes, ensuring compliance with standards like those set by the National Fire Protection Association (NFPA).



Facilitator's Note [2/14]

REMEMBER: Fire risk assessments are typically conducted by trained professionals or competent persons with expertise in fire safety. The process is fundamental in creating a safe environment, ensuring compliance with regulations, and mitigating the potential devastating effects of a fire incident.

► IV. What is Fire Risk Assessment / Fire Hazard Identification? [5/13]

A fire risk assessment is a careful examination of a building or property to find possible fire dangers, gauge the risk, and take steps to reduce or remove those risks. This process keeps people, property, and the environment safe. Identifying weak points and applying the proper safety measures helps prevent fires. These assessments are necessary to follow rules and standards in various places and are vital for everyone's safety.

Here are the critical components of a fire risk assessment:

STEP 1: Identification of Fire Hazards

- ✓ Sources of Ignition: Anything that can cause a fire, such as electrical equipment, open flames, or heating devices.
- ✓ Sources of Fuel: Combustible materials like paper, wood, chemicals, and flammable liquids.
- ✓ Sources of Oxygen: Air, oxygen-enriched atmospheres, or chemicals that release oxygen.



STEP 2: Identification of People at Risk

- ✓ Occupants: Employees, visitors, patients, or residents in the building.
- ✓ Vulnerable Individuals: People with limited mobility, disabilities, or special medical needs who may require assistance during evacuation.

STEP 3: Evaluation of the Risk

- ✓ Assessing the likelihood of a fire occurrence based on identified hazards.
- ✓ Evaluating the potential consequences, including harm to people, damage to property, and impact on the environment.

STEP 4: Documentation and Record-Keeping

- ✓ Maintaining detailed records of the fire risk assessment process, findings, control measures implemented, and staff training. Documentation is often required for regulatory compliance and to demonstrate due diligence.

STEP 5: Regular Review and Updates:

- ✓ Fire risk assessments should be regularly reviewed and updated, especially when there are significant changes in the building layout, Occupancy, or fire safety regulations. Regular reviews ensure that the fire risk assessment remains current and effective.

VI. Fundamental Requirements and Special Units Consideration in relation to Hospital Fire Safety [6/13]

Healthcare buildings must be designed and maintained to prevent fires and ensure safety. Evacuations alone are insufficient. These facilities require proper organization, adequate staff, and strict procedures. This involves well-planned building design, reliable fire detection systems, and prevention measures.

Facilitator's Note [3/14]

REMEMBER: The initial steps to protect hospitals against fires are prevention and suppression. Complete evacuation of patients should be avoided unless absolutely necessary.

Special Units: These rules outline where crucial medical areas should be placed in buildings.

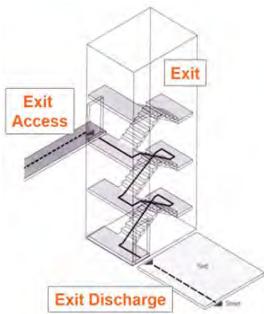
1. **Critical Medical Spaces:** These include emergency rooms, operating rooms, and delivery rooms—essential for urgent medical care.
2. **Location Rules:** These areas should be at most one floor above or below the exit level. This ensures quick access during emergencies, enabling swift patient evacuation.
3. **Evaluation of the Risk:** Non-compliant buildings need ramps meeting specific standards. Ramps are vital for easy movement of patients and staff between different levels, ensuring safety during emergencies. These rules provide accessible medical facilities for patient and staff safety.

VII. Health Care Facility Fire Protection [7/13]

A. Exit Details

✓ MEANS OF EGRESS

"Means of egress" refers to the safe and transparent path people take to exit a building during emergencies like fires. This path includes exits (doors), ways to



Source:
<https://ade521codesandtechnology.wordpress.com/2009/09/17/codes/>

reach exits from anywhere in the building, and the route from the exit to a safe area outside. It ensures quick and safe evacuation. Building designs must follow the rules to provide these clear paths, regulated by safety standards, to protect people in emergencies.

EXIT: An “exit” refers to a designated and clearly marked path or route that allows people to leave a building or structure during an emergency, such as a fire. Exits are specifically designed and maintained to be safe and unobstructed, allowing occupants to evacuate the building swiftly. Exits include doors, corridors, stairways, ramps, and other components that lead directly to the exit discharge or a public way.

EXIT ACCESS: “Exit access” refers to the portion of a building that leads to an exit. It is the path or route within the structure that connects occupied areas or rooms to the exit. Exit access components ensure people can reach the exit without obstruction or confusion. This can include corridors, aisles, passageways, and other spaces that lead to the exit.

EXIT DISCHARGE: “Exit discharge” is the part of the exit route that leads directly from the termination of the exit, such as a door or stairway, to a safe public way. In other words, it is the exterior portion of the exit route that allows people to safely leave the building and reach a location outside, away from the building, where they are no longer in danger. The exit discharge must be unobstructed and lead to a safe area, ensuring a clear path for evacuees.

✓ NUMBER OF EGRESS

As per RA 9514 Revised, it is mandatory to have at least two separate exits in every storey of the building. By Section 10.2.16.2 Para D unless permitted by para 2 through 6. Moreover, every part of every storey should have access to at least two different exits.

✓ TRAVEL DISTANCE

When it comes to the distance that needs to be travelled to reach a safe place from any point within a building, certain rules need to be followed. These rules depend on whether the building has an approved, supervised sprinkler system. If the building has such a system, the distance to be travelled should not exceed 61 meters. For buildings without this kind of system, the maximum distance is 46 meters. These regulations are in line with RIRR of RA 9514, Rule 10.2.5.2.

✓ ACCESS TO EXIT

Following the Fire Code of the Philippines is crucial. Rules for pathways exits, and building access points must be strictly followed, except in specific cases. There are set distances: from a room door to an exit,

Facilitator's Note [4-5/14]

REMEMBER: It is vital to highlight specific rules, like a 30-meter distance from a room door to an exit and 46 meters within a room to an exit. For healthcare sleeping rooms, the limit is 15 meters, extendable to 30 meters with fire suppression systems. These rooms must have an exit door to a corridor and can connect to another room with 8 beds at most. Hospital pathways should be

it's 30 meters, and within a room to an exit, it's 46 meters. For healthcare sleeping rooms, the distance is limited to 15 meters but can be extended by 30 meters in buildings with automatic fire suppression systems. These rooms must have an exit door leading to a corridor and can have an adjoining room with no more than eight beds. Hospital pathways must be 244 cm wide, while those in residential-custodial care institutions must be 183 cm wide. These guidelines are essential for ensuring the safety of occupants during emergencies.

Multiple Exit Doors: Rooms larger than 93 square meters must have at least two exit doors placed apart from each other.

No Dead Ends: Paths and corridors cannot have pockets or dead-ends longer than 6 meters.

Room Subdivisions: Large healthcare sleeping rooms can be divided with non-combustible partitions if constant visual supervision is maintained. These subdivided rooms can be at most 465 square meters.

✓ DOORS

A fire door is a specially designed part of a building's passive fire protection system. Its primary purpose is to prevent the spread of fire and smoke within a building, allowing people to evacuate safely and protecting property by containing the fire in a specific area for a designated time. Fire doors are made from fire-resistant materials and have particular features to enhance their fire-resistant capabilities to give time for people to escape and for firefighters to intervene before the fire spreads uncontrollably.

Stairs: Stairs in hospitals serve as emergency exits during a fire. They are designed to be safe escape routes for people in a fire emergency. Stairs are essential because elevators should not be used during a fire due to the risk of getting stuck. Hospitals have specific staircases designated for evacuation to ensure patients, staff, and visitors can quickly and safely leave the building during a fire.

Smoke-Proof Enclosure: A smoke-proof enclosure is a protected area within a hospital building designed to prevent the spread of smoke during a fire. It is usually a well-sealed space, such as a stairwell or corridor, equipped with fire-resistant materials and a ventilation system that keeps smoke from entering. Smoke can be hazardous during a fire, causing confusion and difficulty in breathing. Smoke-proof enclosures help maintain clear escape

✓ HORIZONTAL EXITS

Horizontal exits in hospitals are safe pathways on the

Facilitator's Note [4-5/14]

244 cm wide, and in residential-custodial care places, they must be 183 cm wide. These rules are vital for keeping people safe during emergencies.

REMEMBER: The instructor can briefly correlate the importance of the size of the area with the distance towards the exit thus the relevance of the measurement will be understood by the participant during an evacuation.

Facilitator's Note [6-8/14]

REMEMBER: FIRE DOORS

Description: Fire doors are made of strong materials like steel or gypsum, resistant to high heat, preventing burning.

Function: Fire doors have seals that expand in heat, sealing gaps and stopping smoke and flames from passing through.

Components: Fire doors use special hinges, latches, and closers that endure high temperatures, ensuring the door works during a fire.

Automation: Many fire doors close automatically, preventing accidental openings that could let fire and smoke spread.

Special Glass: Some fire doors have windows with special glass that withstands high heat, maintaining visibility while stopping fire spread.

REMEMBER: Walls connected by a horizontal exit between buildings shall be of non-combustible material having a two

Facilitator's Note [6-8/14]

(2) hour fire resistance rating.

REMEMBER: Ramps ensure swift, safe evacuation for everyone, including those with limited mobility, reducing injury risks in emergencies. They aid quick patient and equipment movement, essential for efficient evacuation. Ramps comply with accessibility standards, promoting inclusivity and serving as a reliable, safe alternative to elevators during fires.

same floor that help people move to different building areas during a fire without being exposed to flames or smoke. They are vital for ensuring the safety of patients, staff, and visitors during a fire emergency.

✓ RAMPS

Ramps in hospital fire safety are essential because they provide accessible and safe routes for people, including patients on stretchers or wheelchairs, to evacuate during a fire emergency. Unlike stairs, ramps allow smooth and gradual inclines, making it easier for individuals with mobility challenges to move to safety.

✓ EMERGENCY LIGHTING

Emergency lighting is essential in hazardous situations. It helps people evacuate spaces and buildings safely and efficiently, even during blackouts.

✓ EXIT MARKING / FIRE EXIT SIGNS

are part of an emergency evacuation system that guides people in public buildings or buildings (either residential or commercial) where there are many people to the closest exit so they can leave the building safely.

The real function of lighted LED exit signs is to allow you to find the exit or emergency egress route in an emergency. Many times, a power outage can be the result of a fire in the building.

B. Fire Detection Alarms and Communication System

Fire detection alarms and communication systems keep people safe during fires. Fire detection alarms are devices that sense smoke or heat, alerting us when there's a fire. Communication systems help people in buildings talk to each other during emergencies, like firefighters talking to each other to coordinate their efforts. These systems work together to ensure quick responses and keep everyone informed and safe during fires.

C. Automatic Fire Suppression System

An automatic fire suppression system is a crucial component of fire safety in various settings, including residential, commercial, industrial, and institutional environments. Its primary function is to detect and extinguish fires promptly, limiting property damage and protecting lives. There are several types of automatic fire suppression systems, each designed for specific applications.

✓ **Sprinkler Systems:**

Wet Pipe Systems: These are the most common type of sprinkler systems. Water is constantly present in the pipes, and when a sprinkler head is activated by heat, water is released directly onto the fire.

Dry Pipe Systems: In locations where freezing is a concern, dry pipe systems are used. Water is held back by a valve, and when a sprinkler head is activated, the valve opens, allowing water to flow into the pipes and onto the fire.

✓ **Gaseous Fire Suppression Systems:**

Inert Gas Systems (e.g., Argon, Nitrogen): These systems displace oxygen, reducing the oxygen concentration to a level where combustion is no longer sustained.

Chemical Agents (e.g., FM-200, Novec 1230): These agents interfere with the chemical reaction that sustains combustion, effectively extinguishing the fire.

✓ **Foam Systems:**

Used for flammable liquid fires: Foam is applied to the surface of the flammable liquid, creating a barrier between the liquid and the air, thus preventing the release of flammable vapors.

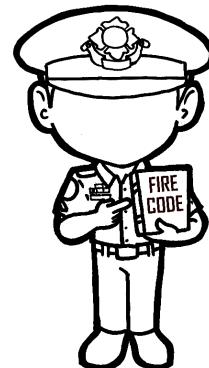
✓ **Water Mist Systems:**

Utilizes fine water droplets: Water mist systems work by reducing the heat and oxygen levels in the fire zone. The small droplets vaporize quickly, absorbing heat and smothering the fire.

✓ **Powder Fire Suppression Systems:**

Dry Chemical Agents (e.g., ABC powder): These systems release a dry chemical powder that disrupts the chemical reaction of the fire, creating a barrier between the fuel and oxygen. It's important to note that the selection of a specific type of fire suppression system depends on factors such as the type of fire risk, the nature of the environment, and local regulations. Regular maintenance and testing are crucial to ensure the effectiveness of these systems when needed.

Automatic fire suppression systems offer several key advantages. Firstly, they provide rapid response capabilities, detecting and suppressing fires automatically, often before they reach a critical point requiring manual intervention. This swift reaction is crucial in preventing the escalation of fires. Additionally, these systems contribute to minimized damage by suppressing fires quickly, thereby reducing both property damage and the personal and financial impact of fire incidents. Another



vital advantage is their focus on life safety; these systems prioritize protecting human life by offering valuable time for occupants to evacuate safely. Furthermore, automatic fire suppression systems ensure 24/7 protection, remaining operational at all times and providing continuous security even when the premises are unoccupied. This constant vigilance underscores the proactive nature of these systems in mitigating the devastating effects of fires.

D. Emergency Evacuation Plan

In line with the Fire Code of the Philippines, an emergency evacuation plan is a simple and straightforward strategy designed to help people quickly and safely leave a building during a fire or other emergencies. This plan includes organized escape routes, designated assembly areas outside the building, and specific roles and responsibilities for staff and occupants. It ensures everyone knows what to do, where to go, and how to stay safe in a fire or similar crisis.

Facilitator's Note [9-10/14]

REMEMBER: Compartmentation uses fire-resistant structures like walls and doors, limiting fire expansion. This buys time for safe evacuation and helps firefighters control the fire. Regular maintenance is vital to maintain compartmentation integrity.

REMEMBER: In hospitals, sheltering means taking patients and staff to safe areas inside the building to protect them from danger. These areas have strong structures, emergency supplies, ventilation, and communication tools.

VIII. Compartmentation [8/13]

Compartmentation is a fire safety strategy that involves dividing a building into separate compartments or sections using fire-resistant materials.

IX. Sheltering [9/13]

Sheltering refers to the act of seeking protection and safety in a designated, secure location during an emergency or disaster. This strategy is employed when leaving the current site, which might be more dangerous than staying put. Sheltering can occur in various contexts, such as during severe weather events (like fire, hurricanes, or tornadoes), chemical spills, radiological emergencies, or civil unrest.

Sheltering protocols are a crucial component of emergency preparedness plans and often include:

- 1. Designated Safe Areas:** Hospitals have specific locations designated as safe areas, typically away from windows and potential hazards.
- 2. Clear Communication:** Clear instructions are provided to occupants regarding safe areas, how to reach them, and what actions to take once inside.
- 3. Emergency Supplies:** Safe areas are equipped with essentials such as water, food, first aid supplies, and blankets to sustain occupants during the sheltering period.

- 4. Ventilation:** Safe areas are designed with ventilation systems to ensure a supply of fresh air and prevent the build-up of harmful gases or contaminants.
- 5. Monitoring and Care:** Medical staff and security personnel monitor occupants, providing medical care and support as needed.
- 6. Regular Updates:** Occupants are informed about the situation's progress and receive updates on when it might be safe to leave the sheltered area.

Sheltering is a crucial strategy to protect lives during emergencies, providing a secure environment until the immediate threat has passed or until safe evacuation becomes feasible.

X. Defend in Place [10/13]

“Defend in place” is a strategy used in emergency management, mainly when it is safer for individuals to remain inside a building or a secure area rather than evacuating.

XI. Horizontal Evacuation [11/13]

Horizontal Evacuation moves people horizontally, typically from one building area to another, on the same floor level, during an emergency. This evacuation method is often used when it is safer to relocate individuals within the same building rather than moving them outside. In hospital fire safety, horizontal evacuation might involve transferring patients and staff from one wing or section of the hospital to another, away from the immediate danger, while staying on the same floor level.

Facilitator’s Note [11-12/14]

REMEMBER: The goal is to protect occupants from smoke, flames, and other fire-related hazards until it is safe to evacuate or until firefighters can control the situation.

REMEMBER: Horizontal evacuation is used when it's hard to move people up or down in a building, like in hospitals with patients who can't use stairs or elevators easily. Instead, people are guided along safe paths to specific safe areas in the same building. These areas are made to resist fire and have safety features.

XII. Evacuation Considerations [12/13]

A. At the Sound of the Alarm

When the fire alarm goes off, designated personnel check if it's a real threat or a false alarm. They decide if evacuation is needed. If it is, they inform the hospital staff through loudspeakers, emails, texts, or overhead announcements. A specific person alerts everyone and contacts authorities like the Department of Health and the fire department. Notices in the hospital guide staff on which agencies to contact during a fire.

Facilitator's Note [13/14]

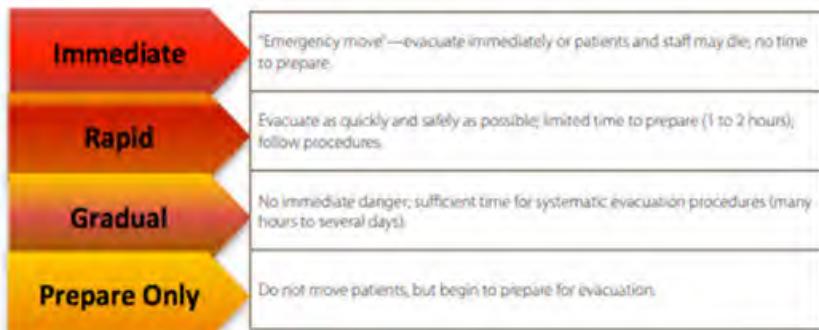
REMEMBER: Different evacuation protocols may vary depending on the evacuation plan per hospital. At this point the instructor can ask briefly the participants regarding their evacuation protocols.

B. Type of Evacuation

The following actions may be needed when the “prepare only” instruction is issued:

- ✓ If you hear the fire alarm or see flashing lights, close all fire doors in your area.
- ✓ Ensure that egress corridors are clear to allow movement of patients and equipment.
- ✓ Locate and secure patients’ medical records and medical supplies.
- ✓ Ready evacuation transport equipment such as wheelchairs, blankets, and gurneys.
- ✓ Set in motion a system to move people to designated assembly points.
- ✓ Await further instructions; do not evacuate unless given the authorization to do so

Time frames for evacuation may differ depending on the nature of the threat and the amount of time that can be taken to prepare for moving patients. Specific types of evacuations are as follows:

**Evacuation Movement**

“The hospital’s incident commander determines, based on reports from the persons who detected or reported the fire situation, what type of evacuation is required:

Horizontal: The primary evacuation mode involves moving patients in immediate danger away from the threat but keeping them on their current floor.

Vertical: This usually involves the complete evacuation of a specific floor in the hospital. Patients and staff will be evacuated out of the hospital only if necessary.

Shelter in Place: The staff may be instructed to “shelter in place,” that is, remain in their units and



await further instructions.

The type of movement is dependent on the type of hazard; for instance, the fire may be on the floor below, or the threat may be a tsunami, in which case the evacuation sequence will be to move upward.

Facilitator's Note [14/14]

REMEMBER: Discuss and emphasize important execution and consideration in horizontal evacuation and Shelter in Place.

C. Evacuation Routes

Clear evacuation routes need to be established. All hospital staff must know these routes and follow the instructions from the hospital's incident commander regarding which path to take during different types of evacuations. Designated staff, often called "wardens" or "health and safety officers," is responsible for guiding patients and visitors in an orderly manner during evacuations. The planning should cover all areas around the hospital, ensuring the development of emergency transit routes, assembly points, holding areas, and similar spaces.

D. Level of Evacuation

The need for evacuation in hospitals can be categorized into two levels: complete and partial. Most of the time, a full evacuation is optional. Because hospital patients often have complex needs and fragile health, evacuation is seen as a last resort. It should only be ordered when necessary and when there's an immediate or serious threat to patient and staff safety.

Evacuation might be necessary in situations such as fire, smoke, toxic fumes, structural damage, and potential exposure to hazardous materials, terrorism, violent armed visitors, or a credible bomb threat. If there's more time to assess the situation, hospitals can opt for a "prepare only" order instead of an immediate evacuation.

E. Personnel Resources

A successful evacuation in a healthcare facility relies on having an adequate number of trained personnel available at any given time to carry out evacuation tasks. It's crucial to comprehend the extent of the evacuation and to know the minimum number of people needed to perform these tasks during an emergency. This knowledge is vital for saving lives. Regarding the number of staff, there are established standard ratios of medical staff to patients. These ratios depend on the level of care needed for each patient.

F. Patient Special Needs

Recognizing the unique requirements of patients is essential. Patients who are deaf, blind, or unconscious might need special attention during evacuation.

- ✓ Patients with Disabilities: Patients unable to hear,

see, or under anesthesia might require special arrangements.

- ✓ **Medical Care and Equipment Needs:** Some patients rely on life support equipment like ventilators, which must accompany them during evacuation. Battery-operated equipment should be regularly checked. Essential medications should also be taken during evacuation.
- ✓ **Emotional Support Needs:** Patients might need psychological support due to the stress of the disaster.

Usually, medical supplies are stored in the main hospital building. However, it's better to keep them in a separate facility designed to withstand hazards. This ensures easy access to critical supplies and equipment for treating patients during an evacuation.

XIII. Roles and Responsibilities during Evacuation [13/13]

A. Role / Staff Assignment

Evacuating a hospital is a demanding task that requires a lot of workforces. Teams of staff members with specific evacuation roles need to be mobilized right away. Sometimes, additional staff might need to be called in, especially if the evacuation happens during evening, night, or weekend shifts. The number of staff required depends on the types of patients the hospital serves. Some staff members, initially involved in patient transport, can later take on different roles, such as assisting at the assembly point after most patients have been evacuated.

B. Evacuation Coordinator

The evacuation coordinator is crucial during evacuations as a link between the hospital incident commander and patient wards. Their main job is to communicate with each ward and ensure safe evacuation.

C. Tracking

✓ Patient Tracker

During evacuations, it's essential to keep track of patients. Certain staff members are responsible for the following:

- > Someone counts patients at assembly points.
- > Staff checks rooms and floors to ensure everyone has left.
- > Senior personnel handle specific tasks in their departments, like turning off medical gases and

counting patients in their areas.

✓ **Medical Records**

- > Patient medical records are typically kept where the patients are. Make sure these records are taken along when patients evacuate.
- > Essential medications and critical equipment should also be brought.
- > Establish a clear protocol to ensure records go with patients during evacuation.
- > It's a good idea to store all essential health facility records in fireproof cabinets, even though these can be costly.

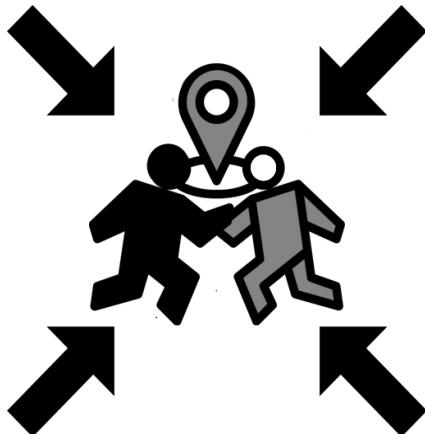
✓ **Patient Status**

- > The hospital's incident commander must determine patients' locations and destinations.

✓ **Family Notification**

There should be an emergency contact for all patients. Information on this contact person is usually kept with the patient's medical records. In an evacuation, designated personnel should:

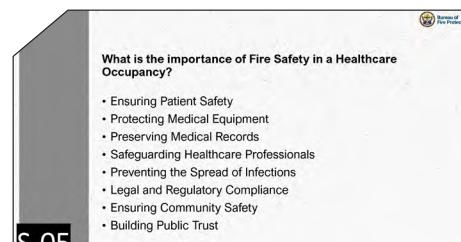
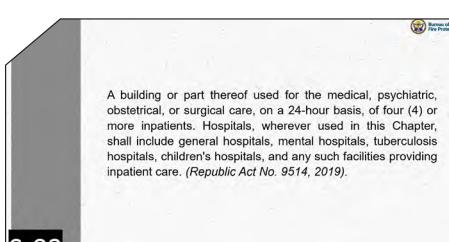
- > Attempt to notify family members and other responsible parties about the patient's transfer destination.
- > Answer calls and respond to questions from family members about the patient's welfare and location.



Lesson 2.2

Hospitals and other Healthcare Occupancies

Powerpoint and Visual Aids

 FIRE SAFETY IN HOSPITALS AND OTHER HEALTH CARE OCCUPANCIES S-01	 What makes Healthcare facility complex and unique? <ul style="list-style-type: none">✓ Vulnerable Occupants✓ Medical Equipment✓ Fire Spread Control✓ Evacuation Challenges✓ Staff Training✓ Fire Prevention✓ Emergency Power Systems✓ Regulatory Compliance 
 WHAT IS HEALTH CARE OCCUPANCY? S-02	 What is the importance of Fire Safety in a Healthcare Occupancy? <ul style="list-style-type: none">• Ensuring Patient Safety• Protecting Medical Equipment• Preserving Medical Records• Safeguarding Healthcare Professionals• Preventing the Spread of Infections• Legal and Regulatory Compliance• Ensuring Community Safety• Building Public Trust
 <p>A building or part thereof used for the medical, psychiatric, obstetrical, or surgical care, on a 24-hour basis, of four (4) or more inpatients. Hospitals, wherever used in this Chapter, shall include general hospitals, mental hospitals, tuberculosis hospitals, children's hospitals, and any such facilities providing inpatient care. (<i>Republic Act No. 9514, 2019</i>).</p> S-03	 WHAT IS FIRE HAZARD? S-06

WHAT IS FIRE HAZARD?

S-07

- Any condition, substance, process, or action that increases the likelihood of a fire ignition and its potential to cause harm to people, property, or the environment. (NFPA)
- Any condition or act which increases or may cause an increase in the probability of the occurrence of fire, (Republic Act No. 9514, 2019)

FIRE RISK AND HAZARD ASSESSMENT

S-11

COMMON FIRE HAZARDS IN HEALTH CARE FACILITY

S-08

What is Fire Risk Assessment / Fire Hazard Identification?

- Identification of Fire Hazards;
- Identification of People at Risk;
- Evaluation of the Risk;
- Documentation and Record-Keeping;
- Regular Review and Updates;

RISK AND HAZARD ASSESSMENT

S-12

COMMON FIRE HAZARDS IN HEALTH CARE FACILITY

S-09

Fire Hazards in Hospitals:		
Hazards	Cause	Management
	Electrical Equipment: Hospitals use a wide range of electrical equipment for medical manufacturing or overextended equipment can lead to fires.	Regular Inspections: Hospitals conduct routine inspections of electrical wiring, medical equipment, and medical devices to identify potential hazards.
	Medical Equipment: Sensitive medical devices can catch fire due to faulty wiring, water, potentially incompatible gases, or overheating.	Proper Training: Staff, including medical professionals and support staff, receive training on fire safety protocols, emergency procedures, and the use of firefighting equipment.
	Flammable Substances: Hospitals store various flammable materials for medical use, some of which are flammable and pose a fire risk.	Emergency Preparedness: Hospitals develop comprehensive emergency response plans, including scenarios, ensuring staff know what to do during a fire emergency.

FUNDAMENTAL REQUIREMENTS AND SPECIAL UNITS CONSIDERATION

S-13

COMMON FIRE HAZARDS IN HEALTH CARE FACILITY

S-10

	Oxygen Supply: While crucial for patients, oxygen tanks and delivery systems can intensify fires if not handled properly.
	Patient Rooms: Bedding materials, curtains, and other combustible materials can catch fire easily.
	Kitchen and Laundry Areas: Hospitals have laundry facilities where high temperatures and combustible materials, like present.
	Building Design: Large structures, multiple floors, and interconnected compartments complicate evacuation efforts.

Special Units and Critical Medical Spaces

S-14

- Critical Medical Spaces;
- Location Rules;
- Compliance Measures;

FUNDAMENTAL REQUIREMENTS SPECIAL UNITS CONSIDERATION

RA 9514 THE FIRE CODE OF THE PHILIPPINES
Fire Code of the Philippines
Rules and Regulations

HEALTH CARE FACILITY FIRE PROTECTION

S-15

Means of Egress

I. Exit:

Definition: A designated and clearly marked path or route allowing people to leave a building during emergencies like fires.

Purpose: Swift and safe evacuation.

Components: Doors, corridors, stairways, ramps, etc.

S-16

Means of Egress

II. Exit Access:

Definition: The internal path within a building connecting occupied areas to the exit.

Function: Facilitates unobstructed movement toward the exit.

Components: Corridors, aisles, passageways, etc.

Role: Ensures clear and straightforward access to exits.

S-17

Means of Egress

III. Exit Discharge:

Definition: The exterior portion of the exit route leading from the exit termination to a safe outdoor area.

Purpose: Enables people to leave the building and reach a secure location away from danger.

Requirements: Unobstructed path, leading to a public way.

Safety: Ensures a clear, obstruction-free route for evacuees.

S-18

Access to Exit

S-19

Set Distances and Special Cases:

- **Room to Exit:** Standard distance is 30 meters; within a room to an exit, it's 46 meters.
- **Healthcare Sleeping Rooms:** Limited to 15 meters but can extend by 15 meters with fire suppression systems.
- **Room Specifications:** Exit doors leading to corridors, adjoining rooms with a maximum of 8 beds.
- **Pathway Width Requirements:**
- **Hospital Pathways:** Must be 244 cm wide.

Access to Exit

S-20

Multiple Exit Doors: Rooms larger than 93 square meters must have at least two exit doors placed apart from each other.

No Dead Ends: Paths and corridors cannot have pockets or dead-ends longer than 6 meters.

Room Subdivisions: Large health care sleeping rooms can be divided into smaller rooms if constant visual supervision is maintained. These subdivided rooms cannot exceed 465 square meters.

Door

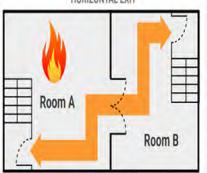
1. Fire-Resistant Materials
2. Intumescent Seals
3. Fire-Rated Hardware
4. Self-Closing Mechanism
5. Fire-Rated Glass

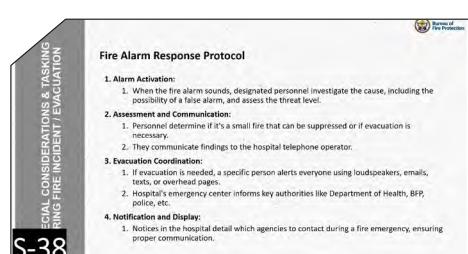
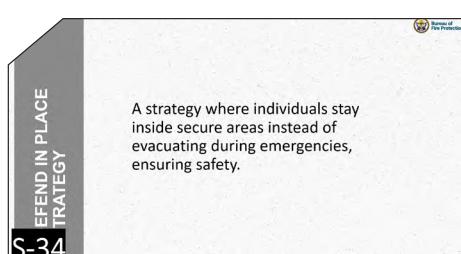
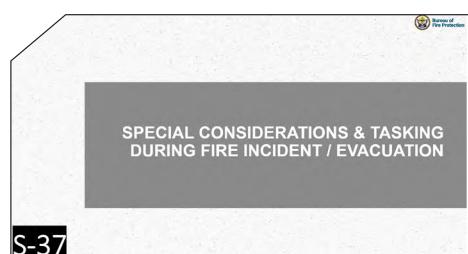
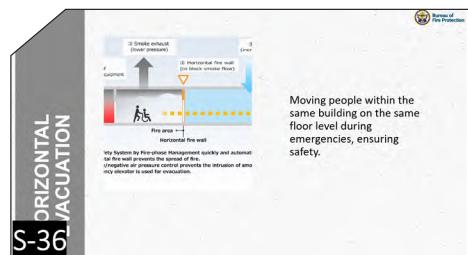
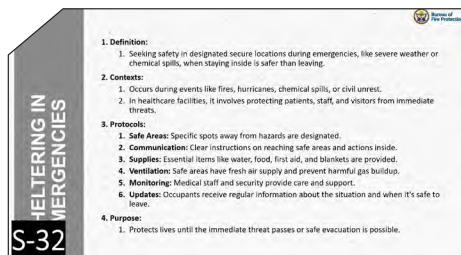
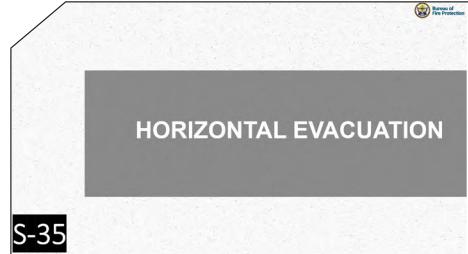
S-21

Hospital Stairs:

- **Primary Function:** Stairs in hospitals serve as crucial emergency exits during fires.
- **Safe Escape Routes:** Designed as safe pathways for people in fire emergencies.
- **Importance Over Elevators:**
- **Elevator Risks:** Elevators should not be used during fires due to the danger of getting stuck.
- **Staircase Designation:** Hospitals designate specific staircases for evacuation, ensuring swift and secure exit for patients, staff, and visitors.

S-22

<p>LTH CARE FACILITY FIRE PROTECTION XIT DETAILS</p> <p>S-23</p> <p>Smoke-Proof Enclosures:</p> <ul style="list-style-type: none"> • Purpose of Definition: Enclosed areas in hospitals designed to stop smoke spread during fires. • Components: Well-sealed spaces like stairwells, corridors, with fire-resistant materials and special ventilation. <p>2. Importance in Fire Safety:</p> <ul style="list-style-type: none"> • Smoke Hazards: Smoke is dangerous, causing confusion and breathing difficulties during fires. • Clear Escape Routes: Smoke-proof enclosures ensure clear paths, aiding safe evacuation without smoke interference. 	<p>LTH CARE FACILITY FIRE PROTECTION DAS C-AFSS</p> <p>S-27</p> <p>Fire Detection Alarms and Communication Systems:</p> <ol style="list-style-type: none"> 1. Purpose: <ul style="list-style-type: none"> • Detect fires early and alert occupants for immediate action. 2. Requirements: <ul style="list-style-type: none"> 1. Mandatory in various buildings for safety. 2. Exemptions for small buildings with manual systems. 3. Components: <ul style="list-style-type: none"> 1. Automatic fire detection and alarm system. 2. Installation of fire alarm boxes for alerting occupants. 4. Functionality: <ul style="list-style-type: none"> 1. Early fire detection to prevent disasters. 2. Alarms guide occupants to take appropriate actions. 5. Importance: <ul style="list-style-type: none"> 1. Ensures quick response and evacuation during emergencies. 2. Vital for the safety of building occupants.
<p>LTH CARE FACILITY FIRE PROTECTION XIT DETAILS</p> <p>S-24</p> <p>Horizontal Exits</p> <ul style="list-style-type: none"> • Definition: Safe pathways on the same floor allowing movement during a fire without exposure to flames or smoke. • Critical Role: Vital for patient, staff, and visitor safety during fire emergencies. 	<p>LTH CARE FACILITY FIRE PROTECTION MERGENCY EVACUATION PLAN</p> <p>S-28</p> <p>Emergency Evacuation Plan</p> <p>1.Purpose: <ul style="list-style-type: none"> • Guide for safe building evacuation during emergencies like fires or earthquakes. </p> <p>2.Placement: <ul style="list-style-type: none"> • Clearly defined plan placed strategically and visibly within the building. • Accessible locations for all occupants. </p> <p>3.Features: <ul style="list-style-type: none"> • Plain luminescent background for visibility in power failures or smoky conditions. • Minimum size: 8 ½ inches in height and 11 inches in width for quick understanding. </p> <p>4.Importance: <ul style="list-style-type: none"> • Emphasizes the need for a visible plan using luminescent materials. • Enables swift comprehension and effective procedures during emergencies. </p> 
<p>LTH CARE FACILITY FIRE PROTECTION XIT DETAILS</p> <p>S-25</p> <p>Ramps</p> <ol style="list-style-type: none"> 1. Importance of Ramps in Hospital Fire Safety 2. Benefits 3. Compliance and Inclusivity 4. Alternative to Elevators 	<p>COMPARTIMENTATION</p> <p>S-29</p>
<p>LTH CARE FACILITY FIRE PROTECTION XIT DETAILS</p> <p>S-26</p> <p>Emergency Lighting & Exit Markings</p>  <ol style="list-style-type: none"> 1. Emergency Lighting: <ul style="list-style-type: none"> • Importance: Crucial in hazardous situations to provide illumination in the dark or during power outages. • Functions: Ensures safe, prompt, and efficient evacuation, even when sunlight or mains lighting is available. 2. Fire Exit Signs: <ul style="list-style-type: none"> • Purpose: Guides people in public or crowded buildings to the nearest exit for safe evacuation. • Function of LED Exit Signs: Provides illumination to locate exits or emergency routes during power outages or fires. 	<p>LTH CARE FACILITY FIRE PROTECTION COMPARTMENTATION FIRE SAFETY</p> <p>S-30</p> <ul style="list-style-type: none"> • Definition: <ul style="list-style-type: none"> • Dividing a building using fire-resistant materials to contain fires in specific areas. • Purpose: <ul style="list-style-type: none"> • Prevents fire spread, giving occupants time to evacuate safely. • Helps firefighters control the fire effectively. • Components: <ul style="list-style-type: none"> • Fire-resistant walls, floors, ceilings, and doors create barriers. • Importance: <ul style="list-style-type: none"> • Ensures fire containment, enhancing building safety. • Regular maintenance vital to maintain compartmentation integrity.



<p>LEVEL OF EVACUATION</p> <p>Level of Evacuation</p> <p>Time frames for evacuation may differ depending on the nature of the threat and the amount of time that can be taken to prepare for moving patients. Specific types of evacuations are as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: red; color: white; padding: 5px;">Immediate</td> <td style="padding: 5px;">Emergency medical—evacuate immediately or patients and staff may die, no time to prepare.</td> </tr> <tr> <td style="background-color: orange; color: black; padding: 5px;">Rapid</td> <td style="padding: 5px;">Evaluate as quickly and safely as possible. Limited time to prepare (1 to 2 hours); follow procedures.</td> </tr> <tr> <td style="background-color: yellow; color: black; padding: 5px;">Gradual</td> <td style="padding: 5px;">No immediate danger; sufficient time for systematic evacuation procedures (many hours to several days).</td> </tr> <tr> <td style="background-color: green; color: black; padding: 5px;">Prepare Only</td> <td style="padding: 5px;">Do not move patients, but begin to prepare for evacuation.</td> </tr> </table> <p>Movement</p> <ul style="list-style-type: none"> • Horizontal: Horizontal movement of evacuation involves moving patients in immediate danger away from the threat but keeping them on their current floor. • Vertical: This usually involves the complete evacuation of a specific floor in the hospital. Patients and staff will be evacuated out of the hospital only if necessary. • Shelter in Place: The staff may be instructed to "shelter in place," that is, remain in their units and await further instructions. <p></p> <p></p> <p><small>shutterstock.com - 192289229</small></p>	Immediate	Emergency medical—evacuate immediately or patients and staff may die, no time to prepare.	Rapid	Evaluate as quickly and safely as possible. Limited time to prepare (1 to 2 hours); follow procedures.	Gradual	No immediate danger; sufficient time for systematic evacuation procedures (many hours to several days).	Prepare Only	Do not move patients, but begin to prepare for evacuation.	<p>PERSONNEL RESOURCES IN EVACUATIONS</p> <p>Key Factor:</p> <ol style="list-style-type: none"> 1. Successful healthcare facility evacuations require trained personnel available to perform tasks. <p>Understanding the Evacuation:</p> <ol style="list-style-type: none"> 1. Crucial to comprehend the evacuation extent and know the minimum staff needed for emergency tasks; saving lives. <p>Staffing Ratios:</p> <ol style="list-style-type: none"> 1. Standard ratios of medical staff to patients exist, varying based on patients' care needs.
Immediate	Emergency medical—evacuate immediately or patients and staff may die, no time to prepare.								
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<p>Evacuation Routes</p> <p>Route Establishment:</p> <ul style="list-style-type: none"> • Clearly defined evacuation paths must be established in the hospital. <p>Staff Awareness:</p> <ul style="list-style-type: none"> • All hospital staff should be familiar with these routes and follow instructions from the incident commander for various evacuation types. <p>Wardens' Responsibilities:</p> <ul style="list-style-type: none"> • Designated staff, known as "wardens" or "health and safety officers," guide patients and visitors orderly during evacuations. <p>Comprehensive Planning:</p> <ul style="list-style-type: none"> • Planning should cover all hospital areas, including emergency transit routes, assembly points, holding areas, ensuring effective evacuation management. 	<p>EVACUATION TRANSPORT EQUIPMENT</p> <p>Equipment Sources:</p> <ol style="list-style-type: none"> 1. Equipment like backboards and stretchers might be provided by disaster agencies, fire services, or the military. <p>Usage Guidelines:</p> <ol style="list-style-type: none"> 1. Ensure enough equipment for each floor. 2. Store equipment in accessible areas, not locked closets. 3. Include all transportation gear in the hospital's maintenance program. 								
<p>LEVELS OF HOSPITAL EVACUATION</p> <p>Evacuation in hospitals is divided into two levels:</p> <p>Complete Evacuation</p> <p>Partial Evacuation</p>	<p>ROLES AND RESPONSIBILITIES</p>								

<div style="background-color: #f0f0f0; padding: 10px;"> <p>DUTIES AND RESPONSIBILITIES</p> <p>S-47</p> <p>Evacuation Coordinator:</p> <p>1. Role Overview:</p> <ul style="list-style-type: none"> 1. Crucial link between hospital incident commander and patient wards during evacuations. <p>2. Responsibilities:</p> <ol style="list-style-type: none"> 1. Communicate with wards. 2. Ensure safe evacuation procedures. </div>	<div style="background-color: #f0f0f0; padding: 10px;"> <p>DUTIES AND RESPONSIBILITIES</p> <p>S-51</p> <p>Medical Records and Evacuation</p> <p>1. Record Location:</p> <p>Patient records are where patients are. Ensure records go with patients during evacuation.</p> <p>2. Essentials to Bring:</p> <p>Bring patient records, essential medications, and critical equipment during evacuation.</p> <p>3. Clear Protocol:</p> <p>Establish a protocol to ensure records accompany patients during evacuation.</p> <p>4. Fireproof Storage:</p> <p>Consider fireproof cabinets for essential records, although they can be costly.</p> </div>																																																
<div style="background-color: #f0f0f0; padding: 10px;"> <p>DUTIES AND RESPONSIBILITIES</p> <p>S-48</p> <p>Role/Staff Assignment in Hospital Evacuation:</p> <p>1. Demanding Task: Evacuating a hospital requires significant manpower and specific roles.</p> <p>2. Team Mobilization: Teams of staff with designated evacuation roles must be organized promptly.</p> <p>3. Additional Staff: Additional staff might be needed, especially during non-peak hours (evenings, nights, weekends).</p> <p>4. Staff Flexibility: Staff involved in patient transport may assume different roles later, such as assisting at assembly points after initial patient evacuation.</p> </div>	<div style="background-color: #f0f0f0; padding: 10px;"> <p>DUTIES AND RESPONSIBILITIES</p> <p>S-52</p> <p>Patient Status Monitoring</p> <p>In Evacuation:</p> <p>1. Responsibility:</p> <p>Coordinate with the Hospital's incident commander to determine where patients are and their whereabouts and if a critical patient needs other hospital accommodation.</p> </div>																																																
<div style="background-color: #f0f0f0; padding: 10px;"> <p>DUTIES AND RESPONSIBILITIES</p> <p>S-49</p> <p>Role/Staff Assignment in Hospital Evacuation:</p> <p>Table 8. Example Staff Assignment Chart</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Function</th> <th>Operations</th> <th>Estimated Staff</th> </tr> </thead> <tbody> <tr> <td>Patient located by medical staff</td> <td>Transport Leader</td> <td>1</td> </tr> <tr> <td>Transport patients to assembly point</td> <td>Transport Leader</td> <td>1</td> </tr> <tr> <td>Transport patients to assembly point</td> <td>Transport Nursing Supervisor</td> <td>1</td> </tr> <tr> <td>Assess patients at assembly point and determine which patients are able to self-evacuate</td> <td>Assembly Personnel</td> <td>1</td> </tr> <tr> <td>Carry patients from assembly point to the nearest assembly point</td> <td>Assembly Personnel</td> <td>1</td> </tr> <tr> <td>Carry patients from assembly point to the nearest assembly point</td> <td>Medical Leader</td> <td>1</td> </tr> <tr> <td>Move information and supplies between assembly point and hospital</td> <td>Assembly Personnel</td> <td>1</td> </tr> <tr> <td>Identify number of patients needed at each assembly point</td> <td>Transport Leader</td> <td>1</td> </tr> <tr> <td>Assign assembly points</td> <td>Transport Leader</td> <td>1</td> </tr> <tr> <td>Arrange transportation for patients and ensure patients are seated</td> <td>Transport Leader</td> <td>1</td> </tr> <tr> <td>Carry patients to discharge area</td> <td>Discharge Leader</td> <td>1</td> </tr> <tr> <td>Discharge patients to discharge area</td> <td>Discharge Leader</td> <td>1</td> </tr> <tr> <td>Arrange vehicle changes for patients and ensure patients are seated</td> <td>Transport Leader</td> <td>1</td> </tr> <tr> <td>Carry patients to the discharge area</td> <td>Discharge Leader</td> <td>1</td> </tr> <tr> <td>Coordinate emergency contacts and family notification</td> <td>Administrator</td> <td>1</td> </tr> </tbody> </table> </div>	Function	Operations	Estimated Staff	Patient located by medical staff	Transport Leader	1	Transport patients to assembly point	Transport Leader	1	Transport patients to assembly point	Transport Nursing Supervisor	1	Assess patients at assembly point and determine which patients are able to self-evacuate	Assembly Personnel	1	Carry patients from assembly point to the nearest assembly point	Assembly Personnel	1	Carry patients from assembly point to the nearest assembly point	Medical Leader	1	Move information and supplies between assembly point and hospital	Assembly Personnel	1	Identify number of patients needed at each assembly point	Transport Leader	1	Assign assembly points	Transport Leader	1	Arrange transportation for patients and ensure patients are seated	Transport Leader	1	Carry patients to discharge area	Discharge Leader	1	Discharge patients to discharge area	Discharge Leader	1	Arrange vehicle changes for patients and ensure patients are seated	Transport Leader	1	Carry patients to the discharge area	Discharge Leader	1	Coordinate emergency contacts and family notification	Administrator	1	<div style="background-color: #f0f0f0; padding: 10px;"> <p>DUTIES AND RESPONSIBILITIES</p> <p>S-53</p> <p>Patient Emergency Contact Communication:</p> <p>1. Contact Information:</p> <ol style="list-style-type: none"> 1. Every patient should have an emergency contact listed in their medical records. <p>2. Personnel Responsibilities:</p> <ol style="list-style-type: none"> 1. Designated staff should try to inform family members and answer their questions about the patient's transfer and well-being during evacuation. </div>
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<div style="background-color: #f0f0f0; padding: 10px;"> <p>DUTIES AND RESPONSIBILITIES</p> <p>S-50</p> <p>Patient Tracking in Evacuations:</p> <p>1. Tracking Responsibilities: Specific staff members are assigned to track patients during evacuations.</p> <p>2. Assembly Point Counting: Staff counts patients at assembly points.</p> <p>3. Room and Floor Checks: Other staff checks rooms and floors to ensure everyone has left.</p> <p>4. Senior Personnel Tasks: Senior staff handle department-specific tasks, like shutting off medical gases and counting patients in their areas.</p> </div>	<div style="background-color: #f0f0f0; padding: 10px;"> <p>THANK YOU!</p> <p><small>PROCEED TO LESSON 9</small></p> <p>S-54</p> </div>																																																

Lesson 2.3

Fire Safety for Business Establishments

Industrial Occupancy

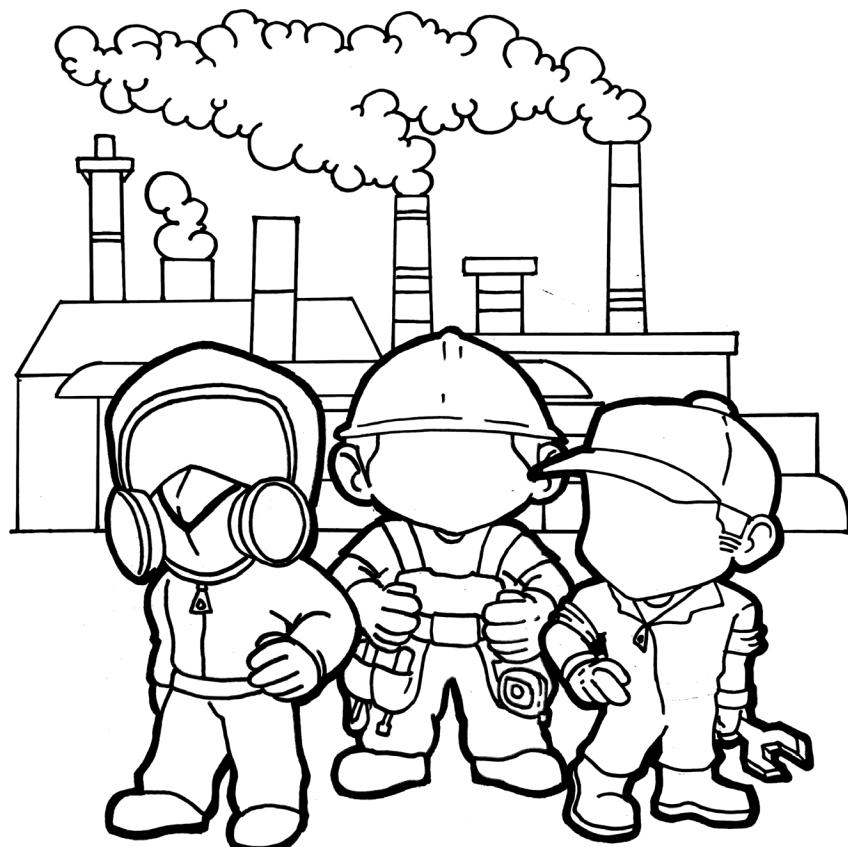
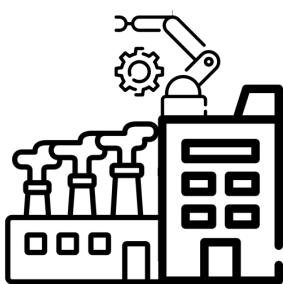


ILLUSTRATION BY: FO1 Christian Joedine Guañizo



I. What is an Industrial Occupancy? [1/5]

The RA 9514, also known as The Fire Code of The Philippines RIRR 2019, defines an industrial occupancy as “occupancies including factories that make products of all kinds and properties which shall include but not be limited to product processing, assembling and disassembling, mixing, packaging, finishing or decorating, repairing, and material recovery, including factories of all kinds, laboratories, dry cleaning plants, power plants, pumping stations, smokehouses, gas plants, refineries, sawmills, laundries, and creameries.”

It is sub-classified in RA 9514 RIRR 2019, The Fire Code of the Philippines, into four usage types: general, purpose, high hazard, and open industrial structures.

II. Sub-classification of Industrial Occupancy [2/5]

A. General Industrial Occupancy

These industrial occupancies conduct ordinary and low-hazard industrial operations in buildings of conventional design suitable for various types of industrial processes. These include multi-storey buildings, where floors are occupied by different tenants or buildings ideal for such occupancy and are subject to possible use for industrial processes with a high density of employee population. Examples of this occupancy include electronic and metal fabrication operations, textile mills, automobile assembly operations, steel mills, and clothing manufacturing operations.

B. Special Purpose Industrial Occupancy

These industrial occupancies conduct ordinary and low-hazard industrial operations in all buildings, except high-hazard occupancy, designed and suitable only for particular types of procedures, characterized by a relatively low density of employee population, with much of the area occupied by machinery or equipment. Examples of these occupancies are paint spray booths, flammable liquid storage rooms in low- or ordinary-hazard occupancies, and plastics fabrication/forming.

C. High-Hazard Industrial Occupancy

These industrial occupancies use high-hazard materials or processes that house high-hazard contents. Examples of these occupancies are paint and chemical plants,

explosives manufacturing plants, aerosol can filling facilities, grain or other combustible dust-handling operations, and any procedure involving extensive flammable or hazardous material.

D. Open Industrial Structures

These are industrial occupancies that include operations conducted in the open air as distinguished from the enclosure with buildings, such as those often found in oil refining and chemical processing plants where equipment is in the available platforms used for necessary access, sometimes with roofs or canopies to provide some shelter, but without walls.

Short Activity

- Instruction: The lecturer will show image that presents scenario in a workplace and the participants will identify what hazards were present in the image.



Follow up questions:

- What are the possible fire hazards in your workplace?
- Are the following hazards existing in your offices?

III. Identifying Hazards in Manufacturing Facilities and its Preventive Measures [3/5]

What is Fire Hazard?

A fire hazard refers to any condition, material, or action that increases the risk of a fire occurring or intensifies the severity of a fire. These hazards can encompass

many factors, from easily ignitable substances to faulty electrical appliances and unsafe practices like using open flames near flammable materials to simple neglect, such as failing to maintain and clean equipment like chimneys. Identifying and mitigating fire hazards is crucial for fire safety and preventing potentially dangerous and destructive fires.

Identifying and mitigating fire hazards in an industrial facility is of paramount importance. The unique nature of industrial operations often involves a complex interplay of flammable materials, heavy machinery, and a high density of employees. Failing to recognize and address potential fire risks can lead to catastrophic consequences, including loss of life, extensive property damage, and disruptions to production. Proper hazard identification and mitigation measures, such as fire-resistant materials, well-maintained equipment, and employee training, are essential in safeguarding the well-being of both workers and the facility itself. Moreover, these efforts can enhance the overall resilience of the business by reducing downtime, minimizing financial losses, and ensuring regulatory compliance, making fire safety a fundamental component of sustainable industrial operations.

Inspection Goals:

The inspection process should identify, reduce, or eliminate hazards. This helps control fire and fire spread, and limits losses.

Fire Hazards in Manufacturing Facility

A. Ignition Sources

Hazards	Preventive Measures
<p>Electrical Hazard Manufacturing facilities heavily rely on electricity, but this also brings unique safety risks. Problems like faulty equipment or old wiring can lead to accidents, like electrical shocks or fires.</p>	<ul style="list-style-type: none"> • Inspect Cords and Plugs <ul style="list-style-type: none"> ▶ Check power cords and plugs daily. ▶ Discard if worn or damaged. ▶ Have any cord that feels more than comfortably warm checked by a professional electrician. • Eliminate Octopus Connections • Never Break OFF the Third Prong on a Plug <ul style="list-style-type: none"> ▶ Replace broken 3-prong plugs and make sure the third prong is properly grounded. • Never Use Extension Cords as Permanent Wiring <ul style="list-style-type: none"> ▶ Use an extension cord only to temporarily supply power to

Hazards	Preventive Measures
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- an area that does not have a power outlet.
- ▶ Keep power cords away from heat, water, and oil. They can damage the insulation and cause a shock.
 - ▶ Do not allow vehicles to pass over unprotected power cords. Cords should be put in conduit or protected by placing planks alongside them.
 - ▶ Observe proper maintenance schedules of electrical equipment, loads, and wires.
 - ▶ Conduct regular electrical inspections for the electrical circuit.
 - ▶ Adhere to strictly established regulations of the Philippine Electrical Code.

Open Flame Ignition (Hot Works Operations)

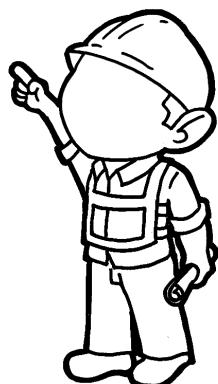
Hot works constitute a prominent factor behind industrial fires across various sectors, encompassing welding, torch cutting, soldering, heating, burning, and brazing. These operations present inherent fire risks, mainly near materials susceptible to combustion, such as combustible dust, flammable substances, or hot oils.

• Hot Works Clearances

To ensure the utmost safety during welding, cutting, and other hot work operations, it is imperative to obtain a secure Hot Work Permit. This permit is a formal authorization, and it is mandatory to seek Fire Safety Clearance from the Chief/Municipal Fire Marshal with jurisdiction before commencing any such activities. This precautionary measure not only underscores a commitment to fire safety protocols but also helps prevent potential hazards and accidents, prioritizing the protection of individuals, property, and the surrounding environment.

• Discussing Scope of Work

To ensure the utmost safety during welding, cutting, and other hot work operations, it is imperative to obtain a secure Hot Work Permit. This permit is a formal authorization, and it is mandatory to seek Fire



Hazards	Preventive Measures
<p>Safety Clearance from the Chief/Municipal Fire Marshal with jurisdiction before commencing any such activities. This precautionary measure not only underscores a commitment to fire safety protocols but also helps prevent potential hazards and accidents, prioritizing the protection of individuals, property, and the surrounding environment.</p> <ul style="list-style-type: none">Scene Safety Securing the work site and its immediate vicinity is a critical safety measure during hot work operations. It entails the meticulous removal of all combustible materials, ensuring a clear zone extending 11 meters in all directions from the work area. Furthermore, to prevent sparks and hot slags from potentially igniting flammable materials, the provision of fire-retardant shields, guards, and covers is essential. Additionally, checking for proper ventilation, particularly in confined spaces, is imperative to dissipate fumes and maintain air quality. Equally important is the availability of the correct type of portable fire extinguisher nearby, ready for immediate use in fire emergencies.Finishing Up Leaving the work area in predefined conditions is a crucial safety practice in hot work operations. It ensures the workspace is tidy and organized, with all tools, equipment, and materials properly stored and secured. Additionally, it's essential to assign a trained fire watcher, an individual with the specific responsibility of monitoring the work area during	

Hazards**Preventive Measures**

and after hot work activities. This fire watcher is prepared to quickly respond to any signs of fire or hazards, as well as having the means to extinguish small fires or raise alarms as needed.

Smoking

Smoking in manufacturing facilities is typically highly discouraged or outright prohibited due to the significant fire hazards it poses. The presence of flammable materials, machinery, and chemicals in such environments makes it a serious safety risk. Even a single discarded cigarette butt or a momentary lapse in judgment can lead to devastating fires with far-reaching consequences.

A comprehensive approach to smoking prevention in the workplace is crucial for maintaining a safe and fire-free environment. One key measure is establishing designated smoking areas that are carefully situated away from flammable materials and potential ignition sources. These areas are equipped with proper cigarette disposal receptacles and well-ventilated to minimize the risk of smoke accumulation. Simultaneously, strict no-smoking policies, reinforced by visible signage, create a clear framework for compliance. Employee education programs play a vital role in raising awareness about the hazards associated with workplace smoking, ensuring that all staff members understand the risks and are motivated to adhere to the no-smoking policies. By combining these measures, organizations can significantly reduce the fire hazard associated with smoking and foster a safer and healthier work environment.

Conveyor Systems

A manufacturing facility's conveyor system presents a significant risk due to its potential for rapid escalation and widespread impact. Conveyor belts often transport various materials, some of which can be flammable or produce combustible dust. Friction, overheating, or electrical issues can ignite these materials, leading to conveyor belt fires

Proper maintenance, regular inspections, and fire-resistant materials in conveyor systems are essential to mitigate these risks. Additionally, having fire detection and suppression systems in place, as well as employee training in fire safety protocols, is vital to quickly address any potential conveyor system fires and prevent them from becoming catastrophic events.



Hazards	Preventive Measures
<p>Wood Shop</p> <p>Woodshop fire hazards in manufacturing facilities pose a unique and potentially severe threat due to the combination of combustible materials and machinery. The presence of wood dust, sawdust, and wood shavings in these environments creates a highly flammable atmosphere. Machinery such as saws, sanders, and planers can generate heat and sparks that, when combined with wood dust, can lead to rapid fires. Inadequate ventilation can exacerbate the risk by allowing dust to accumulate</p>	<p>Manufacturing facilities with woodshops must prioritize regular cleaning and sawdust removal to prevent these hazards. Additionally, fire prevention measures like installing saw dust collection systems, spark detection, and extinguishing systems, along with strict adherence to safety protocols and employee training, are essential for maintaining a safe and productive woodshop in an industrial setting</p>

Spraying and Dipping Operations	Proper safety measures are essential, including using explosion-proof equipment, adequate ventilation systems to control fumes, and regular maintenance to prevent leaks or equipment malfunctions. Additionally, employee training in fire safety and the presence of fire detection and suppression systems are critical to swiftly responding to any fire incidents, minimizing damage, and safeguarding the well-being of individuals in the area
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B. Hazardous Materials

Hazards	Preventive Measures
<p>Flammable and combustible materials, often essential for various industrial processes, can ignite easily due to their low flash points. Mishandling, leaks, or sparks can swiftly</p>	<p>Storing</p> <p>Storing flammable materials in designated areas is a fundamental safety practice to prevent potential hazards. Hazardous materials must</p>

Hazards

lead to uncontrolled fires that threaten worker safety and facility integrity. Proper storage, handling, and safety measures, including fire suppression systems, are crucial to prevent and manage such fires effectively.

Compressed gas cylinders, which are commonly used in industrial operations, carry their unique fire risks. A ruptured or compromised cylinder can result in the rapid release of highly pressurized gases, which can fuel fires and potentially create explosive conditions. Proper storage, regular inspections, and adherence to safety guidelines are essential to mitigate these hazards and maintain a secure industrial environment.

Various **chemicals** in industrial settings can lead to chemical reactions, which, when uncontrolled, can escalate into fires. Industrial facilities must have robust safety protocols, including proper labeling, containment measures, and emergency response plans, to address the potential fire hazards associated with chemicals.

Preventive Measures

be stored and utilized within **designated control areas**, strictly adhering to the **Maximum Allowable Quantity (MAQ)** limits applicable to each occupancy. Care should be taken not to exceed stacking height limits to maintain safety. Cabinets used for storing hazardous materials must meet specific criteria, including construction from 1.25 mm thick sheet iron or a minimum of 254 mm plywood, painted with luminescent-type paint and conspicuously labeled with red letters stating "**HAZARDOUS - KEEP FIRE AWAY.**" These cabinets should also have self-closing and self-latching doors.

Handling

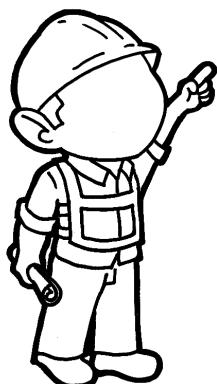
Selecting well-ventilated areas away from potential ignition sources is a fundamental step in ensuring workplace safety, particularly when handling flammable materials. Avoiding ignition sources, such as open flames or electrical equipment, further reduces fire and explosion risks. Maintaining a clean and tidy facility, providing safe access, and prohibiting smoking, eating, or drinking in areas with potential hazards are vital practices to uphold safety standards. Additionally, observing separate travel paths and keeping transport and escape routes precise play essential roles in emergency preparedness, facilitating swift evacuation and reducing the risk of accidents during critical situations. These measures collectively create a safer work environment, safeguarding both employees and the workplace itself.



Hazards**Preventive Measures****Labeling**

Implementing proper **labeling**, which includes the use of **Material Safety Data Sheets (MSDS)** and adherence to the **Globally Harmonized System (GHS) for Classification** and **Labeling of Chemicals**, is integral to workplace safety. Material Safety Data Sheets provide comprehensive information about the properties and hazards of chemical substances, enabling employees to handle them safely. On the other hand, GHS standardizes the classification and labeling of chemicals globally, enhancing communication about potential hazards and protective measures.

The **use of appropriate containers** is paramount in ensuring workplace safety. Defective containers should be promptly disposed of or repaired following established safety procedures to prevent potential risks. Spilled materials must be kept from accumulating on floors or shelves, as this can lead to accidents and hazards. Additionally, it's essential to observe mixed storage prohibitions to prevent chemical reactions resulting from incompatible materials being stored together. Keeping small quantities in safety cabinets is a wise practice to safeguard against potential hazards. Lastly, special attention should be paid to the explosion hazards posed by residual solvents, emphasizing the importance of meticulous handling and storage to mitigate such risks effectively.



IV. Workplace Risk Assessment^[4/5]

"The Five Steps Risk Assessment is a systemic approach to conducting a risk assessment that is suitable for different types of workplaces. These five risk assessments were adopted by this module, which are: early detection of fire hazards; identifying people at risk; risk evaluation; recording, planning, and training; and review.



STEP 1: Early Detection of Fire Hazards

The context of step 1 focuses on early detection in the workplace.

- ✓ **What are the possible sources of fire incidents in your workplace?**

Rationale: This question aims to assess the possible fire hazards in the workplace such as fuel, electricity, and other sources of fire

- ✓ **What are the other factors that can worsen the ignition of fire in case of fire incident occurrences?**

Rationale: This question aims to identify the aggravating factors that can worsen the risk in the workplace (e.g. obstructed fire exit, absence of a pre-fire plan, absence of fire protection, etc.)

STEP 2: Identifying People at Risk

The context of step 2 focuses on vulnerability identification in the workplace.

- ✓ **Who could be at risk?**

Rationale: This assessment aims to identify the vulnerable person to be affected if the identified fire hazards cause a fire to break out.

- ✓ **What are the possible affected areas in your workplace?**

Rationale: This question seeks to determine the areas vulnerable in case the identified fire hazard causes a fire to break out.

STEP 3: Risk Evaluation

The context of step 3 focuses on risk mitigation and capability assessment.

- ✓ **Who is tasked to assess the risk in the workplace?**

Rationale: This question aims to assess if there is an employee task to safeguard the workplace from fire hazards..

- ✓ **Have you kept the heat source and fuel separate?**

Rationale: This question aims to assess if there is a safety precaution in keeping away the things that can get burned and the heat source to prevent fire

incidents in the workplace.

- ✓ **Have you protected your premises from accidental fire or arson?**

Rationale: This question aims to assess if there is the presence of flammable materials or sources of fire that are visible in the workplace. This assessment seeks to avoid the possibility of a fire accident or arson due to the presence of visible fire hazards within the workplace.

- ✓ **What is the extent of your fire safety in case of fire?**

Rationale: This part of step 3 questions the capability of the workplace fire safety readiness to ensure the safety of the occupants.

- ✓ **Is there a fire or smoke detector in your workplace?**

Rationale: This question aims to assess if there is a presence of a Fire Detection and Alarm System (FDAS) (e.g., smoke detector, heat detector, fire alarm control unit, or other FDAS) that can alert the occupants immediately in case of fire.

- ✓ **What is your plan to inform others immediately?**

Rationale: This question aims to determine if there is an existing communication plan or method to inform tenants immediately in case of fire.

- ✓ **Who will make sure everyone gets out?**

Rationale: This question seeks to identify if an employee is tasked with ensuring that their co-workers are all evacuated from their respective offices.

- ✓ **Who will call the fire service?**

Rationale: This question determines whether an employee is entrusted with calling the fire department or other authorities in the event of a fire in the workplace.

- ✓ **Are your workplace's fire safety features capable of putting the fire out immediately and preventing it from spreading?**

Rationale: This question seeks to assess if there is a presence of active fire protection (standpipe systems, sprinkler systems, fire hose reels, automatic fire-extinguishing systems, and fire extinguishers) and passive fire protection (firewalls, fire, and smoke dampers, fire doors or firestop materials.)

- ✓ **Have you identified the exit routes in your workplace?**

Rationale: This question assesses whether all the occupants know about their evacuation route.

- ✓ **How can you make sure the employees find the exit even at night?**

Rationale: This question aims to determine if there is a presence of lighting and exit markings in the establishments as prescribed by RA 9514.

- ✓ **Do the employees in your workplace have the capability of using the available firefighting equipment?**

Rationale: This question aims to assess if the employees are capable of using fire suppression equipment such as (fire extinguishers, fire blankets, or fire hose reels)

- ✓ **Do safety features in your workplace work?**

Rationale: This question seeks to assess if there is regular checking and maintenance of fire protection, AFSS, or FDAS in the establishment.

STEP 4: Record, Plan and Training

The context of step 4 focuses on documentation and knowledge and skills evaluation.

- ✓ **Have you recorded those fire hazards and your actions taken?**

Rationale: This question aims to determine if the actions to mitigate the fire hazards are well documented.

- ✓ **Have you made any pre-fire plans? Does everyone in your workplace already know about the plan?**

Rationale: This question aims to determine if there is established pre-fire planning in their workplaces and if it is disseminated among all employees.

- ✓ **Are employees in your workplace trained?**

Rationale: This part of step 4 questions the capability and familiarization of the employees with the pre-fire planning.

- ✓ **Are all your employees involved in the fire drill?**

Rationale: This question aims to ensure that all of the employees have knowledge of the evacuation plan of the company and to identify the contribution of each individual in the evacuation process.

- ✓ **Do you identify those staff assigned to implement fire prevention measures?**

Rationale: This question aims to identify if there is an assigned employee to implement, evaluate, and ensure those safety measures indicated in the company's pre-fire planning and evacuation action plan.

- ✓ **Is there an employee tasked with using fire safety equipment?**

Rationale: This question determines if an employee is assigned to use fire safety equipment such as fire alarms, fire extinguishers, fire hose reels, and other fire safety equipment.

- ✓ **Are they capable of doing their assigned task?**

Rationale: This question aims to confirm if there is regular conduct of an evacuation drill, skills inventory, or post-evacuation analysis in their

respective workplaces.

✓ Is anyone else in the building included in the plan?

Rationale: This question aims to determine if the created evacuation action plan or pre-fire plan is disseminated to all employees.

STEP 5: Review

The context of step 5 focuses on the assessment of implementation and its sustainability.

✓ Is your plan carried out?

Rationale: This question aims to determine the status of a pre-fire planning or evacuation action plan that has been created, whether it has been implemented, is still in the process of completion, or has not been implemented.

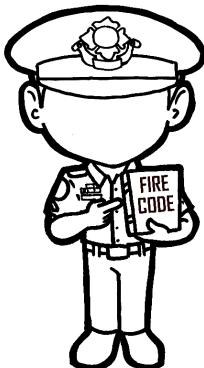
✓ Has it changed your work fire safety practices?

Rationale: This question aims to determine if, after implementing a pre-fire plan or evacuation action plan, their employees' attitudes shift from uncooperative to resilient.

✓ Does your plan continuously practice without supervision?

Rationale: This question aims to determine if fire safety and resilience are routinely practiced in the workplace, even without supervision from higher-ups. (For instance, keeping the office clean, storing flammable goods properly, and avoiding overloading electrical equipment.)

V. Fire Code Provisions related to Manufacturing Facility (5/5)



A. Evacuation

✓ Means of Egress

A continuous and unobstructed route of exit from one point in a building, structure, or facility to a public way consisting of three (3) distinct parts:

- > **Exit Access** is the path that leads to the exit.
- > **Exit Access** is the portion of a means of egress that is separated from all other spaces of the building or structure by construction, location, or equipment as required to provide a protected way of travel to the exit discharge. Examples include an **exit door** that leads directly outside, an **exit staircase**, **exit passageways**, etc. At least two (2) fire exit remote from each other according to the R.A. 9514 Rule 10.2.5.2 para-G.

> **Exit Discharge** is that portion of a means of egress between the termination of an exit and a point of safety. Terminates directly at a **public way** or an **exterior exit discharge** according to the R.A. 9514 Rule 10.2.5.2 para-M.

> **Doors – Shall be self-closing**

According to the R.A. 9514 Rule 10.2.5.3 para-G, a door normally required to be kept closed shall be installed or equipped with an automatic door closer in accordance with the following criteria:

4.1. Upon release of the hold-open mechanism, the door becomes self-closing.

4.2. The release device is designed so that the door instantly releases manually and, upon release, becomes self-closing, or the door can be readily closed.

> **Travel Distance (Means of Egress)**

The distance to be travelled from the remotest point on a floor of a building to a place of safety, be it a protected escape route, external escape route, or final exit, i.e., vertical exit, horizontal exit, or an outside exit measured along the line of travel.

✓ **Lighting and Sign**

> **Emergency Lighting**

According to the R.A. 9514, Rule 10.2.5.11, it is a lifeline in hazardous situations created by this complicated backdrop. Crucially, it enables the safe, prompt, and efficient evacuation of spaces and buildings, not only in cases of blackout caused by power outages but when sunlight and mains lighting may still be available.

> **Fire Exit Signs**

According to the RIRR of R.A. 9514, Rule 10.2.5.12 para A and B, they are part of an emergency evacuation system that guides people in public buildings or buildings (either residential or commercial) where there are many people to the closest exit so they can leave the building safely.

The fundamental function of lighted LED exit signs is to allow you to find the exit or emergency egress route in the event of an emergency. Many times, a power outage can be the result of a fire in the building.

B.Detection

A system that detects fire at the earliest stage and gives an alarm to alert the occupants so that appropriate action can be taken.

An approved automatic fire detection and alarm system shall be required in all industrial occupancies, except for buildings with less than twenty-five (25) occupants, where such buildings shall be equipped with manual fire alarm

systems according to the RIRR of R.A. 9514, Rule 10.2.17.3 par C1.

At least one (1) fire alarm box shall be installed for buildings equipped with automatic fire detection and alarm systems.

✓ **Manual Fire Alarm Initiating Devices**

Manual initiating devices are critical components of a fire alarm system that must be operated manually. One of the most common fire alarm-initiating devices is a manual pull station that must be activated by pulling down a lever or pressing a button

✓ **Automatic Fire Alarm Initiating Devices**

Automatic initiating devices are critical parts of a fire alarm system that automatically activate after detecting heat, smoke, or fire. These devices are essential in quickly identifying and responding to a fire before it develops or spreads, ensuring the safety of a building and its occupants.

C. Suppression

✓ **Automatic Fire Suppression System (AFSS)**

According to the RIRR of R.A. 9514, Rule 10.2.17.3 para D1, an integrated system of underground or overhead piping connected to a source of extinguishing agent or medium, designed per fire protection engineering standards to include, but not limited to, an Automatic Fire Sprinkler System which, when actuated by its automatic detecting device, suppresses fire within the area protected even without human intervention.

Every high-hazard industrial occupancy shall be protected with AFSS appropriate to the particular hazard per NFPA or other internationally accepted standards.

✓ **Portable Fire Extinguisher**

A portable fire extinguisher, by definition, is an item of equipment to extinguish a fire. The reality is, however, that a portable fire extinguisher is effective only for the type and size of a fire that it is rated for.

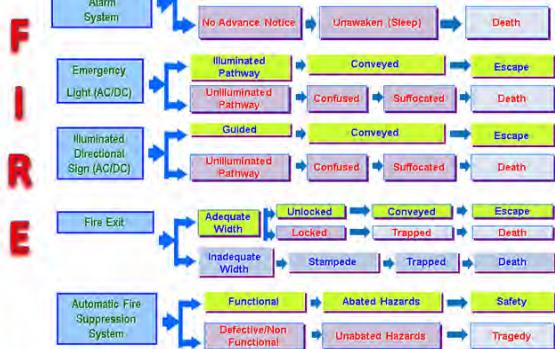
All buildings, structures, and facilities shall be installed with portable fire extinguishers designed, installed, and maintained per this Section. Fire extinguishers shall be installed even if the property has automatic sprinklers, standpipes, hoses, or other fixed fire protection equipment. A fire extinguisher is a portable or movable apparatus used to put out a small fire by directing onto it a substance that cools the burning material, deprives the flame of oxygen, or interferes with the chemical reactions occurring in the flame.

✓ **Standpipe System**

According to the RIRR of R.A. 9514, Rule 10.2.6.8 para A, it is a system of vertical pipes in a building to which

fire hoses can be attached on each floor, including a method by which water is made available to water outlets as needed.

A DISCOURSE of SAFETY and TRAGEDY



Facilitator's Note [1/1]

The Facilitator may relate the Characteristics of Fire to the Discourse of Safety and Tragedy Diagram. Emphasize each fire safety feature corresponding to each characteristic.

Lesson 2.3

Industrial Occupancy

Powerpoint and Visual Aids

FIRE SAFETY IN INDUSTRIAL OCCUPANCY

S-01

SUB-CLASSIFICATION OF INDUSTRIAL OCCUPANCY

S-04

WHAT IS INDUSTRIAL OCCUPANCY

S-02

General Industrial Occupancy

- occupancies that conduct ordinary and low hazard industrial operations
- process with high density of employee population.
- Examples are:
 - electronic and metal fabrication operations
 - textile mills
 - automobile assembly operations
 - steel mills
 - clothing manufacturing operations.

S-05

MANUFACTURING

- often referred to as a factory or plant
- Industrial occupancies include factories that make products of all kinds and properties which shall include but not be limited to;
- product processing
- assembling and disassembling
- mixing
- packaging
- finishing or decorating
- repairing, and
- material recovery

S-03

Special Purpose Industrial Occupancy

- buildings designed for and suitable only for particular types of operations
- usually with a low density of employees
- most of the area occupied by machinery or equipment
- Examples are:
 - paint spray booths
 - plastics fabrication/forming



S-06

JB-CLASSIFICATION OF INDUSTRIAL OCCUPANCY

S-07

High Hazard Industrial Occupancy

- occupancies having high-hazard materials, processes, or contents
- Examples are:
 - paint and chemical plants
 - explosives manufacturing plants
 - aerosol can filling facilities
 - grain or other combustible dust-handling operations

JB-CLASSIFICATION OF INDUSTRIAL OCCUPANCY

S-08

Open Industrial Structures

- operations conducted in open-air as distinguished from enclosure with buildings
- equipment is in the open platforms used for necessary access, sometimes with roofs or canopies to provide some shelter, but without walls.
- Examples are:
 - Oil refining
 - Chemical plants



IDENTIFYING HAZARDS AND ITS PREVENTIVE MEASURES

S-10

IDENTIFYING HAZARDS AND ITS PREVENTIVE MEASURES**What's Wrong?**

Find the Nine (9) Mistakes



JB-CLASSIFICATION OF INDUSTRIAL OCCUPANCY

IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES

What is Fire Hazard?

any condition, material, or action that increases the risk of a fire occurring or intensifies the severity of a fire.

S-11

JB-CLASSIFICATION OF INDUSTRIAL OCCUPANCY

IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES

Fire Hazards in Manufacturing Facility

S-12

IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES

IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES

Ignition Sources**Electrical Hazards**

- Electricity is a major workplace hazard, causing shocks, burns, fires, and explosions.
- Manufacturing relies on electricity but comes with safety risks.
- Faulty equipment and old wiring can cause accidents like shocks and fires.

S-13

IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES

IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES

Preventive Measures

✓ Inspect cord and Plugs

**ELECTRIC SAFETY**

S-14

<p>S-15</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Preventive Measures</h3> <ul style="list-style-type: none"> ✓ Never Break OFF the Third Prong on a Plug ✗ Do not cut off or bend the third prong of a plug. ✓ Never Use Extension Cords as Permanent Wiring 	<p>S-19</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Preventive Measures</h3> <p>Discussing the scope of work</p> <ul style="list-style-type: none"> • What – particular hot work operations to be performed • When – time frame of hot work operation to be performed date started to date finished • Where – Specific location of hot work to be performed • Danger – checking surroundings before performing the hot work operations
<p>S-16</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Preventive Measures</h3> <ul style="list-style-type: none"> ✓ Observe proper maintenance schedules of electrical equipment, loads and wires. ✓ Conduct regular electrical inspections for the electrical circuit. ✓ Adhere to strictly established regulations of the Philippine Electrical Code. 	<p>S-20</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Preventive Measures</h3> <p>Scene Safety</p> <ul style="list-style-type: none"> • Move all combustible material 11m away in all directions • Fire-retardant shields, guards, and covers shall be provided to prevent sparks and hot slags to fall or to slip on combustible materials
<p>S-17</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>OPEN FLAME IGNITION SOURCES</h3> <p>Hot Works Operation</p> <ul style="list-style-type: none"> • Welding, • Soldering • Torch cutting • Poses fire risks, especially near flammable materials like dust, oils, or substances. 	<p>S-21</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Preventive Measures</h3> <ul style="list-style-type: none"> • Check for ventilation especially in confined space. • Availability of right type of portable fire extinguisher.
<p>S-18</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Preventive Measures</h3> <p>Secure Hot Work Permit</p> <ul style="list-style-type: none"> • Fire Safety Clearance shall be secured from the CMFM having jurisdiction concerned prior to any welding, cutting and other welding, cutting and other hot work operation. 	<p>S-22</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Preventive Measures</h3> <p>Finishing Up</p> <ul style="list-style-type: none"> • Tidy up • Assign a trained fire watcher

<p>S-23</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Other Ignition Sources</h3> <p>SMOKING</p> <ul style="list-style-type: none"> highly discouraged or outright prohibited due to the significant fire hazards it poses. a single discarded cigarette butt or a momentary lapse in judgment can lead to devastating fires. 	<p>S-27</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Other Ignition Sources</h3> <p>Wood Shop</p> <ul style="list-style-type: none"> combination of combustible materials and machinery presence of dust, wood, sawdust, and wood shavings in these environments creates a highly flammable atmosphere. Machinery such as saws, sanders, and planers can generate heat and sparks that, when combined with wood dust, can lead to rapid fires 
<p>S-24</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Preventive Measures</h3> <ul style="list-style-type: none"> Designation of smoking areas Strict no-smoking policies, reinforced by visible signages Employee education programs in raising awareness about the hazards associated with workplace smoking. 	<p>S-28</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Preventive Measures</h3> <ul style="list-style-type: none"> Good Housekeeping Installation of saw dust collection system, spark detection, and extinguishing systems 
<p>S-25</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Other Ignition Sources</h3> <p>Conveyor Systems</p> <ul style="list-style-type: none"> conveyor system presents a significant risk due to their potential for rapid escalation and widespread impact. Conveyor belts often transport various materials, some of which can be flammable or produce combustible dust. Friction, overheating, or electrical issues can ignite these materials, leading to conveyor belt fires 	<p>S-29</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Other Ignition Sources</h3> <p>Spraying and Dipping Operations</p> <ul style="list-style-type: none"> produces fine flammable particles or vapors making the surrounding air potentially explosive <p>Preventive Measures</p> <ul style="list-style-type: none"> adequate ventilation systems to control fumes regular maintenance to prevent leaks or equipment malfunctions include protected electrical systems with spark arrestors good housekeeping to control liquids and vapor buildup 
<p>S-26</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Preventive Measures</h3> <ul style="list-style-type: none"> Proper maintenance Regular inspections Use of fire-resistant materials in conveyor system Having fire detection and suppression system. Employee Training on Protocols 	<p>S-30</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Hazardous Materials</h3> <p>The presence of flammable and combustible materials, compressed gas cylinders, and various chemicals collectively poses a significant fire hazard.</p> 

<p>S-31</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Preventive Measures</h3> <p>Storing</p> <ul style="list-style-type: none"> Hazardous materials must be stored in designated control areas. Quantity in each area should not exceed the Maximum Allowable Quantity (MAQ) for safety. Avoid exceeding stacking height limits. Cabinets of approved type are required by local Codes with label of "HAZARDOUS - KEEP FIRE AWAY" and have self-closing, self-latching doors. 	<p>S-35</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Preventive Measures</h3> <p>Using appropriate containers.</p> <ul style="list-style-type: none"> Defective containers shall be disposed Observe mixed storage prohibitions Keep small quantities in safety cabinets Pay attention to explosion hazard of residual solvents 
<p>S-32</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Preventive Measures</h3> <p>Handling</p> <ul style="list-style-type: none"> Well-ventilated areas Avoid ignition sources Keep the facility tidy and clean Provide safe access Do not smoke, eat or drink Observe separate travel paths Keep transport and escape routes free 	<p>S-36</p> <p>FIRE SAFETY RISK ASSESSMENT</p>
<p>S-33</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Preventive Measures</h3> <p>Implementing proper labeling.</p> <ul style="list-style-type: none"> Material Safety Data sheet 	<p>S-37</p> <p>RISK ASSESSMENT</p> <h3>Workplace Risk Assessment</h3> <ul style="list-style-type: none"> STEP 1: Early Detection of Fire Hazards STEP 2: Identifying People at Risk STEP 3: Risk Evaluation STEP 4: Record, Plan and Train STEP 5: Review
<p>S-34</p> <p>IDENTIFYING HAZARDS AND ITS EVENTIVE MEASURES</p> <h3>Preventive Measures</h3> <ul style="list-style-type: none"> Globally Harmonized System (GHS) Classification and Labeling of Chemicals. 	<p>S-38</p> <p>RISK ASSESSMENT</p> <h3>STEP 1: Early Detection of Fire Hazards</h3> <ul style="list-style-type: none"> What are the possible sources of fire incidents in your workplace? What other factors can worsen the ignition of fire in case of fire incident occurrences? 

<p>RE SAFETY RISK REASSESSMENT</p> <p>S-39</p> <p>STEP 2: Identifying People at Risk</p> <ul style="list-style-type: none"> • Who could be at risk? • What are the possible affected areas in your workplace? 	<p>RE SAFETY RISK REASSESSMENT</p> <p>S-43</p> <p>STEP 4: Record, Plan, and Train</p> <ul style="list-style-type: none"> • Have you recorded those fire hazards, and your action taken? • Have you made any pre-fire plans? Does everyone in your workplace already know about the plan? 
<p>RE SAFETY RISK REASSESSMENT</p> <p>S-40</p> <p>STEP 3: Risk Evaluation</p> <ul style="list-style-type: none"> • Who is tasked to assess the risk in the workplace? • Have you kept the heat source and fuel separate? • Have you protected your premises from accidental fire or arson? 	<p>RE SAFETY RISK REASSESSMENT</p> <p>S-44</p> <p>Are employees in your workplace trained?</p> <ul style="list-style-type: none"> • Are all of your employees involved in the fire drill? • Do you identify those staff assigned to implement fire prevention measures? • Is there an employee tasked with using fire safety equipment? • Are they capable of doing their assigned task? • Is anyone else in the building included in the plan? 
<p>RE SAFETY RISK REASSESSMENT</p> <p>S-41</p> <p>Ensuring employee is safe in case of fire</p> <ul style="list-style-type: none"> • Is there a fire or smoke detection in your workplace? • What is your plan to inform others immediately? • Who will make sure everyone gets out? • Who will call the fire service? • Are your workplace's fire safety features capable of putting the fire out immediately and preventing it from spreading? 	<p>RE SAFETY RISK REASSESSMENT</p> <p>S-45</p> <p>STEP 5: Review</p> <ul style="list-style-type: none"> • Is your plan carried out? • Had it change your work fire safety practices? • Is your plan continuously practiced even without supervision? 
<p>RE SAFETY RISK REASSESSMENT</p> <p>S-42</p> <p>Evacuation Capability</p> <ul style="list-style-type: none"> • Have you identified the exit routes in your workplace? • How can you make sure the employees find the exit even at night? • Do the employees in your workplace have the capability of using the available firefighting equipment? • Do safety features in your workplace work? 	<p>FIRE CODE PROVISIONS RELATED TO MANUFACTURING FACILITY</p> <p>S-46</p>

RE SAFETY REVISI0NS S-47	<p>Means of Egress (Fire Exit)</p> <p>A continuous and unobstructed route of exit from one point in a building, structure or facility to a public way or street, through three (3) distinct parts: exit access, exit and exit discharge.</p> <p>Exit - That portion of means of egress that is separated from all other spaces of a building or structure by construction, location, or equipment and provides a protected way of travel to the exit discharge.</p> <p>Exit Access -That portion of means of egress that leads to an exit.</p> <p>Exit Discharge -That portion of a means of egress between the termination of an exit and a public way or street.</p> 															
RE SAFETY REVISI0NS S-51	<p>EMERGENCY LIGHTS</p>  <ul style="list-style-type: none"> Provide illumination during power outages or emergencies. Help occupants safely exit buildings in low-light conditions. Assist emergency responders in locating and aiding individuals. Prevent panic and confusion during unexpected situations. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Requirement</th> <th style="width: 30%;">Provision</th> <th style="width: 40%;">Fire Code Requirements</th> </tr> </thead> <tbody> <tr> <td>Lighting and Signs (Section 10.2.5.12 para A)</td> <td></td> <td>a. Signs designating exit or ways of travel</td> </tr> <tr> <td>(SECTION 10.2.5.12 para B)</td> <td></td> <td>b. Exit Lighting</td> </tr> <tr> <td>(SECTION 10.2.5.11 para C)</td> <td></td> <td>c. Emergency Lighting</td> </tr> </tbody> </table>	Requirement	Provision	Fire Code Requirements	Lighting and Signs (Section 10.2.5.12 para A)		a. Signs designating exit or ways of travel	(SECTION 10.2.5.12 para B)		b. Exit Lighting	(SECTION 10.2.5.11 para C)		c. Emergency Lighting			
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RE SAFETY REVISI0NS S-52	<p>Illuminated Exit and Directional Exit Signs</p>  <ul style="list-style-type: none"> Clearly indicate the path to exits in case of emergencies. Help occupants quickly and safely evacuate buildings. Reduce the risk of panic and confusion during crises. Exceeds minimum requirements with safety regulations and building codes. Provide critical information for emergency responders. 															
RE SAFETY REVISI0NS S-49	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Requirement</th> <th style="width: 20%;">Provision</th> <th style="width: 60%;">Firecode requirements</th> </tr> </thead> <tbody> <tr> <td>Means of Egress</td> <td></td> <td></td> </tr> <tr> <td>(SECTION 10.2.5.2 para M)</td> <td>Terminate directly at a public way or at an exterior exit discharge</td> <td></td> </tr> <tr> <td>Discharge</td> <td></td> <td></td> </tr> <tr> <td>(SECTION 10.2.17.2 para G)</td> <td> Open exit or discharge thru the ground floor provided: a. Ground floor is free and unobstructed. b. Ground floor is protected with AFSS. c. Discharge on the ground floor is separated from other areas by two (2) hour fire rated construction. </td> <td></td> </tr> </tbody> </table>	Requirement	Provision	Firecode requirements	Means of Egress			(SECTION 10.2.5.2 para M)	Terminate directly at a public way or at an exterior exit discharge		Discharge			(SECTION 10.2.17.2 para G)	Open exit or discharge thru the ground floor provided: a. Ground floor is free and unobstructed. b. Ground floor is protected with AFSS. c. Discharge on the ground floor is separated from other areas by two (2) hour fire rated construction.	
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RE SAFETY REVISI0NS S-53	<p>Fire Detection, Alarm and Communication System</p> <ul style="list-style-type: none"> A system that detects fire at the earliest stage, and gives an alarm to alert the occupants so that appropriate action can be taken. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Requirement</th> <th style="width: 30%;">Provision</th> <th style="width: 40%;">Fire Code Requirements</th> </tr> </thead> <tbody> <tr> <td>Fire Detection, Alert and Communication System (SECTION 10.2.17.3 para C1)</td> <td></td> <td> Automatic Fire Alarm System 25 or more Employees Manual Fire Alarm System Less than 24 employees </td> </tr> </tbody> </table>	Requirement	Provision	Fire Code Requirements	Fire Detection, Alert and Communication System (SECTION 10.2.17.3 para C1)		Automatic Fire Alarm System 25 or more Employees Manual Fire Alarm System Less than 24 employees									
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RE SAFETY REVISI0NS S-50	<p>DOORS</p> <ul style="list-style-type: none"> Automatic closing doors in manufacturing facilities contain fires and smoke. They close when fire alarms or smoke detectors activate. These doors enhance safety and protect assets by isolating affected areas <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Requirement</th> <th style="width: 20%;">Provision</th> <th style="width: 60%;">Fire Code Requirements</th> </tr> </thead> <tbody> <tr> <td>Door (SECTION 10.2.5.3 para G)</td> <td></td> <td>Shall be self closing</td> </tr> </tbody> </table>	Requirement	Provision	Fire Code Requirements	Door (SECTION 10.2.5.3 para G)		Shall be self closing									
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RE SAFETY REVISI0NS S-54	<p>Fire Detection, Alarm and Communication System</p> <p>Automatic Fire Alarm System</p> <ul style="list-style-type: none"> Automatic initiating devices are vital for fire alarm systems. They activate upon detecting heat, smoke or fire. Swift response helps prevent fire development and protect occupants. Activation of one device often triggers others. Common automatic devices in commercial properties: <ul style="list-style-type: none"> Smoke detectors Heat detectors Flame detectors Duct detectors 															

S-55 REVISIONS

Automatic Fire Protection System (AFSS)

- Automatically detects and suppresses fires
- Operates without human intervention

Requirements	Provisions	Fire Code Requirements
Automatic Fire Protection System (AFSS) (SECTION 10.2.17.3 para D1)	Every high hazard industrial occupancy shall be provided with AFSS appropriate to the particular hazard in accordance with NFPA or other internationally accepted standards.	

THANK YOU!

S-59

PROTECT TO LESSON 3

S-56 REVISIONS

Fire Extinguisher

- Used to put out small fires
- Cools, removes oxygen, or disrupts flames
- Stops chemical reactions in the fire

Requirement for all buildings and facilities
Required even with other fire protection equipment

Requirement	Provisions	Fire Code Requirements
Fire Extinguishers (SECTION 10.2.17.3 para D)	Should be installed in accordance with Section 10.2.6.9 para G of the RIRR	

S-57 REVISIONS

Standpipe

- Connects water supply to hose connections
- Extension of fire hydrant system
- Pre-piped water system for buildings
- Fire protection water for hose lines inside buildings

Requirements	Provisions	Fire Code Requirements
Standpipe (SECTION 10.2.6.8 para A)		The design, installation and maintenance of standpipe systems shall be in accordance with NFPA 14, Standard for the Installation of Standpipe, Private Hydrant and Hose Systems.

S-58 REVISIONS

A DISCOURSE of SAFETY and TRAGEDY

FIRE SYSTEMS

F Fire Alarm System
I Emergency Light (ACCO)
R Standpipe and Hose (NFPA 14)
E Fire Ball
S Submersible Pump (Suppression System)

```

graph TD
    FAS[Fire Alarm System] --> Alerted
    ELS[Emergency Light (ACCO)] --> Alerted
    SHS[Standpipe and Hose (NFPA 14)] --> Alerted
    FB[Fire Ball] --> Alerted
    SPS[Submersible Pump (Suppression System)] --> Alerted
    Alerted --> Suppressed
    
```


Lesson 2.4

Fire Safety for Business Establishments

Business Process Outsourcing



ILLUSTRATION BY: FO1 Christian Joedine Guañizo



1. What is Hazard? [1/3]

Hazard is described as any situation that might potentially cause injury or be dangerous daily. It could be endangering or harming people, things, or the environment. Fire dangers are one of its most harmful kinds. Most of these risks may be found in the workplace, including bad practices and inadequate fire safety measures in occupancies.

Short Activity

- **Instruction:** The lecturer will show image that presents scenario in a workplace and the participants will identify what hazards were present in the image.

Facilitator's Note [1/6]

Let the audience identify the following fire hazards existing in the workplace, then let them discuss what they had seen in the picture.



Source: Industrydirections.com
This illustration shows different fire hazards in workplace set-up.

Facilitator's Note [2/6]

Ask the participants if the following fire hazards exist in their workplace and ask them their best practices to remove these hazards. Afterward, proceed with the discussion.



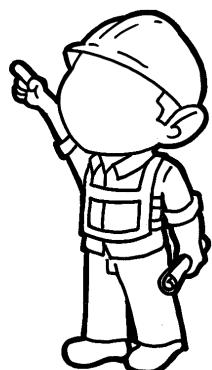
Source: www.bing.com
This illustration shows different bad practices that can aggravate fire in the workplace.

Facilitator's Note [3/6]

Provide different types of hazards in a BPO and similar occupancy types and discuss its corresponding preventive measures. In every discussion, verify if the participants practice these preventive measures.

Common Fire Hazards in Business Process Outsourcing

Likewise, business process outsourcing (BPO) is described by Republic Act 9514, Revised Implementing Rules and Regulation 2019 New Fire Code of the Philippines as an ordinary hazard and categorized as a business occupancy. Hazards that exist in BPOs and similar establishments are the following:

Hazards	Preventive Measures	Facilitator's Note [3/6]
Electrical Hazards It includes overloading power sockets, old or faulty electrical equipment, cables in vulnerable positions, poor maintenance of equipment, frayed wires, and faulty wirings.	Checking to unplug electrical appliances before leaving the office; Avoid octopus' connections or overloaded extension cords in the workplace; Never use extension cords as permanent wiring; Avoid using defective electrical appliances; Keep wiring away from water sources, heat, and oils; and Inspect cords and outlets regularly.	measures. In every discussion, verify if the participants practice these preventive measures.
Poor Housekeeping It includes a poorly arranged workplace, improper storage of flammable materials, improper storage of files or items, storage exceeding required ceiling clearance, and an untidy or dusty workplace	Proper storage of flammable materials; Proper storage of materials and files in the workplace, including ceiling clearance; Keep the workplace always clean to remove possible fire hazards; Remove visible materials that can cause fire ignition; and always practice fire safety habits in the workplace.	
Means of Egress Problems These include leaving the fire exit always open, obstructed fire exit, and absence of a fire exit.	Keeping fire exits close to prevent rapid spread of fire in the other parts of the building in case a fire breaks out; Removal of obstruction in fire exits; Provide an adequate number of fire exits as required by fire code.	
Lack of Fire Safety Features These are the problems such as untested fire detection and alarm system (FDAS), absence or defective emergency lights, absence of emergency signages or directional signs, absence of an emergency evacuation plan, absence of firefighting equipment such as fire extinguisher or fire hose cabinet; and other fire safety measures required by the fire code.	Conduct regular testing and maintenance of FDAS and AFSS. Comply with the requirements of the fire code, such as emergency lights, evacuation maps, signages, firefighting equipment, and other related provisions. Conduct regular preventive maintenance of firefighting equipment.	
Human Factors These might include a lack of awareness of the evacuation plan, a lack of preparedness for possible fire incidents, a lack of	Conduct regular fire evacuation and drills.; Information dissemination of pre-fire planning to the employees; regular conduct of fire safety	

Hazards	Preventive Measures
knowledge of fire safety features of the building, and an evacuation plan that needs to integrate with the other occupants.	preparedness evaluation to the employees; involvement of occupants or representatives of every establishment residing in the building.

Facilitator's Note [4/6]

Establish an interactive type of discussion with the participants and provide a series of questions (fire risk assessment) provided in the slides. Let the participants answer the given question. After that, provide supplemental advice and emphasize the necessity of it for their safety. The italic font after the questions explains its significance.



► 11. Workplace Risk Assessment [2/3]

”The Five Steps Risk Assessment is a systemic approach to conducting a risk assessment that is suitable for different types of workplaces. These five risk assessments were adopted by this module, which are: **early detection of fire hazards; identifying people at risk; risk evaluation; recording, planning, and training; and review.**

STEP 1: Early Detection of Fire Hazards

The context of step 1 focuses on early detection in the workplace.

- ✓ **What are the possible sources of fire incidents in your workplace?**

Rationale: This question aims to assess the possible fire hazards in the workplace such as fuel, electricity, and other sources of fire

- ✓ **What are the other factors that can worsen the ignition of fire in case of fire incident occurrences?**

Rationale: This question aims to identify the aggravating factors that can worsen the risk in the workplace (e.g. obstructed fire exit, absence of a pre-fire plan, absence of fire protection, etc.)

STEP 2: Identifying People at Risk

The context of step 2 focuses on vulnerability identification in the workplace or office set up.

- ✓ **Who could be at risk?**

Rationale: This assessment aims to identify the vulnerable person to be affected if the identified fire hazards cause a fire to break out.

- ✓ **What are the possible affected areas in your workplace?**

Rationale: This question seeks to determine the areas vulnerable in case the identified fire hazard causes a fire to break out.

STEP 3: Risk Evaluation

The context of step 3 focuses on risk mitigation and

capability assessment.

✓ **Who is tasked to assess the risk in the workplace?**

Rationale: This question aims to assess if there is an employee task to safeguard the workplace from fire hazards..

✓ **Have you kept the heat source and fuel separate?**

Rationale: This question aims to assess if there is a safety precaution in keeping away the things that can get burned and the heat source to prevent fire incidents in the workplace.

✓ **Have you protected your premises from accidental fire or arson?**

Rationale: This question aims to assess if there is the presence of flammable materials or sources of fire that are visible in the workplace. This assessment seeks to avoid the possibility of a fire accident or arson due to the presence of visible fire hazards within the workplace.

✓ **What is the extent of your fire safety in case of fire?**

Rationale: This part of step 3 questions the capability of the workplace fire safety readiness to ensure the safety of the occupants.

✓ **Is there a fire or smoke detector in your workplace?**

Rationale: This question aims to assess if there is a presence of a Fire Detection and Alarm System (FDAS) (e.g., smoke detector, heat detector, fire alarm control unit, or other FDAS) that can alert the occupants immediately in case of fire.

✓ **What is your plan to inform others immediately?**

Rationale: This question aims to determine if there is an existing communication plan or method to inform tenants immediately in case of fire.

✓ **Who will make sure everyone gets out?**

Rationale: This question seeks to identify if an employee is tasked with ensuring that their co-workers are all evacuated from their respective offices.

✓ **Who will call the fire service?**

Rationale: This question determines whether an employee is entrusted with calling the fire department or other authorities in the event of a fire in the workplace.

✓ **Are your workplace's fire safety features capable of putting the fire out immediately and preventing it from spreading?**

Rationale: This question seeks to assess if there is a presence of active fire protection (standpipe systems, sprinkler systems, fire hose reels, automatic fire-extinguishing systems, and fire extinguishers) and passive fire protection (firewalls, fire, and smoke dampers, fire doors or firestop materials.)

- ✓ Have you identified the exit routes in your workplace?
Rationale: This question assesses whether all the occupants know about their evacuation route.
- ✓ How can you make sure the employees find the exit even at night?
Rationale: This question aims to determine if there is a presence of lighting and exit markings in the establishments as prescribed by RA 9514.
- ✓ Do the employees in your workplace have the capability of using the available firefighting equipment?
Rationale: This question aims to assess if the employees are capable of using fire suppression equipment such as (fire extinguishers, fire blankets, or fire hose reels)
- ✓ Do safety features in your workplace work?
Rationale: This question seeks to assess if there is regular checking and maintenance of fire protection, AFSS, or FDAS in the establishment.

STEP 4: Record, Plan and Training

The context of step 4 focuses on documentation and knowledge and skills evaluation.

- ✓ Have you recorded those fire hazards and your actions taken?
Rationale: This question aims to determine if the actions to mitigate the fire hazards are well documented.
- ✓ Have you made any pre-fire plans? Does everyone in your workplace already know about the plan?
Rationale: This question aims to determine if there is established pre-fire planning in their workplaces and if it is disseminated among all employees.
- ✓ Are employees in your workplace trained?
Rationale: This part of step 4 questions the capability and familiarization of the employees with the pre-fire planning.
- ✓ Are all your employees involved in the fire drill?
Rationale: This question aims to ensure that all of the employees have knowledge of the evacuation plan of the company and to identify the contribution of each individual in the evacuation process.
- ✓ Do you identify those staff assigned to implement fire prevention measures?
Rationale: This question aims to identify if there is an assigned employee to implement, evaluate, and ensure those safety measures indicated in the company's pre-fire planning and evacuation action plan.
- ✓ Is there an employee tasked with using fire safety

equipment?

Rationale: This question determines if an employee is assigned to use fire safety equipment such as fire alarms, fire extinguishers, fire hose reels, and other fire safety equipment.

✓ **Are they capable of doing their assigned task?**

Rationale: This question aims to confirm if there is regular conduct of an evacuation drill, skills inventory, or post-evacuation analysis in their respective workplaces.

✓ **Is anyone else in the building included in the plan?**

Rationale: This question aims to determine if the created evacuation action plan or pre-fire plan is disseminated to all employees.

STEP 5: Review

The context of step 5 focuses on the assessment of implementation and its sustainability.

✓ **Is your plan carried out?**

Rationale: This question aims to determine the status of a pre-fire planning or evacuation action plan that has been created, whether it has been implemented, is still in the process of completion, or has not been implemented.

✓ **Has it changed your work fire safety practices?**

Rationale: This question aims to determine if, after implementing a pre-fire plan or evacuation action plan, their employees' attitudes shift from uncooperative to resilient.

✓ **Does your plan continuously practice without supervision?**

Rationale: This question aims to determine if fire safety and resilience are routinely practiced in the workplace, even without supervision from higher-ups. (For instance, keeping the office clean, storing flammable goods properly, and avoiding overloading electrical equipment.)

III. Fire Code Provisions related to BPOs [3/3]

Classification of BPO

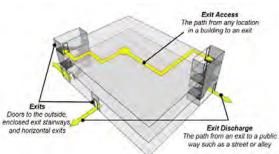
According to the RIRR of R.A. 9514, Rule 10.2.1 6.1. BPO is classified as business occupancy and as an ordinary hazard. For purposes of automatic fire suppression systems, an office occupancy shall be classified as “light hazard occupancy”.



Facilitator's Note [5/6]

Discuss the difference between exit access, exit, and exit discharge for a better understanding of the provisions discussed in the fire code

Keyword: Fire Code Provision Related to BPO and Related Occupancies



Source: www.access-board.gov
This photo illustrates the standard distribution of fire exits, exit discharge and exit access in a building establishment.

✓ Means of Egress

According to RIRR of RA 9514, or the New Fire Code of the Philippines, means of egress are defined as a continuous and unobstructed route of exit from one point in a building, structure, or facility to a public way consisting of three (3) distinct parts: exit, access, and exit discharge.

- » **Exit** - That portion of means of egress that is separated from all other spaces of a building or structure by construction, location, or equipment as required to provide a protected way of travel to the exit discharge.
- » **Exit Access** - That portion of means of egress that leads to an exit.
- » **Exit Discharge** - That portion of a means of egress between the termination of an exit and a public way.

> Number of Egress

According to RA 9514 Revised IRR 2019 Rule 10.2.16.2 Para D, the number of means of egress shall be not less than two (2) separate exits in every storey that are accessible to every part of the storey.

> Travel Distance

According to RA 9514 Revised IRR 2019 Rule 10.2.5.2, for a building protected by a sprinkler system, the travel distance must not exceed sixty-one meters (61m); otherwise, the travel distance shall not exceed forty-six meters (46 m).

> Discharge

According to RA 9514 Revised IRR 2019 Rule 10.2.5.2, exits shall terminate directly into a public way or exterior discharge that can provide occupants with adequate width and size of safe access to a public way, ensuring the means of egress shall be free from obstruction.

Talking Points: REMEMBER: Determining methods of egress is critical for business process outsourcing (BPOs) since most of their occupancy is high-rise, and they must provide appropriate exit space and correct distribution of fire exits in different portions of the building.

✓ Door

According to RA 9514 Revised IRR 2019, Rule 10.2.5.3, every door and principal entrance shall be designed and constructed so that exit travel is obvious and direct.

Talking Points: REMEMBER: BPOs had a huge number of employees, and a fire evacuation might cause congestion if the door did not swing correctly going outside.

✓ Lighting and Signs

According to RA 9514 Revised IRR 2019, Rule 10.2.5.12, any way of exit access that is likely mistaken as an exit shall be identified by a sign reading “NOT AN EXIT” and shall be located with size, color, and design that is readily visible. A sign with the word “EXIT” and an arrow indicating the direction of travel should be placed where the path to the nearest exit is not readily obvious.

Talking Points: REMEMBER: A fire creates an electrical outage, which may be difficult, especially at night, and smoke can obscure the vision of the fire exits, making it difficult for evacuees to reach the safe refuge. Furthermore, a fire may cause panic or confusion among the occupants, which is why signs and emergency lighting are critical, especially during evacuation.

✓ Protection of Vertical Openings

According to RIRR of R.A. 9514 Rule 10.2.16.3. vertical openings shall be enclosed or protected.

✓ Fire Detection, Alarm and Communication System

According to the RA 9514 Revised IRR 2019 Rule 10.2.16.3, occupancy shall be provided in all businesses if a building is two (2) or more storeys in height above the level of exit discharge. The occupancy is subject to fifty (50) or more occupants above or below the level of exit discharge. For existing buildings, the occupancy is subject to one hundred (100) or more occupants above or below the level of exit discharge. The occupancy is subject to three hundred (300) or more total occupants. For existing buildings, the occupancy is subject to one thousand (1,000) or more total occupants.

Talking Points: REMEMBER: It is important to install a fire detection and alarm system (FDAS) in a high-rise building setup to immediately inform the occupants if there is an occurrence of a fire breakout within the establishment so that the evacuation may be readily accomplished as the necessity arises.

✓ Automatic Fire Suppression System (AFSS)

According to RA 9514 Revised IRR 2019 Rule 10.2.16.3. All business occupancy buildings fifteen meters (15 m) or more in height shall be provided throughout with an approved, supervised sprinkler system, fully electrically supervised and designed following NFPA 13.

Talking Points: REMEMBER: Most of the BPOs are high-

Facilitator's Note [6/6]

REMEMBER: It is important to keep the vertical opening close to prevent further spread of fire on other floors; It must also be protected by an automatic fire suppression system to secure the safety of the occupants during evacuation.

rise in presentation; therefore, fire suppression is very complicated in high-rise setups that are beyond the reach of the ladder firetrucks. For that reason, an automatic fire suppression system is recommended at the height of the building.

✓ **Fire Extinguisher**

According to the RA 9514 Revised IRR 2019 Rule 10.2.6.9., the requirement for Low Hazards establishment is one unit per 200sqm, a travel distance of 15m, while in Moderate Hazards is one unit per 100sqm, a travel distance of 12m, and in High Hazards is one unit per 75sqm, 10m of max travel distance.

Talking Points: REMEMBER: In any circumstance, when a fire breaks out, the most ideal plan is to put it out as soon as possible. As a solution, the fire code suggests the optimal distance per number of fire extinguishers for immediate fire suppression.



✓ **Emergency Evacuation Plan**

According to RA 9514 Revised IRR 2019 Rule 10.2.5.13., an emergency evacuation plan must be placed in strategic and conspicuous locations containing the following basic information such as You Are Here/ room number/ building” Marking; Fire Exits; Primary Route to Exit (Nearest to the viewer); Secondary Route to Exit (Second nearest to the viewer); Fire alarm pull stations and annunciators; Fire extinguishers/ hose cabinets; Emergency Light; First Aid Kits locations (if applicable); Emergency Call stations (if applicable); Areas of safe refuge (for high-rise building); Assembly areas instructions; and “In Case of Emergency” instructions.

Talking Points: REMEMBER: The evacuation must adhere to the set sizes, have uniform markings, and be luminous to guarantee a clear visualization of the evacuation map in the event of unnecessary scenarios.

Keyword: Fire Evacuation Planning

Lesson 2.4

Business Process Outsourcing

Powerpoint and Visual Aids

FIRE SAFETY IN BUSINESS PROCESS OUTSOURCING

S-01

Can you guess the fire hazards in the picture?



HAZARDS

S-02

COMMON FIRE HAZARDS IN BPO

S-05

Can you guess the fire hazards in the picture?



COMMON FIRE HAZARDS IN BPO

Likewise, business process outsourcing (BPO) is described by Republic Act 9514, Revised Implementing Rules and Regulation 2019 Fire Code of the Philippines having an ordinary hazard and categorized as a business occupancy.

Hazards that exist in an BPOs and similar establishments which are the following:

S-06

S-07 COMMON FIRE HAZARDS IN BPO <p>Electrical Fires</p> 	S-11 COMMON FIRE HAZARDS IN BPO <p>Means of Egress Problems</p> 								
S-08 COMMON FIRE HAZARDS IN BPO <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #d3d3d3; padding: 5px;">HAZARDS</th> <th style="background-color: #d3d3d3; padding: 5px;">SAFETY MEASURES</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;"> <ul style="list-style-type: none"> • Overloading Power Sockets • Old or Faulty Electrical Equipment • Cables in vulnerable position • Poor maintenance of equipment • Frayed wires and faulty wirings </td> <td style="padding: 5px;"> <ul style="list-style-type: none"> • Checking to unplug electrical appliances before leaving the office • Avoid octopus connections or overloaded extension cords in the workplace. • Never use extension cords as permanent wiring. • Avoid using defective electrical appliances. • Keep wiring away from water sources, heat, and oils. • Inspect cords and outlets regularly. </td> </tr> </tbody> </table>	HAZARDS	SAFETY MEASURES	<ul style="list-style-type: none"> • Overloading Power Sockets • Old or Faulty Electrical Equipment • Cables in vulnerable position • Poor maintenance of equipment • Frayed wires and faulty wirings 	<ul style="list-style-type: none"> • Checking to unplug electrical appliances before leaving the office • Avoid octopus connections or overloaded extension cords in the workplace. • Never use extension cords as permanent wiring. • Avoid using defective electrical appliances. • Keep wiring away from water sources, heat, and oils. • Inspect cords and outlets regularly. 	S-12 COMMON FIRE HAZARDS IN BPO <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #d3d3d3; padding: 5px;">HAZARDS</th> <th style="background-color: #d3d3d3; padding: 5px;">SAFETY MEASURES</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;"> <ul style="list-style-type: none"> • Fire Exit are always open • Obstructed Fire Exit • Absence of Fire Exit </td> <td style="padding: 5px;"> <ul style="list-style-type: none"> • Keeping fire exits close to prevent rapid spread of fire in other parts of the building in case a fire breaks out. • Removal of obstruction in fire exits. • Provide an adequate number of fire exits as required by fire code. </td> </tr> </tbody> </table>	HAZARDS	SAFETY MEASURES	<ul style="list-style-type: none"> • Fire Exit are always open • Obstructed Fire Exit • Absence of Fire Exit 	<ul style="list-style-type: none"> • Keeping fire exits close to prevent rapid spread of fire in other parts of the building in case a fire breaks out. • Removal of obstruction in fire exits. • Provide an adequate number of fire exits as required by fire code.
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COMMON FIRE HAZARDS IN BPO

S-15

Human Factors


Bureau of Fire Protection

COMMON FIRE HAZARDS IN BPO

S-16

HAZARDS	SAFETY MEASURES
Lack of awareness to evacuation plan.	Conduct of regular fire evacuation and drill.
Lack of preparedness for possible fire incidents.	Information dissemination of pre-fire planning to the employees.
Lack of knowledge in fire safety features of the building.	Regular conduct of fire safety preparedness evaluation to the employees.
Evacuation plan does not integrate with the plan of other establishments in the building.	Involvement of occupants or representative of every establishment residing in the building.

RE SAFETY SK ASSESSMENT

S-19

STEP 1: Early Detection of Fire Hazards

- What are the possible sources of fire incident in your workplace?
- What are the other factors that can worse the ignition of fire incase of fire incident occurrences?

Bureau of Fire Protection

FIRE SAFETY RISK ASSESSMENT

S-17

FIRE SAFETY RISK ASSESSMENT

Bureau of Fire Protection

RE SAFETY SK ASSESSMENT

S-18

Workplace Risk Assessment

- STEP 1:** Early Detection of Fire Hazards
STEP 2: Identifying People at Risk
STEP 3: Risk Evaluation
STEP 4: Record, Plan and Train
STEP 5: Review

Health and Safety Executive – Five Stage Risk Assessment

RE SAFETY SK ASSESSMENT

S-21

STEP 3: Risk Evaluation

- Who is tasked to assess the risk in workplace?
- Have you kept the heat source and fuel separate?
- Have you protected your premises from accidental fire or arson?

Bureau of Fire Protection

RE SAFETY SK ASSESSMENT

S-19

Ensuring employee is safe in case of fire

- Is there a fire or smoke detection in your workplace?
- What are your plan to inform others immediately?
- Who will make sure everyone gets out?
- Who will call the fire service?
- Is your workplace's fire safety features capable to put the fire out immediately and prevent it to spread?

Bureau of Fire Protection

RE SAFETY SK ASSESSMENT

S-22

RE SAFETY SK ASSESSMENT

S-23

Evacuation Capability

- Have you identified the exit routes in your workplace?
- How can you make sure the employees find the exit even at night?
- Do the employees in your workplace have the capability of using the available firefighting equipment?
- Do safety features in your workplace work?

FIRE CODE PROVISIONS RELATED TO BPO

S-27

RE SAFETY SK ASSESSMENT

S-24

STEP 4: Record, Plan and Train

- Have you record those fire hazards, and your action taken?
- Have you made any pre-fire plans? Does everyone in your workplace already know about the plan?

RE CODE PROVISIONS RELATED TO BPO

S-28

Business Process Outsourcing (BPO) and other similar occupancy

According to RA 9514, or the Fire Code of the Philippines, means of egress are defined as a continuous and unobstructed route of exit from one point in a building, structure, or facility to a public way consisting of three (3) distinct parts: exit, access, and exit discharge.

RE SAFETY SK ASSESSMENT

S-25

Do employees in your workplace trained?

- Are all of your employees involved in the fire drill?
- Do you identify those staff assigned to implement fire prevention measures?
- Is there an employee tasked with using fire safety equipment?
- Are they capable of doing their assigned task?
- Is anyone else in the building included in the plan?

RE CODE PROVISIONS RELATED TO BPO

S-29

Means of Egress

According to RA 9514, or the Fire Code of the Philippines, means of egress are defined as a continuous and unobstructed route of exit from one point in a building, structure, or facility to a public way consisting of three (3) distinct parts: exit, access, and exit discharge.

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- **EXIT DISCHARGE** - That portion of a means of egress between the termination of an exit and a public way.

RE SAFETY SK ASSESSMENT

S-26

STEP 5: Review

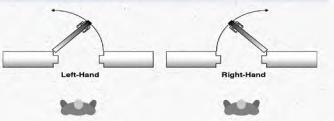
- Is your plan carried out?
- Had it change your work fire safety practices?
- Is your plan continuously practice even without supervision?

RE CODE PROVISIONS RELATED TO BPO

S-30

RE CODE PROVISIONS RELATED TO BPO		
Provision	Fire Code Provision	Fire Code Requirement
MEANS OF EGRESS		
Number of Egress	Section 10.2.16.2 para D	At least 2 exit remote from each other
Travel distance	Section 10.2.16.2 para F	Without supervised automatic sprinkler system - not exceeding 46m With supervised automatic sprinkler system - not exceeding 61m

RE CODE PROVISIONS RELATED TO BPO		
Requirement	Fire Code Provision	Fire Code Requirement
MEANS OF EGRESS		
Discharge	Section 10.2.5.2	Exits shall terminate directly into a public way or exterior discharge that can provide occupants with adequate width and size of safe access to a public way ensuring the means of egress shall be free from obstruction.

RE CODE PROVISIONS RELATED TO BPO		
Requirement	Fire Code Provision	Fire Code Requirement
MEANS OF EGRESS		
Door	Section 10.2.5.3	Doors in means of egress shall swing in the direction of exit travel 

RE CODE PROVISIONS RELATED TO BPO		
Requirement	Fire Code Provision	Fire Code Requirement
Lightings and Signs		
Requirement	Lightings and Signs	

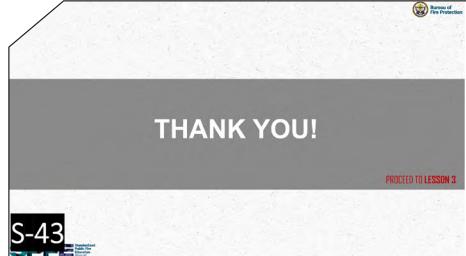
BPOs shall have:

- Signs designating exit or ways of travel.
Section 10.2.5.12 para A
- Exit lightings
Section 10.2.5.12 para B
- Emergency lightings
Section 10.2.5.11 para C

RE CODE PROVISIONS RELATED TO BPO		
Requirement	Automatic Fire Suppression System (AFSS)	
Fire Code Requirement	Building is 15m or more in height Section 10.2.16.3 para C	

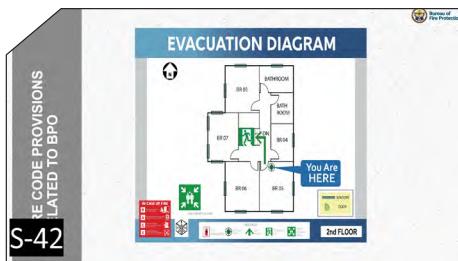
110 MODULE 8 Fire Safety for Business Establishments

Requirement	Fire Extinguisher
Fire Code Requirement	Low Hazards – One unit per 200 square meters, travel distance of 15m. Moderate Hazards – One unit per 100 square meters, travel distance of 12m. High Hazards – One unit per 75 square meters, 10m of max travel distance.
	<i>Section 10.2.6.9: para G</i>



		WATER	FOAM SPRAY	SODA POWDER	CHLORIDE	ACID CHEMICAL
Wood, Furniture etc.		✓	✓	✓	✗	✗
Flammable Liquid		✗	✓	✓	✓	✗
Flammable Gases		✗	✗	✓	✗	✗
Electrical Equipment		✗	✗	✓	✗	✗
Corrosive Substances		✗	✗	✗	✗	✓

Requirement	Emergency Evacuation Plan
Fire Code Requirement	<p>An emergency evacuation plan shall be posted on strategic and conspicuous locations in the building.</p> <p>This shall be drawn with a photo-luminous background to be readable in case of power failure.</p> <p>The wall mounted maps shall be oriented to correspond to the actual floor layout as perceived by the viewer.</p> <p>Section 10.2.5.13.</p>



Lesson 2.5

Fire Safety for Business Establishments

General Business Occupancy/ Offices (Government and Private), Private Educational Institutions' Business Ends



ILLUSTRATION BY: FO1 Christian Joedine Guañizo

General Business Occupancy

According to NFPA 101, general business occupancy refers to buildings or portions used for offices, banks, professional services, administrative services, or similar purposes that do not involve the manufacturing, processing, or storing hazardous materials. These occupancies typically involve low to moderate fire risks.



1. What is Hazard? [1/3]

Hazard is described as any situation that might potentially cause injury or be dangerous daily. It could be endangering or harming people, things, or the environment. Fire dangers are one of its most harmful kinds. Most of these risks may be found in the workplace, including bad practices and inadequate fire safety measures in occupancies.

Short Activity

- Instruction:** The lecturer will show image that presents scenario in a workplace and the participants will identify what hazards were present in the image.



Source: Industrydirections.com
This illustration shows different fire hazards in workplace set-up.

Facilitator's Note [2/8]

Ask the participants if the following fire hazards exist in their workplace and ask them their best practices to remove these hazards. Afterward, proceed with the discussion.

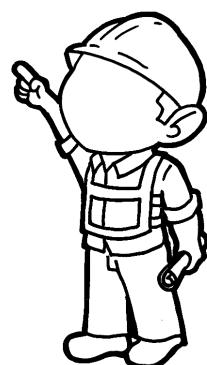


Source: www.bing.com
This illustration shows different bad practices that can aggravate fire in the workplace.

What are the common hazards that exist in the offices and similar establishments?

Likewise, Republic Act 9514, Revised Implementing Rules and Regulation 2019 Fire Code of the Philippines describes offices as an ordinary hazard and categorized as a business occupancy. Hazards that exist in an office and similar establishments are the following:

Hazards	Preventive Measures	Facilitator's Note [3/8]
Electrical Hazards It includes overloading power sockets, old or faulty electrical equipment, cables in vulnerable positions, poor maintenance of equipment, frayed wires, and faulty wirings.	Checking to unplug electrical appliances before leaving the office; Avoid octopus' connections or overloaded extension cords in the workplace; Never use extension cords as permanent wiring; Avoid using defective electrical appliances; Keep wiring away from water sources, heat, and oils; and Inspect cords and outlets regularly.	Provide different types of hazards in an office and similar occupancy types and discuss their corresponding preventive measures. In every discussion, verify if the participants practice these preventative measures. *Provide a picture or illustration of the below-mentioned hazards*
Poor Housekeeping It includes a poorly arranged workplace, improper storage of flammable materials, improper storage of files or items, storage exceeding required ceiling clearance, and an untidy or dusty workplace	Proper storage of flammable materials; Proper storage of materials and files in the workplace, including ceiling clearance; Keep the workplace always clean to remove possible fire hazards; Remove visible materials that can cause fire ignition; and always practice fire safety habits.	
Means of Egress Problems These include leaving the fire exit always open, obstructed fire exit, and absence of a fire exit.	Keeping fire exits close to prevent rapid spread of fire in the other parts of the building in case a fire breaks out; Removal of obstruction in fire exits; Provide an adequate number of fire exits as required by fire code.	
Lack of Fire Safety Features These are the problems such as untested fire detection and alarm system (FDAS), absence or defective emergency lights, absence of emergency signages or directional signs, absence of an emergency evacuation plan, absence of firefighting equipment such as fire extinguisher or fire	Conduct regular testing and maintenance of FDAS and AFSS. Comply with the requirements of the fire code, such as emergency lights, evacuation maps, signages, firefighting equipment, and other related provisions. Conduct regular preventive maintenance of firefighting equipment.	



Hazards	Preventive Measures
hose cabinet; and other fire safety measures required by the fire code.	
Human Factors These might include a lack of awareness of the evacuation plan, a lack of preparedness for possible fire incidents, a lack of knowledge of fire safety features of the building, and an evacuation plan not integrated with the building administration.	Conduct regular fire evacuation and drills.; Information dissemination of pre-fire planning to the employees; and regular conduct of fire safety preparedness evaluation to the employees.
Smoking The primary concern arises from the potential for a lit cigarette or tobacco product to ignite combustible materials.	Establish designated smoking areas outside the building, away from flammable materials.

Facilitator's Note [4/8]

Establish an interactive type of discussion with the participants and provide a series of questions (fire risk assessment) provided in the slides. Let the participants answer the given question. After that, provide supplemental advice and emphasize the necessity of it for their safety. The italic font after the questions explains its significance.

► 11. Workplace Risk Assessment [2/3]

"The Five Steps Risk Assessment is a systemic approach to conducting a risk assessment that is suitable for different types of workplaces. These five risk assessments were adopted by this module, which are: **early detection of fire hazards; identifying people at risk; risk evaluation; recording, planning, and training; and review.**

STEP 1: Early Detection of Fire Hazards

The context of step 1 focuses on early detection in the workplace.

- ✓ **What are the possible sources of fire incidents in your workplace?**

Rationale: This question aims to assess the possible fire hazards in the workplace such as fuel, electricity, and other sources of fire

- ✓ **What are the other factors that can worsen the ignition of fire in case of fire incident occurrences?**

Rationale: This question aims to identify the aggravating factors that can worsen the risk in the workplace (e.g. obstructed fire exit, absence of a pre-fire plan, absence of fire protection, etc.)



STEP 2: Identifying People at Risk

The context of step 2 focuses on vulnerability identification in the workplace or office set up.

✓ **Who could be at risk?**

Rationale: This assessment aims to identify the vulnerable person to be affected if the identified fire hazards cause a fire to break out.

✓ **What are the possible affected areas in your workplace?**

Rationale: This question seeks to determine the areas vulnerable in case the identified fire hazard causes a fire to break out.

STEP 3: Risk Evaluation

The context of step 3 focuses on risk mitigation and capability assessment.

✓ **Who is tasked to assess the risk in the workplace?**

Rationale: This question aims to assess if there is an employee task to safeguard the workplace from fire hazards..

✓ **Have you kept the heat source and fuel separate?**

Rationale: This question aims to assess if there is a safety precaution in keeping away the things that can get burned and the heat source to prevent fire incidents in the workplace.

✓ **Have you protected your premises from accidental fire or arson?**

Rationale: This question aims to assess if there is the presence of flammable materials or sources of fire that are visible in the workplace. This assessment seeks to avoid the possibility of a fire accident or arson due to the presence of visible fire hazards within the workplace.

✓ **What is the extent of your fire safety in case of fire?**

Rationale: This part of step 3 questions the capability of the workplace fire safety readiness to ensure the safety of the occupants.

✓ **Is there a fire or smoke detector in your workplace?**

Rationale: This question aims to assess if there is a presence of a Fire Detection and Alarm System (FDAS) (e.g., smoke detector, heat detector, fire alarm control unit, or other FDAS) that can alert the occupants immediately in case of fire.

✓ **What is your plan to inform others immediately?**

Rationale: This question aims to determine if there is an existing communication plan or method to inform tenants immediately in case of fire.

✓ **Who will make sure everyone gets out?**

Rationale: This question seeks to identify if an employee is tasked with ensuring that their co-workers are all evacuated from their respective offices.

✓ Who will call the fire service?

Rationale: This question determines whether an employee is entrusted with calling the fire department or other authorities in the event of a fire in the workplace.

✓ Are your workplace's fire safety features capable of putting the fire out immediately and preventing it from spreading?

Rationale: This question seeks to assess if there is a presence of active fire protection (standpipe systems, sprinkler systems, fire hose reels, automatic fire-extinguishing systems, and fire extinguishers) and passive fire protection (firewalls, fire, and smoke dampers, fire doors or firestop materials.)

✓ Have you identified the exit routes in your workplace?

Rationale: This question assesses whether all the occupants know about their evacuation route.

✓ How can you make sure the employees find the exit even at night?

Rationale: This question aims to determine if there is a presence of lighting and exit markings in the establishments as prescribed by RA 9514.

✓ Do the employees in your workplace have the capability of using the available firefighting equipment?

Rationale: This question aims to assess if the employees are capable of using fire suppression equipment such as (fire extinguishers, fire blankets, or fire hose reels)

✓ Do safety features in your workplace work?

Rationale: This question seeks to assess if there is regular checking and maintenance of fire protection, AFSS, or FDAS in the establishment.

STEP 4: Record, Plan and Training

The context of step 4 focuses on documentation and knowledge and skills evaluation.

✓ Have you recorded those fire hazards and your actions taken?

Rationale: This question aims to determine if the actions to mitigate the fire hazards are well documented.

✓ Have you made any pre-fire plans? Does everyone in your workplace already know about the plan?

Rationale: This question aims to determine if there is established pre-fire planning in their workplaces and if it is disseminated among all employees.

✓ Are employees in your workplace trained?

Rationale: This part of step 4 questions the capability and familiarization of the employees with the pre-fire

planning.

✓ **Are all your employees involved in the fire drill?**

Rationale: This question aims to ensure that all of the employees have knowledge of the evacuation plan of the company and to identify the contribution of each individual in the evacuation process.

✓ **Do you identify those staff assigned to implement fire prevention measures?**

Rationale: This question aims to identify if there is an assigned employee to implement, evaluate, and ensure those safety measures indicated in the company's pre-fire planning and evacuation action plan.

✓ **Is there an employee tasked with using fire safety equipment?**

Rationale: This question determines if an employee is assigned to use fire safety equipment such as fire alarms, fire extinguishers, fire hose reels, and other fire safety equipment.

✓ **Are they capable of doing their assigned task?**

Rationale: This question aims to confirm if there is regular conduct of an evacuation drill, skills inventory, or post-evacuation analysis in their respective workplaces.

✓ **Is anyone else in the building included in the plan?**

Rationale: This question aims to determine if the created evacuation action plan or pre-fire plan is disseminated to all employees.

STEP 5: Review

The context of step 5 focuses on the assessment of implementation and its sustainability.

✓ **Is your plan carried out?**

Rationale: This question aims to determine the status of a pre-fire planning or evacuation action plan that has been created, whether it has been implemented, is still in the process of completion, or has not been implemented.

✓ **Has it changed your work fire safety practices?**

Rationale: This question aims to determine if, after implementing a pre-fire plan or evacuation action plan, their employees' attitudes shift from uncooperative to resilient.

✓ **Does your plan continuously practice without supervision?**

Rationale: This question aims to determine if fire safety and resilience are routinely practiced in the workplace, even without supervision from higher-ups. (For instance, keeping the office clean, storing flammable goods properly, and avoiding overloading electrical equipment.)



III. Fire Code Provisions related to Offices [3/3]

Talking Points: Determining methods of egress is critical for offices since most of their occupancy is high-rise, and they need to provide appropriate exit space and correct distribution of fire exits in different portions of the building. As a result, methods of egress are regarded as one of the most essential aspects in offices and other similar occupancies.

Keywords: Fire Code Provision Related to; Offices and Related Occupancies

✓ Means of Egress

It is a continuous and unobstructed exit route from one point in a building, structure, or facility to a public way consisting of three (3) distinct parts: exit, access, and exit discharge. **EXIT** is the portion of means of egress separated from all other parts of the building or structure by construction, location, or equipment as required to provide a protected way of travel to the exit discharge. **EXIT ACCESS** is the portion of means of egress that leads to an exit. **EXIT DISCHARGE** is the portion of a means of escape between the termination of an exit and a public way.

- » **Exit** - That portion of means of egress that is separated from all other spaces of a building or structure by construction, location, or equipment as required to provide a protected way of travel to the exit discharge.
- » **Exit Access** - That portion of means of egress that leads to an exit.
- » **Exit Discharge** - That portion of a means of egress between the termination of an exit and a public way.

> Number of Egress

According to RA 9514 Revised IRR 2019 Rule 10.2.16.2 Para D, the number of means of egress shall be not less than two (2) separate exits in every storey that are accessible to every part of the storey.

> Travel Distance

The distance to be travelled from the remotest point on a building floor to a place of safety, be it a protected escape route, external escape route, or final exit, i.e., vertical exit, horizontal exit, or an outside exit measured along the line of travel.

According to RA 9514 Revised IRR 2019 Rule 10.2.5.2, buildings protected throughout by an approved, supervised sprinkler system per Rule 10.2.6.7 of

this IRR, the travel distance shall not exceed sixty-one meters (61 m). For buildings other than those complying with para 1 above, the travel distance, measured per Section 10.2.5.2 of this IRR, shall not exceed forty-six meters (46 m).

➢ **Discharge**

According to RA 9514 Revised IRR 2019 Rule 10.2.5.2 para M, all exits shall terminate directly at a public way or an exterior exit discharge. Yards, courts, open space, or other portions of the exit discharge shall be of the required width and size to provide all occupants with safe access to a public way and be per NFPA 101, Life Safety Code concerning changes in elevation, stairs, ramps, or keeping means of egress free from obstruction.

According to RA 9514 Revised IRR 2019 Rule 10.2.16.2 para G, the exits may also discharge on the areas of the floor exit discharge provided the following are met: First, discharge going outside of the building is not more than 6 meters distance, that is, readily visible from the exit towards the discharge. Second, the floor of release into which the exit discharge is provided with an automated fire suppression system and other portion of the level of discharge with access to the discharge area is equipped with an automatic fire suppression system or separated from it per the requirements for the enclosure of exit in Rule 10.2.5.2 of this RIRR. Lastly, the entire area on the discharge floor is separated from the locations below by construction with at least a 2-hour fire resistance rating.

Talking Points: Offices had many employees, and a fire evacuation might cause congestion if the door did not swing correctly going outside to avoid stampede circumstances like the infamous fire occurrence in the past.

✓ **Door**

A fire door is a specially designed part of a building's passive fire protection system. Fire and smoke spread prevention is the primary purpose within a structure, allowing people to evacuate safely and protecting property by containing the fire in a specific area for a designated period. Fire doors are made from fire-resistant materials and have particular features to enhance their fire-resistant capabilities.

A door typically required to be kept closed shall be installed or equipped with an automatic door closer that, upon release of the hold-open mechanism, the door becomes self-closing. The release device is designed so that the door instantly releases manually and, upon release, becomes self-closing, or the door can be readily closed.

According to RA 9514 Revised IRR 2019 Rule 10.2.5.3, every door and principal entrance required to be used as an exit must be designed and constructed so that exit travel is obvious and direct.

Talking Points: A fire occurrence creates an electrical outage, which may be difficult, especially at night, and smoke can obscure the vision of the fire exits, making it difficult for evacuees to reach the safe refuge. Furthermore, a fire may cause panic or confusion among the occupants, so signs and emergency lighting are critical, especially during evacuation.

✓ Lighting and Signs

According to RA 9514 Revised IRR 2019 Rule 10.2.5.12 para A, any door, passage, or stairway which is neither an exit nor a way of exit access and which is so located or arranged as likely to be mistaken for an exit door shall be identified by a sign reading "NOT AN EXIT." It shall be determined by a sign indicating its actual character, such as "TO BASEMENT," "STOREROOM," "LINEN CLOSET," or the like. Every required signage for exit or way of exit access shall comply with the required size, color, location, and design to be readily visible. A sign reading "EXIT" with an arrow indicating the direction shall be placed in every area where the way to reach the nearest exit is not apparent and direct.

✓ Protection of Vertical Openings

According to RIRR of R.A. 9514 Rule 10.2.16.3. vertical openings shall be enclosed or protected.

✓ Emergency Lighting

According to RA 9514 Revised IRR 2019 Rule 10.2.5.11 para C, A lifeline in hazardous situations created by this complicated backdrop. Crucially, it enables the safe, prompt, and efficient evacuation of spaces and buildings, not only in cases caused by power outages but also when sunlight and main lighting may not be available.

✓ Fire Exit Signs

According to RA 9514 Revised IRR 2019 Rule 10.2.5.12 para A, They are part of an emergency evacuation system that guides people in public buildings or buildings (either residential or commercial) where there are many people to the closest exit so they can leave the building safely.

According to RA 9514 Revised IRR 2019 Rule 10.2.5.12 para B, the fundamental function of lighted LED exit

signs is to allow you to find the exit or emergency egress route in an emergency. Many times, a power outage can be the result of a fire in the building.

Talking Points: It is essential to install a fire detection and alarm system (FDAS) in a high-rise building set-up to immediately inform the occupants if there is an occurrence of a fire breakout within the establishment so that the evacuation may be readily accomplished as the necessity arises.

✓ **Fire Detection, Alarm and Communication System**

According to RA 9514 Revised IRR 2019 Rule 10.2.16.3. Para D, a fire alarm system per Section 10.2.6.4 of this RIRR shall be provided in all businesses where any of the following conditions exist: First, the structure is two (2) or more floors above the level of exit discharge. Second, the occupancy is subject to fifty (50) or more occupants above or below the level of exit discharge. For existing buildings, the occupancy is subject to one hundred (100) or more occupants above or below the level of exit discharge;

And lastly, the occupancy is subject to three hundred (300) or more total occupants. The occupancy is subject to one thousand (1,000) or more total occupants for existing buildings.

The fire detection, alarm, and communication system is composed of equipment that made up the system, which includes automatic detectors, Audio and visual Alarms, Annunciators, Manual Call points, and a Control panel that helps to detect and alert the occupants in the occurrence of a fire emergency.

- **Manual Fire Alarm Initiating Devices** - Manual initiating devices are critical components of a fire alarm system that must be operated manually. One of the most common fire alarm-initiating devices is a manual pull station that must be used by pulling down a lever or pressing a button.
- **Automatic Fire Alarm Initiating Devices** - Automatic initiating devices are critical parts of a fire alarm system that automatically activate after detecting heat, smoke, or fire. These devices are essential in quickly identifying and responding to a fire before it develops or spreads, ensuring the safety of a building and its occupants.

Talking Points: Most offices are high-rise in presentation; therefore, fire suppression is very complicated in high-rise set-ups beyond the reach of the ladder firetrucks. For that reason, an automatic fire suppression system is recommended at the height of the building.

✓ Automatic Fire Suppression System (AFSS)

According to RA 9514 Revised IRR 2019 Rule 10.2.16.3. All business occupancy buildings fifteen meters (15 m) or more in height shall be provided throughout with an approved, supervised sprinkler system, fully electrically supervised and designed following NFPA 13.

Talking Points: When a fire breaks out, the ideal plan is to put it out as soon as possible. As a solution, the fire code suggests the optimal distance per number of fire extinguishers for immediate fire suppression.

✓ Fire Extinguisher

A portable fire extinguisher, by definition, is an item of equipment to extinguish a fire. The reality is, however, that a portable fire extinguisher is effective only for the type and size of a fire that it is rated for.

All buildings, structures, and facilities shall be installed with portable fire extinguishers designed, installed, and maintained per this Section. Fire extinguishers shall be installed even if the property has automatic sprinklers, standpipes, hoses, or other fixed fire protection equipment. A fire extinguisher is a portable or movable apparatus used to put out a small fire by directing onto it a substance that cools the burning material, deprives the flame of oxygen, or interferes with the chemical reactions occurring in the flame.

According to the National Fire Protection Association (NFPA), fire extinguishers provide a first line of defense against small fires. Their primary objective is to control or extinguish fires before they can escalate and cause significant damage or threaten human life. According to RA 9514 Revised IRR 2019 Rule 10.2.6.9. Para G, Low Hazards – should install one unit per 200 square meters, travel distance of 15m. For Moderate Hazards – One unit per 100 square meters, travel distance of 12m. And for High Hazards – One unit per 75 square meters, 10m of max travel distance.

✓ Standpipe System

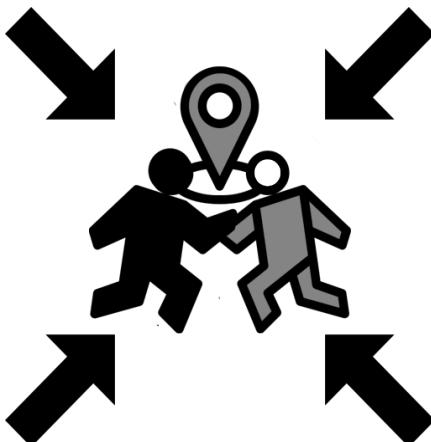
According to RA 9514 Revised IRR 2019 Rule 10.2.6.8 para A, it is a system of vertical piping to which fire hoses can be attached on each floor, including a method by which water is made available to water outlets as needed and required to business occupancies with four or more storeys in height.

✓ Emergency Evacuation Plan

According to RA 9514 Revised IRR 2019 Rule 10.2.5.13., an emergency evacuation plan must be placed in strategic and conspicuous locations containing the following basic information such as You Are Here/ room number/building" Marking; Fire Exits; Primary Route to Exit (Nearest to the viewer); Secondary Route to Exit (Second nearest to the viewer); Fire alarm pull stations and annunciations; Fire extinguishers/ hose cabinets; Emergency Light; First Aid Kits locations (if applicable); Emergency Call stations (if applicable); Areas of safe refuge (for high-rise building); Assembly areas instructions; and "In Case of Emergency" instructions.

Talking Points: REMEMBER: The evacuation must adhere to the set sizes, have uniform markings, and be luminous to guarantee a clear visualization of the evacuation map in the event of unnecessary scenarios.

Keyword: Fire Evacuation Planning



Lesson 2.5

General Business Occupancy / Offices (Government or Private), Private Educational Institutions' Business End

Powerpoint and Visual Aids

FIRE SAFETY IN
GENERAL BUSINESS OCCUPANCY / OFFICES
(GOVERNMENT OR PRIVATE), PRIVATE
EDUCATIONAL INSTITUTIONS'S BUSINESS END

S-01



S-04

HAZARDS

S-02

COMMON FIRE HAZARDS
IN OFFICES AND OTHER
SIMILAR ESTABLISHMENTS

S-05

Can you
guess the
fire hazards
in the
picture?



S-03

COMMON FIRE HAZARDS

Likewise, offices is described by Republic Act 9514, Revised Implementing Rules and Regulation 2019 Fire Code of the Philippines having an ordinary hazard and categorized as a business occupancy.

Hazards that are exist in an offices and similar establishments which are the following:

COMMON FIRE HAZARDS
S-07**Electrical Fires****COMMON FIRE HAZARDS**
S-08**Possible Electrical Hazard in Office Setting**

- Overloading Power Sockets
- Old or Faulty Electrical Equipment
- Cables in vulnerable position
- Poor maintenance of equipment
- Frayed wires and faulty wirings

COMMON FIRE HAZARDS
S-10**Poor Housekeeping****COMMON FIRE HAZARDS**
S-11**Poor Housekeeping Hazard in office Setting**

- Poorly arranged workplace
- Improper storage of flammable materials
- Improper storage of files or items
- Storage exceeds required ceiling clearance
- Untidy or dusty work place

COMMON FIRE HAZARDS
S-12**Preventive Measures**

- Proper storage of flammable materials
- Proper storage of materials and files in the workplace, including ceiling clearance,
- Keep the workplace always clean Removal of visible materials that can cause the ignition of fire
- Always practice fire safety habits in the workplace.

COMMON FIRE HAZARDS
S-13**Smoking****COMMON FIRE HAZARDS**
S-14**Smoking in Offices**

- Careless Disposal of Smoking Materials.
- Improper Use of Ashtrays

<p>COMMON FIRE HAZARDS</p> <p>S-15</p> <p>Preventive Measures</p> <ul style="list-style-type: none"> Establishing designated smoking areas Using deep, sturdy ashtrays Completely extinguishing smoking materials before disposing 	<p>COMMON FIRE HAZARDS</p> <p>S-19</p> <p>Lack of Fire Safety Features</p> 
<p>COMMON FIRE HAZARDS</p> <p>S-16</p> <p>Means of Egress Problems</p> 	<p>COMMON FIRE HAZARDS</p> <p>S-20</p> <p>Lack of Fire Safety in Office Setting</p> <ul style="list-style-type: none"> Untested Fire Detection and Alarm System (FDAS) Absence or Defective Emergency Lights Absence of Emergency Signage/Absence of Emergency Evacuation Plan Absence of Firefighting Equipment and other fire safety measures required by the Fire Code
<p>COMMON FIRE HAZARDS</p> <p>S-17</p> <p>Means of Egress Problems in Office Setting</p> <ul style="list-style-type: none"> Fire Exit are always open Obstructed Fire Exit Absence of Fire Exit 	<p>COMMON FIRE HAZARDS</p> <p>S-21</p> <p>Preventive Measures</p> <ul style="list-style-type: none"> Conduct regular testing and maintenance of FDAS and AFSS. Comply with the requirement of fire code such as emergency lights, evacuation map, signages, firefighting equipment and other related provisions. Conduct regular preventive maintenance of firefighting equipment.
<p>COMMON FIRE HAZARDS</p> <p>S-8</p> <p>Preventive Measures</p> <ul style="list-style-type: none"> Keeping fire exits close to prevent fire conflagration in case a fire breaks out. Removal of obstruction in fire exits. Provide an adequate number of fire exits as required by fire code. 	<p>COMMON FIRE HAZARDS</p> <p>S-22</p> <p>Human Factors</p> 

COMMON FIRE HAZARDS

S-23

Human Factors

- Lack of awareness to evacuation plan
- Lack of preparedness for possible fire incidents
- Lack of knowledge in fire safety features of the building
- Evacuation plan does not match with the plan of building administration



COMMON FIRE HAZARDS

S-24

Preventive Measures

- Conduct of regular fire evacuation and drill.
- Information dissemination of pre-fire planning to the employees.
- Regular conduct of fire safety preparedness evaluation to the employees.



RE SAFETY RISK ASSESSMENT

S-26



FIRE SAFETY RISK ASSESSMENT



RE SAFETY RISK ASSESSMENT

S-27

STEP 1: Early Detection of Fire Hazards

- What are the possible sources of fire incident in your workplace?
- What are the other factors that can worse the ignition of fire incase of fire incident occurrences?



RE SAFETY RISK ASSESSMENT

S-28

STEP 2: Identifying People at Risk

- Who could be at risk?
- What are the possible affected areas in your workplace?



RE SAFETY RISK ASSESSMENT

S-25

STEP 3: Risk Evaluation

- Who is tasked to assess the risk in workplace?
- Have you kept the heat source and fuel separate?
- Have you protected your premises from accidental fire or arson?



RE SAFETY RISK ASSESSMENT

S-29

Workplace Risk Assessment

- STEP 1: Early Detection of Fire Hazards
- STEP 2: Identifying People at Risk
- STEP 3: Risk Evaluation
- STEP 4: Record, Plan and Train
- STEP 5: Review

Health and Safety Executive – Five Steps Risk Assessment

Ensuring employee is safe in case of fire

- Is there a fire or smoke detection in your workplace?
- What are your plan to inform others immediately?
- Who will make sure everyone gets out?
- Who will call the fire service?
- Is your workplace's fire safety features capable to put the fire out immediately and prevent it to spread?



RE SAFETY RISK ASSESSMENT

S-30

STEP 4: Record, Plan and Train

- What are the possible sources of fire incident in your workplace?
- What are the other factors that can worse the ignition of fire incase of fire incident occurrences?



RE SAFETY ASSESSMENT

S-31

Evacuation Capability

- Have you identified the exit routes in your workplace?
- How can you make sure the employees find the exit even at night?
- Do you have the capability of using the available firefighting equipment?
- Do safety features in your workplace work?

RE SAFETY ASSESSMENT

S-32

**STEP 4:
Record, Plan and Train**

- Have you record those fire hazards, and your action taken?
- Have you made any pre-fire plans? Does everyone in your workplace already know about the plan?

RE SAFETY ASSESSMENT

S-33

Do employees in your workplace trained?

- Are all of your employees involved in the fire drill?
- Do you identify those staff assigned to implement fire prevention measures?
- Is there an employee tasked with using fire safety equipment?
- Are they capable of doing their assigned task?
- Is anyone else in the building included in the plan?

RE SAFETY ASSESSMENT

S-34

**STEP 5:
Review**

- Is your plan carried out?
- Had it change your work fire safety practices?
- Is your plan continuously practice even without supervision?

Bureau of Fire Protection

FIRE CODE PROVISIONS RELATED TO OFFICES



S-35

Bureau of Fire Protection

RE CODE PROVISIONS

S-36

Business Process Outsourcing (BPO) and other similar occupancy

Section 10.2.16.1.

Classified BPOs as Business occupancy. The contents of this type of occupancy shall be classified as ordinary hazard. For purposes of the design of an automatic fire suppression system, an office occupancy shall be classified as "light hazard occupancy".

Bureau of Fire Protection

RE CODE PROVISIONS

S-37

Parts of Means of Egress



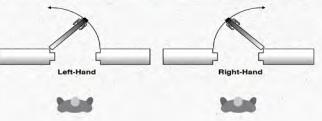
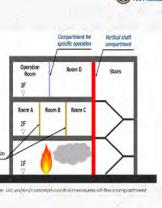
EXIT
EXIT ACCESS
EXIT DISCHARGE

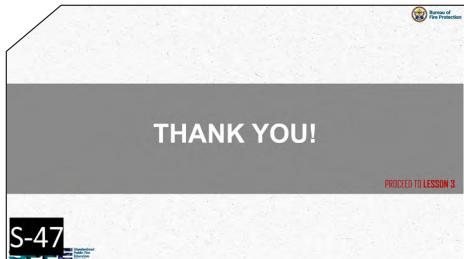
Bureau of Fire Protection

RE CODE PROVISIONS

S-38

Provision	Fire Code Provision	Fire Code Requirement
MEANS OF EGRESS		
Number of Egress	Section 10.2.16.2 Para D	At least 2 exit remote from each other
Travel distance	Section 10.2.16.2 Para F	Without supervised automatic sprinkler system – not exceeding 46m With supervised automatic sprinkler system – not exceeding 61m

RE CODE PROVISIONS		
Requirement	Fire Code Provision	Fire Code Requirement
MEANS OF EGRESS		
Discharge	Section 10.2.16.2 para G	<p>Section 10.2.5.2 para M</p> <p>Terminate directly in a public way or at an exterior exit discharge.</p> <ul style="list-style-type: none"> • Free and unobstructed way to the exterior of the building by not more than 4m. • floor of exit discharge is provided with AFSS • Exit floor of discharge is separated from areas below by construction having a minimum fire resistance rating of two (2) hours.
S-39		
RE CODE PROVISIONS		
Requirement	Fire Code Provision	Fire Code Requirement
Door	Section 10.2.5.3	Doors in means of egress shall swing in the direction of exit travel
		
S-40		
RE CODE PROVISIONS		
Requirement	Fire Code Provision	Fire Detection and Alarm System
Components		
S-44		
RE CODE PROVISIONS		
Requirement	Lightings and Signs	
Fire Code Requirement	<p>BPOs shall have:</p> <p>Signs designating exit or ways of travel: Section 10.2.5.12 para A</p> <p>Exit lightings Section 10.2.5.12 para B</p> <p>Emergency lightings Section 10.2.5.11 para C</p>	
S-41		
RE CODE PROVISIONS		
Requirement	Automatic Fire Suppression System (AFSS)	
Fire Code Requirement	Building is 15m or more in height Section 10.2.16.3, para C	
S-45		
RE CODE PROVISIONS		
Requirement	Protection of Vertical Openings	
Fire Code Requirement	Vertical openings shall be enclosed or protected Section 10.2.16.3, para A	
S-42		
RE CODE PROVISIONS		
Requirement	Fire Extinguisher	
Fire Code Requirement	<p>Low Hazards – One unit per 200 square meters, travel distance of 15m</p> <p>Moderate Hazards – One unit per 100 square meters; travel distance of 12m.</p> <p>High Hazards – One unit per 75 square meters, 10m of max travel distance.</p>	<p>Section 10.2.6.9, para G</p>
S-46		



Lesson 2.6

Fire Safety for Business Establishments

Residential Occupancies

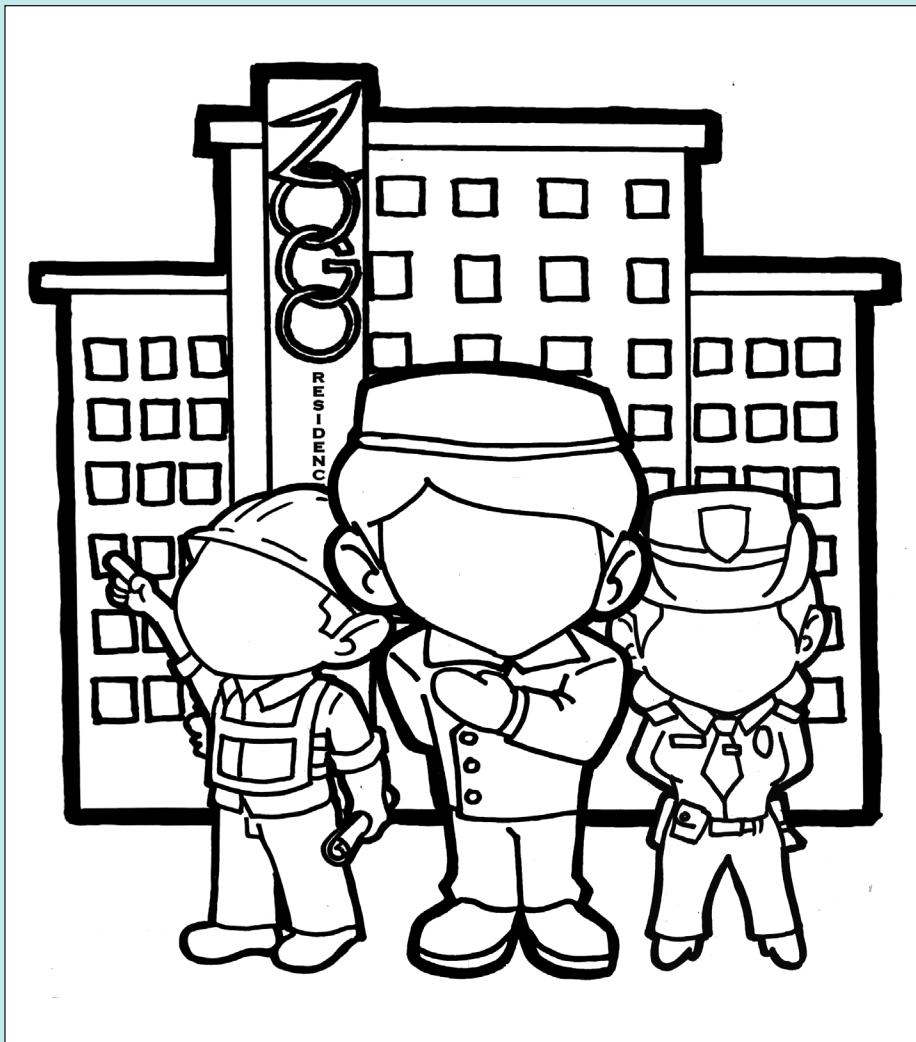


ILLUSTRATION BY: FO1 Christian Joedine Guañizo

Facilitator's Note [1/8]

Identify your audiences and what sub-classification of residential occupancy they belong to before proceeding and presenting examples.

For example, if you are dealing with a Hotel, use the terms and example photos appropriately. And so on.

► *What is Residential Occupancy?*

According to RA 9514 The New Fire Code of the Philippines, Revised Implementing Rules and Regulations 2019, Residential occupancies are those in which sleeping accommodations are provided for regular residential purposes and include all buildings designed to provide sleeping accommodation.

Sub-Classifications:

- ✓ **Hotels** - Buildings or groups of buildings under the same management in which there are more than fifteen (15) sleeping accommodations for hire, primarily used by transients who are lodged with or without meals, whether designated as a hotel, inn, motel, or by any other name. So-called apartelle, condotel, or pension houses shall be classified as hotels because they are potentially subject to transient occupancy like hotels.
- ✓ **Dormitories** - Buildings where group sleeping accommodations are provided for persons not members of the same family group, in a room or closely associated rooms under joint occupancy and one management, like college dormitories, convents, military barracks, fraternity houses, and the like.
- ✓ **Apartment Buildings** - Buildings containing three (3) or more living units with independent cooking and bathroom facilities, whether apartment house, garden apartment, or by any other name.
- ✓ **Lodging or Room Houses** - Building in which separate sleeping rooms are rented, providing sleeping accommodations for a total of fifteen (15) or fewer persons, on either a short-term or permanent basis, with or without meals, but no separate cooking facilities for individual occupants.

1. What is Hazard? [1/3]



Hazard is described as any situation that might potentially cause injury or be dangerous daily. It could be endangering or harming people, things, or the environment. Fire dangers are one of its most harmful kinds. Most of these risks may be found in the workplace, including harmful practices and inadequate fire safety measures in occupancies.

Short Activity

- Instruction: Spot the Fire Hazards in Hotel Setup



Facilitator's Note [2/8]

Let the audience identify the following fire hazards existing in the workplace, then let them discuss what they had seen in the picture.

Ask the participants if the following fire hazards exist in their workplace and ask them their best practices to remove these hazards. Afterward, proceed with the discussion.

What are the common hazards that Exist in Residential establishments?

Likewise, Hotels are described by Republic Act 9514, Revised Implementing Rules and Regulation 2019 Fire Code of the Philippines as an ordinary hazard and categorized as residential occupancy. Hazards that are existing in a hotel and similar establishments are the following:

Hazards

Preventive Measures

Electrical Hazards

It includes overloading power sockets, old or faulty electrical equipment, cables in vulnerable positions, poor maintenance of equipment, frayed wires, and faulty wirings.

Checking to unplug electrical appliances before leaving the office; Avoid octopus' connections or overloaded extension cords in the workplace; Never use extension cords as permanent wiring; Avoid using defective electrical appliances; Keep wiring away from water sources, heat, and oils; and Inspect cords and outlets regularly.

Poor Housekeeping

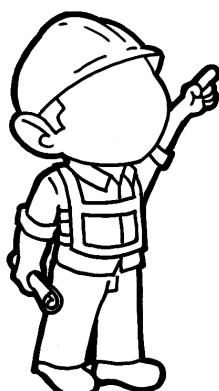
It includes a poorly arranged workplace, improper storage of flammable materials, improper storage of files or items, storage exceeding required ceiling clearance, and an untidy or dusty workplace.

Proper storage of flammable materials; Proper storage of materials and files in the workplace, including ceiling clearance; Keep the workplace always clean to remove possible fire hazards; Remove visible materials that can cause fire ignition; and always practice fire safety habits.

Facilitator's Note [3/8]

Provide different types of hazards in a hotel and similar occupancy types and discuss their corresponding preventive measures. In every discussion, verify if the participants practice these preventative measures.

Hazards	Preventive Measures
Means of Egress Problems These include leaving the fire exit always open, obstructed fire exit, and absence of a fire exit.	Keeping fire exits close to prevent rapid spread of fire in the other parts of the building in case a fire breaks out; Removal of obstruction in fire exits; Provide an adequate number of fire exits as required by fire code.
Lack of Fire Safety Features These are the problems such as untested fire detection and alarm system (FDAS), absence or defective emergency lights, absence of emergency signages or directional signs, absence of an emergency evacuation plan, absence of firefighting equipment such as fire extinguisher or fire hose cabinet; and other fire safety measures required by the fire code.	Conduct regular testing and maintenance of FDAS and AFSS. Comply with the requirements of the fire code, such as emergency lights, evacuation maps, signages, firefighting equipment, and other related provisions. Conduct regular preventive maintenance of firefighting equipment.
Human Factors These might include a lack of awareness of the evacuation plan, a lack of preparedness for possible fire incidents, a lack of knowledge of fire safety features of the building, and an evacuation plan not integrated with the building administration.	Conduct regular fire evacuation and drills.; Information dissemination of pre-fire planning to the employees; and regular conduct of fire safety preparedness evaluation to the employees.
Smoking The primary concern arises from the potential for a lit cigarette or tobacco product to ignite combustible materials.	Establish designated smoking areas outside the hotel, away from flammable materials. Avoid smoking when drowsy or under the influence of alcohol.
Cooking / Open Flame It includes unattended cooking, grease deposits, and improper use of cooking equipment.	Proper storage of flammable materials; Proper storage of materials and files in the workplace, including ceiling clearance; Keep the workplace always clean to remove possible fire hazards; Removal of visible materials that can



II. Risk Assessment [2/3]

The Five Steps Risk Assessment is a systemic approach to conducting a risk assessment that is suitable for different types of workplaces. These five risk assessments were adopted by this module, which are: **early detection of fire hazards; identifying people at risk; risk evaluation; recording, planning, and training; and review.**

STEP 1: Early Detection of Fire Hazards

The context of step 1 focuses on early detection in the workplace or place of residence.

- ✓ **What are the possible sources of fire incidents in your workplace / place of residence?**

Rationale: This question aims to assess the possible fire hazards in the workplace or residence such as fuel, electricity, and other sources of fire.

- ✓ **What are the other factors that can worsen the ignition of fire in case of fire incident occurrences?**

Rationale: This question aims to identify the aggravating factors that can worsen the risk in the workplace or residence (e.g. obstructed fire exit, absence of a pre-fire plan, absence of fire protection, etc.)

STEP 2: Identifying People at Risk

The context of step 2 focuses on vulnerability identification in the workplace or place of residence.

- ✓ **Who could be at risk?**

Rationale: This assessment aims to identify the vulnerable person to be affected if the identified fire hazards cause a fire to break out.

- ✓ **What are the possible affected areas in your workplace or residence?**

Rationale: This question seeks to determine the areas vulnerable in case the identified fire hazard causes a fire to break out.

STEP 3: Risk Evaluation

The context of step 3 focuses on risk mitigation and capability assessment.

- ✓ **Who is tasked to assess the risk in the workplace or place of residence?**

Rationale: This question aims to assess if there is a designated individual task to safeguard the area from fire hazards.

- ✓ **Have you kept the heat source and fuel separate?**

Rationale: This question aims to assess if there is a

Facilitator's Note [4/8]

Establish an interactive type of discussion with the participants and provide a series of questions (fire risk assessment) provided in the slides. Let the participants answer the given question. After that, provide supplemental advice and emphasize the necessity of it for their safety. The italic font after the questions explains its significance.

Keyword: Hazard Risk Assessment



safety precaution in keeping away the things that can get burned and the heat source to prevent fire incidents.

- ✓ **Have you protected your premises from accidental fire or arson?**

Rationale: This question aims to assess if there is the presence of flammable materials or sources of fire that are visible in the workplace or residence. This assessment seeks to avoid the possibility of a fire accident or arson due to the presence of visible fire hazards within the workplace or residence.

- ✓ **What is the extent of your fire safety in case of fire?**

Rationale: This part of step 3 questions the capability of fire safety readiness to ensure the safety of the occupants.

- ✓ **Is there a fire or smoke detector in your workplace or residence?**

Rationale: This question aims to assess if there is a presence of a Fire Detection and Alarm System (FDAS) (e.g., smoke detector, heat detector, fire alarm control unit, or other FDAS) that can alert the occupants immediately in case of fire.

- ✓ **What is your plan to inform others immediately?**

Rationale: This question aims to determine if there is an existing communication plan or method to inform occupants/tenants immediately in case of fire.

- ✓ **Who will make sure everyone gets out?**

Rationale: This question seeks to identify if an individual is tasked with ensuring that their other occupants are all evacuated from their respective offices

- ✓ **Who will call the fire service?**

Rationale: This question determines whether an individual is entrusted with calling the fire department or other authorities in the event of a fire.

- ✓ **Are the fire safety features capable of putting the fire out immediately and preventing it from spreading?**

Rationale: This question seeks to assess if there is a presence of active fire protection (standpipe systems, sprinkler systems, fire hose reels, automatic fire-extinguishing systems, and fire extinguishers) and passive fire protection (firewalls, fire, and smoke dampers, fire doors or firestop materials.)

- ✓ **What is the extent of your Evacuation?**

Rationale: This part of step 3 questions the hotel's capability to ensure their employees are safe during evacuation.

- ✓ **Have you identified the exit routes in your workplace / place of residence?**

Rationale: This question assesses whether all the

occupants know about their evacuation route.

- ✓ **How can you make sure the occupants find the exit even at night?**

Rationale: This question aims to determine if there is a presence of lighting and exit markings in the establishments as prescribed by RA 9514.

- ✓ **Does the occupants have the capability of using the available firefighting equipment?**

Rationale: This question aims to assess if the occupants are capable of using fire suppression equipment such as (fire extinguishers, fire blankets, or fire hose reels)

- ✓ **Do safety features in your place of residence work?**

Rationale: This question seeks to assess if there is regular checking and maintenance of fire protection, AFSS, or FDAS in the establishment.

STEP 4: Record, Plan and Training

The context of step 4 focuses on documentation and knowledge and skills evaluation.

- ✓ **Have you recorded those fire hazards and your actions taken?**

Rationale: This question aims to determine if the actions to mitigate the fire hazards are well documented.

- ✓ **Have you made any pre-fire plans? Does everyone in your already know about the plan?**

Rationale: This question aims to determine if there is established pre-fire planning and if it is disseminated among all occupants.

- ✓ **Are all occupants trained?**

Rationale: This part of step 4 questions the capability and familiarization of the occupants with the pre-fire planning.

- ✓ **Are all the occupants involved in the fire drill?**

Rationale: This question aims to ensure that all of the occupants have knowledge of the evacuation plan and to identify the contribution of each individual in the evacuation process.

- ✓ **Do you identify those individual assigned to implement fire prevention measures?**

Rationale: This question aims to identify if there is an individual assigned to implement, evaluate, and ensure those safety measures indicated in the pre-fire planning and evacuation action plan.

- ✓ **Is there an individual tasked with using fire safety equipment?**

Rationale: This question determines if an individual is assigned to use fire safety equipment such as fire

alarms, fire extinguishers, fire hose reels, and other fire safety equipment.

✓ **Are they capable of doing their assigned task?**

Rationale: This question aims to confirm if there is regular conduct of an evacuation drill, skills inventory, or post-evacuation analysis in their respective workplaces or residence.

✓ **Is anyone else in the building included in the plan?**

Rationale: This question aims to determine if the created evacuation action plan or pre-fire plan is disseminated to all occupants.

STEP 5: Review

The context of step 5 focuses on the assessment of implementation and its sustainability.

✓ **Is your plan carried out?**

Rationale: This question aims to determine the status of a pre-fire planning or evacuation action plan that has been created, whether it has been implemented, is still in the process of completion, or has not been implemented.

✓ **Has it changed your fire safety practices?**

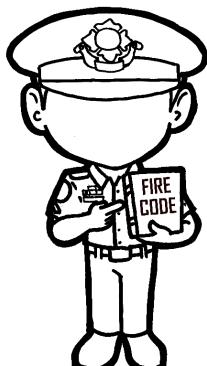
Rationale: This question aims to determine if, after implementing a pre-fire plan or evacuation action plan, their attitudes shift from uncooperative to resilient.

✓ **Does your plan continuously practice without supervision?**

Rationale: This question aims to determine if fire safety and resilience are routinely practiced in the area, even without supervision. (For instance, keeping the area clean, storing flammable goods properly, and avoiding overloading electrical equipment.)

Facilitator's Note [5/8]

After conducting a series of questions, provide supplementary advice to the participants based on the challenges reflected in their answers.



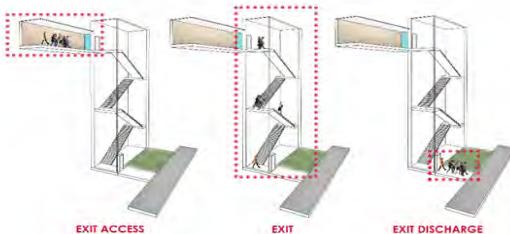
III. Fire Code Provisions related to Hotels and similar Establishments [3/3]

Determining methods of egress is critical for hotels and similar establishments since most of their occupancy is high-rise, and they need to provide appropriate exit space and correct distribution of fire exits in different portions of the building. As a result, methods of egress are regarded as one of the most essential aspects in Hotels and other similar occupancies.

Keyword: Fire Code Provision Related to Hotels and Related Occupancies

Facilitator's Note [6/8]

Discuss the difference between exit access, exit, and exit discharge for a better understanding of the provisions discussed in the fire code.



Source: <https://quizlet.com/729320380/fire-code-of-the-philippines-flash-cards/>

This photo illustrates the difference between exit access, exit, and exit discharge.

✓ Means of Egress

The term “means of egress” refers to a continuous and unobstructed path of travel provided in a building or structure for the occupants to exit safely during an emergency, such as a fire or other hazardous situations. It includes all components of a building that help people escape, including exits (doors or other openings), exit access (the way to reach an exit from any point in a building), and exit discharge (the path from the exit to a safe place outside the building). EXIT is the portion of means of egress that is separated from all other spaces of a building or structure by construction, location, or equipment as required to provide a protected way of travel to the exit discharge. EXIT ACCESS is the portion of means of egress that leads to an exit. EXIT DISCHARGE is the portion of a means of egress between the termination of an exit and a public way.

> Number of Egress

According to RA 9514 Revised IRR 2019 Rule 10.2.14.3 para B.4, Exits shall comply with not less than two (2) exits and be accessible from every floor, including floors below the exit discharge and occupied for public purposes.

> Travel Distance

According to RA 9514 Revised IRR 2019 Rule 10.2.14.3para B.5, any exit shall be such that it will only be necessary to travel up to thirty meters (30m) from the door of any room to reach the nearest exit. Travel distance within a guest room or suite to a corridor shall not exceed twenty-three meters (23m) in buildings not protected by an approved, supervised automatic sprinkler system. Travel distance within a guest room or suite to a corridor door shall not exceed thirty-eight meters (38m) in buildings protected by an approved, supervised sprinkler system.

> **Discharge**

According to RA 9514 Revised IRR 2019 Rule 10.2.5.2 para M, all exits shall terminate directly at a public way or an exterior exit discharge. Yards, courts, open space, or other portions of the exit discharge shall be of the required width and size to provide all occupants with safe access to a public way and be under NFPA 101, Life Safety Code concerning changes in elevation, stairs, ramps, or keeping means of egress free from obstruction.

According to RA 9514 Revised IRR 2019 Rule 10.2.14.3para B.7, the exits may also discharge on the areas of the floor exit discharge provided the following are met: Such exits discharge to a free and unobstructed way to the outside of the building by no more than six meters (6 m) distance, which way is readily visible and identifiable from the point of discharge from the exit. The floor of discharge into which the exit discharge is provided with an automatic fire suppression system and any other portion of the level of discharge with access to the discharge area is equipped with an automated fire suppression system or separated from it under the requirements for the enclosure of exit in Section 10.2.5.2 of this RIRR. The entire area on the discharge floor is separated from areas below by construction, having a minimum fire-resistance rating of two (2) hours.

Talking Points: Hotels have many employees, and a fire evacuation might cause congestion if the door does not swing correctly when going outside. To avoid circumstances like the infamous fire occurrence in the past.

✓ **Door**

A fire door is a specially designed part of a building's passive fire protection system. Fire and smoke spread prevention is the primary purpose within a structure, allowing people to evacuate safely and protecting property by containing the fire in a specific area for a designated period. Fire doors are made from fire-resistant materials and have particular features to enhance their fire-resistant capabilities.

According to RA 9514 Revised IRR 2019 Rule 10.2.5.3, every door and principal entrance required to be used as an exit must be designed and constructed so that exit travel is obvious and direct.

Talking Points: A fire occurrence creates an electrical outage, which may be difficult, especially at night, and smoke can obscure the vision of the fire exits, making it difficult for evacuees to reach the safe refuge. Furthermore, a fire may cause panic or confusion among the occupants, so signs and emergency lighting are critical, especially

during evacuation.

✓ Lighting and Signs

According to RA 9514 Revised IRR 2019 Rule 10.2.5.12 para A, any door, passage, or stairway which is neither an exit nor a way of exit access and which is so located or arranged as likely to be mistaken for an exit door shall be identified by a sign reading "NOT AN EXIT." It shall be determined by a sign indicating its actual character, such as "TO BASEMENT," "STOREROOM," "LINEN CLOSET," or the like. Every required signage for exit or way of exit access shall comply with the required size, color, location, and design to be readily visible. A sign reading "EXIT" with an arrow indicating the direction shall be placed in every area where the way to reach the nearest exit is not apparent and direct.

Facilitator's Note [7/8]

Illustrate different types of signage, emergency lights, and their purpose.

✓ Fire Detection, Alarm and Communication System

According to RA 9514 Revised IRR 2019 Rule 10.2.14.3 para C.4, An automatic fire detection and alarm system, under Rule 10.2.6.6 of this RIRR, shall be provided for any hotel or dormitory having accommodations for fifteen (15) or more guests. For less than fifteen (15) guests, a manual fire alarm system shall be installed. Every sounding device shall be of such character, and so located as to arouse all occupants of the building or section thereof endangered by fire.

An alarm-sending station and manual fire alarm box shall be provided at the hotel desk or other convenient central control point under the continuous supervision of responsible employees. Suitable facilities shall be provided for immediate notification of the BFP. A positive fire alarm sequence may be permitted. Hotels and dormitories, including guest rooms and guest suites, shall be required to be equipped with audible and visible notification appliances.

In hotels and dormitories not equipped with automatic fire detection and alarm systems, guest rooms, living areas, and sleeping rooms within a guest suite shall be installed with single-station smoke detectors.

THE FIRE DETECTION, ALARM, AND COMMUNICATION SYSTEM is composed of equipment that made up the system which includes automatic detectors, Audio and visual Alarms, Announciators, Manual Call points, and a Control panel that helps to detect and alert the occupants in the occurrence of a fire emergency.

Talking Points: Most of the Hotels are high-rise in presentation; therefore, fire suppression is very

complicated in high-rise set-ups beyond the reach of the ladder firetrucks. For that reason, an automatic fire suppression system is recommended at the height of the building.

✓ Automatic Fire Suppression System (AFSS)

According to RA 9514 Rule 10.2.14.3 para C, All apartments, except row houses with four (4) storeys in height, shall be protected throughout by approved, supervised sprinkler system. For four (4) storeys and below it shall be installed with sprinkler system in accordance with NFPA 13R. For five (5) storeys and above, it shall be installed with sprinkler system in accordance with NFPA 13

Talking Points: In any circumstance, when a fire breaks out, the ideal plan is to put it out as soon as possible. As a solution, the fire code suggests the optimal distance per number of fire extinguishers for immediate fire suppression.

✓ Fire Extinguisher

According to the National Fire Protection Association (NFPA), fire extinguishers serve the purpose of providing a first line of defense against small fires. Their primary objective is to control or extinguish fires before they can escalate and cause significant damage or threaten human life.

According to RA 9514 Revised IRR 2019 Rule 10.2.6.9. Para G, Low Hazards – should install one unit per 200 square meters, travel distance of 15m. For Moderate Hazards – One unit per 100 square meters, travel distance of 12m. And for High Hazards – One unit per 75 square meters, 10m of max travel distance.

Talking Points: It is important to note that the specific requirements for subdivision of spaces in hotels may differ depending on the size and compartmentation of the building. Therefore, hotel owners, designers, and fire protection professionals must consult the applicable fire code standards and local regulations when planning and implementing fire protection measures in hotels and similar occupancies.

ADDITIONAL BUILDING PROTECTION

✓ Subdivision of Building Spaces

According to RA 9514 Revised IRR 2019 Rule 10.2.16.3. Para C.6, buildings not protected by an approved, supervised automatic sprinkler system, each hotel guest room, including guest suites and dormitory rooms, shall be separated from other guest rooms or dormitory rooms by walls and floors having fire resistance ratings of not less than one (1) hour. Also, buildings protected throughout by an approved, supervised automatic sprinkler system, each hotel guest room, including guest suites and dormitory rooms, shall be separated from other guest rooms or dormitory rooms by walls, floors, and fire barriers having fire resistance ratings of not less than a half (1/2) hour.

Talking Points: Hotel management, staff, and relevant stakeholders must prioritize safety, conduct risk assessments, and implement appropriate measures to mitigate hazards in these areas. Regular training, maintenance, and ongoing monitoring are vital to maintaining a safe environment for guests and employees.

✓ Hazardous Areas

According to RA 9514 Revised IRR 2019 Rule 10.2.16.3. Para C.7 Any room containing high-pressure boilers, refrigerating machinery, transformers, or other service equipment subject to possible explosion shall not be located directly under or adjacent to exits. All such rooms shall be effectively cut off from different building parts. Every hazardous area shall be separated from other parts of the building by construction having a fire-resistance rating of at least one (1) hour, and communicating openings shall be protected by approved automatic or self-closing fire doors, or such area shall be equipped with an automatic fire suppression system. Hazardous areas include, but are not limited to, boiler and heater rooms, laundries, rooms, repair shops, or spaces used for combustible supplies and equipment storage that is quantified deemed hazardous by the C/MFM having jurisdiction.

Talking Points: Hotel management, staff, and relevant stakeholders must prioritize safety, conduct risk assessments, and implement appropriate measures to mitigate hazards in these areas. Regular maintenance and ongoing monitoring are vital to sustain a safe environment for guests and employees.

Facilitator's Note [8/8]

REMEMBER: It is important to keep the vertical opening close to prevent further spread of fire on other floors; It must also be protected by an automatic fire suppression system to secure the safety of the occupants during evacuation.

✓ Protection of Vertical Openings

A smoke-proof enclosure is a protected area within a building designed to prevent the spread of smoke during a fire. It is usually a well-sealed space, such as a stairwell or corridor, equipped with fire-resistant materials and a ventilation system that keeps smoke from entering. Smoke can be hazardous during a fire, causing confusion and difficulty in breathing. Smoke-proof enclosures help maintain clear escape routes, making it easier for people to evacuate safely without being overwhelmed by smoke.

According to RA 9514 Revised IRR 2019 Rule 10.2.16.3. Para C.1 Every stairway, elevator shaft, and other vertical openings shall be enclosed or protected. Any required exit stair necessary to pass through the lobby or additional open space to access the outside of the building shall be continuously enclosed until the lobby level. No floor below the exit discharge level shall be used for storage, heating requirements, or other than hotel occupancy and open to guests or the public that does not have unprotected access to floors used for hotel purposes.

According to R.A. 9514 Section 10.2.16.3, vertical openings shall be enclosed or protected.

✓ Protection of Guest Rooms

In any new hotel building, every corridor shall be separated from guest rooms by partitions having at least a one (1) hour fire resistance rating. Each guest room shall be provided with a door having a fire protection rating of at least twenty (20) minutes. Openings in corridor partitions other than door openings shall be prohibited. Doors that open directly onto exit access corridors shall be self-closing and self-latching.

✓ Emergency Evacuation Plan

According to RA 9514 Revised IRR 2019 Rule 10.2.5.13., an emergency evacuation plan must be placed in strategic and conspicuous locations containing the following basic information such as You Are Here/ room number/ building" Marking; Fire Exits; Primary Route to Exit (Nearest to the viewer); Secondary Route to Exit (Second nearest to the viewer); Fire alarm pull stations and annunciators; Fire extinguishers/ hose cabinets; Emergency Light; First Aid Kits locations (if applicable); Emergency Call stations (if applicable); Areas of safe refuge (for high-rise building); Assembly areas instructions; and "In Case of Emergency" instructions.

Talking Points: **REMEMBER:** The evacuation must adhere

to the set sizes, have uniform markings, and be luminous to guarantee a clear visualization of the evacuation map in the event of unnecessary scenarios.

Keyword: Fire Evacuation Planning



Lesson 2.6

Residential Occupancies

Powerpoint and Visual Aids

 FIRE SAFETY IN
RESIDENTIAL OCCUPANCIES

S-01

 COMMON HAZARDS IN
RESIDENTIAL OCCUPANCIES

S-04

 HAZARDS

S-02

 COMMON HAZARDS

Hazards that exist in a hotel and similar establishments which are the following:

S-05

 HAZARDS

Can you guess the fire hazards in the picture?



S-03

 COMMON HAZARDS

Electrical Fires



S-06

COMMON HAZARDS

S-07

Possible Electrical Hazard in Hotel Setting

- Overloading Power Sockets
- Old or Faulty Electrical Equipment
- Cables in vulnerable position
- Poor maintenance of equipment
- Frayed wires and faulty wirings

**COMMON HAZARDS**

S-08

Preventive Measures

- Checking to unplug electrical appliances before leaving the office
- Avoid octopus connections or overloaded extension cords in the workplace.
- Never use extension cords as permanent wiring.
- Avoid using defective electrical appliances.
- Keep wiring away from water sources, heat, and oils.
- Inspect cords and outlets regularly.



S-09

Poor Housekeeping**COMMON HAZARDS**

S-10

Poor Housekeeping Hazard in Hotel Setting

- Poorly arranged workplace
- Improper storage of flammable materials
- Improper storage of files or items
- Storage exceeds required ceiling clearance
- Untidy or dusty work place

**COMMON HAZARDS**

S-11

Preventive Measures

- Proper storage of flammable materials
- Proper storage of materials and files in the workplace, including ceiling clearance,
- Keep the workplace always clean
- Removal of visible materials that can cause the ignition of fire
- Always practice fire safety habits in the workplace.

**COMMON HAZARDS**

S-12

Cooking

- Unattended Cooking
- Cooking Equipment Malfunctions / Improper Use of Cooking Appliances
- Grease Build-up

**COMMON HAZARDS**

S-13

Preventive Measures

- Supervision
- Regular Cleaning
- Proper Storage.
- Safe Cooking Practices
- Fire Safety Equipment.

**COMMON HAZARDS**

S-14

Smoking

- Careless Disposal of Smoking Materials.
- Smoking in Bed
- Improper Use of Ashtrays



<p>COMMON HAZARDS</p> <p>S-15</p> <p>Preventive Measures</p> <ul style="list-style-type: none"> Establishing designated smoking areas Using deep, sturdy ashtrays Completely extinguishing smoking materials before disposing Avoid smoking in bed or when feeling drowsy or under the influence of medication or alcohol. 	<p>COMMON HAZARDS</p> <p>S19</p> <p>Lack of Fire Safety Features</p> 
<p>COMMON HAZARDS</p> <p>S-16</p> <p>Means of Egress Problems</p> 	<p>COMMON HAZARDS</p> <p>S-20</p> <p>Lack of Fire Safety in Hotel Setting</p> <ul style="list-style-type: none"> Untested Fire Detection and Alarm System (FDAS) Absence or Defective Emergency Lights Absence of Emergency Signage or Directional Signs Absence of Emergency Evacuation Plan Absence of Firefighting Equipment and other fire safety measures required by the Fire Code
<p>COMMON HAZARDS</p> <p>S-17</p> <p>Means of Egress Problems in Hotel Setting</p> <ul style="list-style-type: none"> Fire Exit are always open Obstructed Fire Exit Absence of Fire Exit 	<p>COMMON HAZARDS</p> <p>S-21</p> <p>Preventive Measures</p> <ul style="list-style-type: none"> Conduct regular testing and maintenance of FDAS and AFSS. Comply with the requirement of fire code such as emergency lights, evacuation map, signages, firefighting equipment and other related provisions. Conduct regular preventive maintenance of firefighting equipment.
<p>COMMON HAZARDS</p> <p>S-18</p> <p>Preventive Measures</p> <ul style="list-style-type: none"> Keeping fire exits close to prevent fire conflagration in case a fire breaks out. Removal of obstruction in fire exits. Provide an adequate number of fire exits as required by fire code. 	<p>COMMON HAZARDS</p> <p>S-22</p> <p>Human Factors</p> 

<p>COMMON HAZARDS</p> <p>Human Factors</p> <ul style="list-style-type: none"> • Lack of awareness to evacuation plan • Lack of preparedness for possible fire incidents • Lack of knowledge in fire safety features of the building • Evacuation plan does not match with the plan of building administration <p>S-23</p>	<p>RE SAFETY RISK ASSESSMENT</p> <p>STEP 1: Early Detection of Fire Hazards</p> <ul style="list-style-type: none"> • What are the possible sources of fire incident in your workplace? • What are the other factors that can worse the ignition of fire incase of fire incident occurrences? <p>S-27</p>
<p>COMMON HAZARDS</p> <p>Preventive Measures</p> <ul style="list-style-type: none"> • Conduct of regular fire evacuation and drill. • Information dissemination of pre-fire planning to the employees. • Regular conduct of fire safety preparedness evaluation to the employees. <p>S-24</p>	<p>RE SAFETY RISK ASSESSMENT</p> <p>STEP 2: Identifying People at Risk</p> <ul style="list-style-type: none"> • Who could be at risk? • What are the possible affected areas in your workplace? <p>S-28</p>
<p>RE SAFETY RISK ASSESSMENT</p>  <p>FIRE SAFETY RISK ASSESSMENT</p> <p>S-25</p>	<p>RE SAFETY RISK ASSESSMENT</p> <p>STEP 3: Risk Evaluation</p> <ul style="list-style-type: none"> • Who is tasked to assess the risk in workplace? • Have you kept the heat source and fuel separate? • Have you protected your premises from accidental fire or arson? <p>S-29</p>
<p>RE SAFETY RISK ASSESSMENT</p> <p>Workplace Risk Assessment</p> <p>STEP 1: Early Detection of Fire Hazards</p> <p>STEP 2: Identifying People at Risk</p> <p>STEP 3: Risk Evaluation</p> <p>STEP 4: Record, Plan and Train</p> <p>STEP 5: Review</p> <p>Health and Safety Executive – Five Steps Risk Assessment</p> <p>S-26</p>	<p>RE SAFETY RISK ASSESSMENT</p> <p>Ensuring employee is safe in case of fire</p> <ul style="list-style-type: none"> • Is there a fire or smoke detector in your workplace? • What are your plan to inform others immediately? • Who will make sure everyone gets out? • Who will call the fire service? • Is your workplace's fire safety features capable of putting the fire out immediately? <p>S-30</p>

S-31 RE SAFETY RISK ASSESSMENT

Evacuation Capability

- Have you identified the exit routes in your workplace?
- How can you make sure the employees find the exit even at night?
- Do you have the capability of using the available firefighting equipment?
- Do safety features in your workplace work?

S-32 RE SAFETY RISK ASSESSMENT

STEP 4: Record, Plan and Train

- Have you record those fire hazards, and your action taken?
- Have you made any pre-fire plans? Does everyone in your workplace already know about the plan?

S-33 RE SAFETY RISK ASSESSMENT

Do employees in your workplace trained?

- Are all of your employees involved in the fire drill?
- Do you identify those staff assigned to implement fire prevention measures?
- Is there an employee tasked with using fire safety equipment?
- Are they capable of doing their assigned task?
- Is anyone else in the building included in the plan?

S-34 RE SAFETY RISK ASSESSMENT

STEP 5: Review

- Is your plan carried out?
- Had it change your work fire safety practices?
- Is your plan continuously practice even without supervision?

S-35 FIRE CODE PROVISIONS



FIRE CODE PROVISIONS

S-36 FIRE CODE PROVISIONS

Hotels and other similar establishments

Section 10.2.6.9 Para C

Low Hazard
Light hazard occupancies are locations where the total amount of Class A combustible materials, including furnishings, decorations, and contents, is of minor quantity.

S-37 FIRE CODE PROVISIONS

Means of Egress

A continuous and unobstructed route of exit from one point in a building, structure or facility to a public way consisting of three (3) distinct parts: exit, access and exit discharge.

EXIT - That portion of means of egress that is separated from all other spaces of a building or structure by construction, location, or equipment as required to provide a protected way of travel to the exit discharge.

EXIT ACCESS - That portion of means of egress that leads to an exit.

EXIT DISCHARGE - That portion of a means of egress that terminates at an exit and a public way

S-38 FIRE CODE PROVISIONS

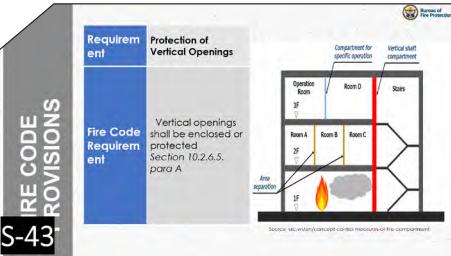


Requirement	Fire Code Provision	Fire Code Requirement
MEANS OF EGRESS		
Number of Egress	Section 10.2.14.3 para 4	At least 2 exit remote from each other
Travel distance	Section 10.2.14.3 para 5	-within a guest room or guest suite to a corridor shall not exceed twenty three meters (20m) in buildings not protected by AFSS -within a guest room or guest suite to a corridor shall not exceed eighteen meters (38m) in buildings protected by AFSS

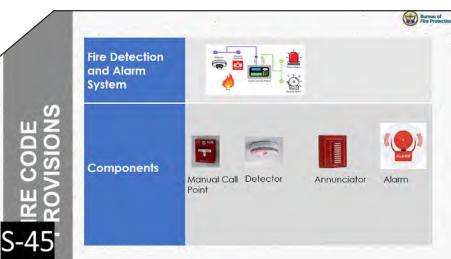
Requirement	Fire Code Provision	Fire Code Requirement
MEANS OF EGRESS		
Section 10.2.5.2 para M		Terminate directly in a public way or at an exterior exit discharge
Discharge	Section 10.2.14.3 para 7	-discharge to a free and unobstructed way to the exterior of the building by not more than six meters (6 m)

Requirement	Fire Code Provision	Fire Code Requirement
Door	Section 10.2.5.3	Doors in means of egress shall swing in the direction of exit travel

Requirement	Lightings and Signs
Fire Code Requirement	BPCs shall have: Signs designating exit or ways of travel. Section 10.2.5.12 para A Exit lightings Section 10.2.5.12 para B Emergency lightings Section 10.2.5.11 para C



Requirement	Fire Detection, Alarm and Communication System
Fire Code Requirement	Fire Alarm System is required if any of the following exist: <ul style="list-style-type: none">• accommodations for fifteen (15) or more guests. For less than fifteen (15) guests, a manual fire alarm system shall be installed.. Section 10.2.14.3 para 4



Requirement	Automatic Fire Suppression System (AFSS)
Fire Code Requirement	Building is 4 storey or more in height Section 10.2.14.3, para C

S-47

Requirement	Fire Extinguisher
Fire Code Requirement	<p>Low Hazards – One unit per 200 square meters, travel distance of 15m</p> <p>Moderate Hazards – One unit per 100 square meters, travel distance of 12m.</p> <p>High Hazards – One unit per 75 square meters, 10m of max travel distance.</p> <p>Section 10.2.6.9, para G</p>

S-48

Additional Building Protections	
<ol style="list-style-type: none">1. Subdivision of Spaces2. Vertical Opening Protections3. Enclosure of Hazardous Areas (if any)4. Protection of Guest Rooms	

S-49

THANK YOU!

[PROCEED TO LESSON 3](#)

Lesson 3

Fire Safety for Business Establishments

Emergency Response Procedures

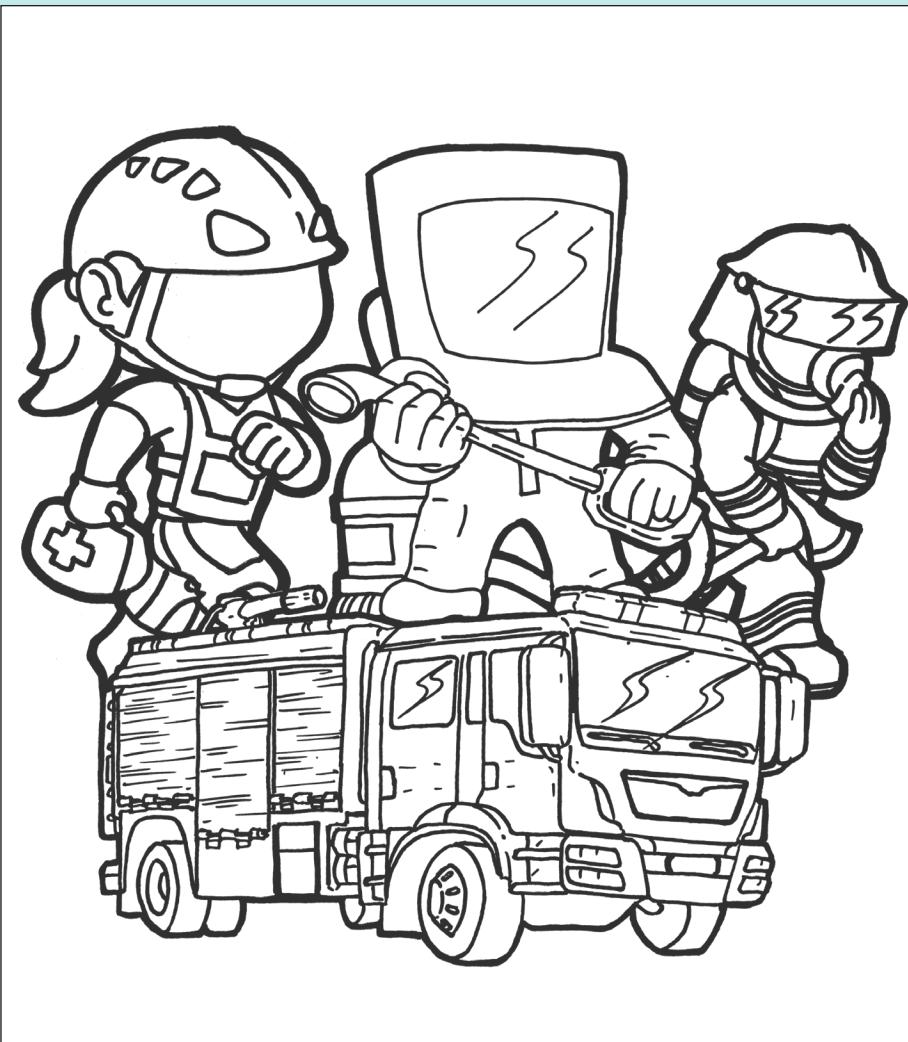
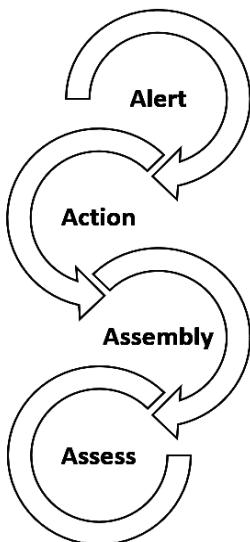


ILLUSTRATION BY: FO1 Christian Joedine Guañizo

These procedures in this lesson is important in safeguarding the safety and welfare of individuals and protecting property during a fire emergency. This has the structured and systematic framework for an effective response to fires, playing a fundamental role in preventing injuries, mitigating property damage, and potentially saving lives. By learning these procedures, communities and organizations can ensure a coordinated and well-prepared response to fire emergencies, reducing the risks and consequences associated with such incidents.

1. Response Planning [1/6]

Oxygen, Heat, and Fuel are called the “Fire Triangle.” Add the fourth element, the Chemical Reaction, and you have a fire “Tetrahedron.” The critical thing to remember is to take any of these four things away, and you will not have a fire, or the fire will be extinguished.



4A's of Fire Response

✓ ALERT

The initial phase involves essential actions, including contacting the fire department, activating alarms to alert everyone, and notifying all building occupants about the emergency.

✓ ACTION

This is where active incident management takes place. It includes establishing an incident command structure, mobilizing the Emergency Response Team if necessary, attempting fire extinguishment under safe conditions, initiating evacuation procedures, conducting safe rescue operations, containing the fire, considering compartmentation in healthcare settings like hospitals, and relocating individuals if required.

✓ ASSEMBLY

In this phase, the focus shifts to ensuring the safety and well-being of all occupants. Key actions involve accounting for everyone, providing shelter, and implementing a triage system to prioritize care for the injured and vulnerable individuals. (PWD, Elders, Children, Pregnant etc.)

✓ ASSESS

The final phase centers on decision-making. It involves assessing whether it's safe for occupants to re-enter the building or if complete abandonment is necessary for their safety. Demobilization of emergency response resources is considered once the situation is under control.

Steps	Rationale
STEP 1 Organize a team	Assemble a dedicated team responsible for developing and implementing the evacuation plan. This team should include individuals with knowledge of the facility, emergency procedures, and communication methods
STEP 2 Gather information	Collect data about the building or area, including floor plans, exit locations, fire safety equipment, and potential hazards. Identify specific needs for people with disabilities.
STEP 3 Draft and share the Plan	Develop a comprehensive evacuation plan that outlines procedures, escape routes, assembly points, and roles and responsibilities for team members. Share this plan with all relevant personnel
STEP 4 Practice the Plan	Conduct regular drills and exercises to ensure that all occupants are familiar with evacuation procedures. Practice scenarios for different types of emergencies.
STEP 5 Review and Update the Plan	Periodically review and update the evacuation plan to account for changes in the facility, occupancy, or emergency procedures. Make sure everyone has access to the latest version of the plan



II. Evacuation Planning [2/6]

Evacuation Planning Steps

This helps to have a well-planned and organized evacuation procedures that ensures that everyone in the occupancy knows what to do in case of a fire, increasing the chances of a safe and efficient evacuation.

Evacuations can take various forms depending on the nature of the emergency and the specific circumstances.

Emergency Evacuation Plan



According to RA 9514 Revised IRR 2019 Section 10.2.5.13. Para A, an emergency evacuation plan shall be posted on strategic and conspicuous locations in the building containing the following basic information:

- > You Are Here/ room number/ building” Marking
- > Fire Exits
- > Primary Route to Exit (Nearest to the viewer)
- > Secondary Route to Exit (Second nearest to the viewer)
- > Fire alarm pull stations and annunciators.
- > Fire extinguishers/ hose cabinets
- > Emergency Light
- > First Aid Kits locations (if applicable)
- > Emergency Call stations (if applicable)
- > Areas of safe refuge (for high-rise building)
- > Assembly areas instructions
- > “In Case of Emergency” instructions

RA 9514 Revised IRR 2019 Section 10.2.5.13. Para D and E.

Symbols/icons/logos to be used for the marking shall be in accordance with NFPA 170, Standard for Signs and Symbols. The wall mounted maps shall be oriented to correspond to the actual floor layout as perceived by the viewer.

Types of Evacuation

✓ Protect-in-Place

The protect-in-place must consider the following measures:

- > Provide notification to those affected or nearby occupants.
- > Evaluate the situation if the fire can be suppressed immediately and there's no possibility for evacuation for those advised to remain-in-place.
- > If the residents are near a fire or an emergency, they should be advised to evacuate immediately.
- > Alert the occupants immediately for possible evacuation if the situation can be worsened.

Talking Points: REMEMBER: This type of evacuation is utilized when the fire incident is tolerable and can be controlled by both passive and active fire protection of the building. This type of approach also used when it is safer to stay inside the place. (e.g. Hazmat)

✓ In-Building Relocation

The in-building-relocation must consider the following measures:

- > Indicate the number of people who live on each floor of the building.
- > Designate an In-Building Relocation Area (INBRA) to which people might be evacuated, considering the type of area, fire protection, specific location, maximum capacity, and amenities.
- > Designate a path for building inhabitants to use to go to INBRA.
- > Specify the steps to be done in relation to building components or systems.
- > Establish the processes for accounting occupants when an in-building relocation is established

Talking Points: REMEMBER: This is the case when the occupants are unable to evacuate, potentially because of a medical condition or physical limitations.

✓ Partial and Total Evacuation

The partial and total evacuation must consider the following measures:

- > Evacuation Plan should indicate the safest and most efficient means of evacuating person from the building or designated floors.
- > Priority should be given to those building occupants on floors or areas at most risk or harm.
- > Evacuation Plan should include the number of occupants per floor, location of exits including the capacity, and the action that would be taken in respect to building components.
- > Include both backup exits in case the primary path is compromised when evacuating a floor or other portion of the building.
- > Consider the evacuation strategy for any employees who have special needs.
- > Include procedures for how building tenants' staff will account for their workers when a partial or total evacuation has been performed.

Talking Points: REMEMBER: Partial Evacuation: Frequently employed in big or high-rise buildings where a sequence of evacuation is required to minimize congestion in the departure path considering to many evacuees.

Total Evacuation: Most often, it applies to simpler or smaller types of buildings. Larger structures with lots of residents require a different kind of evacuation.

✓ Vertical Evacuation

In multi-story buildings, a vertical evacuation may be used to move occupants from upper floors to lower floors or the ground level. This is often employed in high-rise buildings during fire emergencies, using stairwells as escape routes.

✓ Horizontal Evacuation

Horizontal evacuation involves moving occupants from one area to another at the same or similar elevation. This may be necessary in situations like chemical spills or gas leaks, where moving laterally to avoid the hazard is the safest option.



III. Alert Phase [3/6]

✓ CALL FOR HELP!

Manual Call Points Activation
“Break it” “Press it” “Pull it”

REMEMBER: Occupants learning how to use a manual fire alarm is critical; thus, it promotes early fire detection, quick emergency response, saving lives, limiting property damage, ensuring regulatory compliance, and developing a fire safety habit.

✓ Whistle Codes for Emergency

“Blow the Whistle

REMEMBER: Whistle codes are a vital and practical tool for facilitating communication, coordination, and response in fire incidents. It is especially useful in situations when standard verbal communication is difficult or inadequate.

✓ Call the Nearest Fire Station!

INFORMATION:

- » Name of Caller
- » Phone Number
- » Emergency
- » Address
- » Landmark

IV. Action Phase [4/6]

✓ Incident Management

If required, organize a Management System to manage the Fire Emergency Incident with established designated personnel with specific roles and responsibilities to ensure a coordinated response to the emergency.



✓ Emergency Response Team (ERT)

If required, the Emergency Response Team is mobilized. These trained individuals, who can perform rescue, first aid, fire suppression and other life-saving skills, are instrumental in responding effectively to the emergency.

✓ Rescue (if safe)

Rescue actions are undertaken only if it can be done without jeopardizing safety. In cases where individuals are in immediate danger, trained personnel should be entrusted with the task to ensure the highest level of safety.

✓ Fire Extinguishment

Selecting Portable Fire Protection Equipment

S.A.F.E.-P.M.

- > **Safety Concerns.** Using the wrong type of extinguisher for a certain type of fire can lead to safety problems. (Example: using a water-based fire extinguisher in an electrical fire can cause electrocution to a person).
- > **Awareness.** Make sure to be familiarized with the types of fire extinguisher and its applicability in specific types of fire.
- > **Familiarity.** Some of the fire extinguishers have different applications than the usual T.P.A.S.S.; be familiar with how does it work in your workplace.
- > **Effectiveness.** Different fire extinguishers work best in specific types of fires. (Example: use of water based on type A fires is dangerous in type C fires.).
- > **Prevent Fire Spread.** Using the correct type of fire extinguisher for a specific type of fire can promote rapid fire suppression.
- > **Minimize Property Damage.** Extinguishers are useful not only in the event of a fire, but also in the contents of the afflicted structure. (For example, CO₂ fire extinguishers are more suited for electrical equipment than water-based fire extinguishers).



✓ Proper Handling

REMEMBER: Proper handling of fire extinguishers is crucial in emergency situations, ensuring swift and effective response. Whereas, improper handling of the fire extinguisher might cause ineffectiveness in its usage, such as not carrying through the handle, squeezing while the pin is on, and twisting the hose while using the fire extinguisher.

✓ Exit at the Back (Indoors)

REMEMBER: When using fire extinguisher indoors, make sure you first that have determined a clear or unobstructed fire exit. If you are unable to extinguish the fire, you must ensure a safe route. Consider this while deciding where to keep your fire extinguisher, and make sure you have numerous exits available when you retrieve it.

✓ Wind Direction (Outdoors)

REMEMBER: When deployed into the wind, the extinguishing agent is carried by the wind, allowing it to reach the base of the fire more efficiently. This approach helps to smother the flames and suppress the fire at its source. Moreover, positioning oneself upwind while using a fire extinguisher prevents the inhalation of smoke and potentially harmful substances, ensuring the safety of the person attempting to control the fire.

✓ T.P.A.S.S.

REMEMBER: Ensuring to follow the sequence of T.P.A.S.S. ensures the users ease of using the fire extinguisher. Hence, skipping or doing it reversely causes inefficient fire suppression.



✓ Evacuation Procedures

Must be properly done in order to escape or immediately move out safely and effectively when the fire breaks out.

- > When the Smoke is Around

Stay Low and Go!
“Low, Low, Low”

REMEMBER: Staying low during fire incidents is crucial for a person's safety as it minimizes exposure to toxic smoke, provides better access to oxygen, and reduces the risk of heat-related injuries. It also enhances visibility, which enables a person to easily navigate through a smoked-filled environment while searching for escape routes. This method improves survivability and mitigates the risk associated with fire emergencies.

> **When Someone Catches Fire****Stop Drop and Roll**
“S.D.R”

REMEMBER: When clothes touched by fire, stop, drop, and roll helps smother flames on clothing, reducing more burns. This basic approach works well for extinguishing a fire on oneself, limiting injuries, and promoting quick self-rescue. Individuals can immediately respond to clothes ignition by halting, lowering to the ground, and rolling, suppressing the flames and minimizing the danger of serious burns and injury.

> **When Using the Staircase or the Fire Exit Stairs****Right Side Walking “Make it Right”**

REMEMBER: During evacuation, always walk on the right side to avoid congestion between the occupants leaving the area and the firefighters or rescuers going inside the building.

> **In Case Trapped Inside****“Check, Seal and Call”**

REMEMBER: During fires, check first the door knob when it is extremely hot, and avoid opening the door fast and wide as it may cause a fire backdraft. When trapped inside a room, seal any openings in the room that may cause smoke to enter the room. Lastly, call fire department for rescue if necessary.

> **Don'ts During Fire Emergency Evacuation**

- » Don't use elevators
- » Don't Ignore alarms
- » Don't Panic
- » Don't Block Exits
- » Don't Return to Belongings
- » Don't Disregard Emergency Routes
- » Don't Hesitate to call for help

- » Don't Choose to hide in bathrooms
- » Don't Bring heavy belongings
- » Don't Use cellphones in hazardous areas

REMEMBER: Elevator is a risk option for evacuation and should not be considered as a means of egress; evacuate as a fire alarm sounds; panic can cause disorientation during fire evacuation; don't block fire exits for faster evacuation; don't return to the fire scene when the hazards are within the surroundings; most of the emergency routes are protected by fire safety features; most of the fire casualties were found inside the bathroom; heavy belongings hinder your urgency for evacuation; and cellphones can trigger sparks and ignite flammable materials.

V. Assembly Phase [5/6]



✓ Assembly Point

The choice of an assembly area should be well thought out and communicated to all occupants. This should be located at a safe distance from the building, ensuring that occupants are not at risk from falling debris, structural damage, or secondary hazards like gas leaks or spreading fires. It should be easily accessible and identifiable to all occupants. The area should have adequate space to accommodate all occupants from the building. It should not be overcrowded, as this can impede emergency responders' access and make it difficult to maintain order

✓ Accounting

In the Assembly area should facilitate the accountability of occupants. This includes a designated person personnel conducts the checking in and accounting for all evacuees to check for injuries and ensure that no one is left behind.



VI. Assess Phase [6/6]

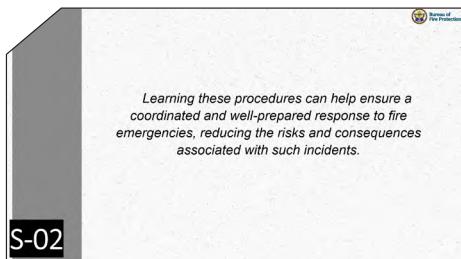
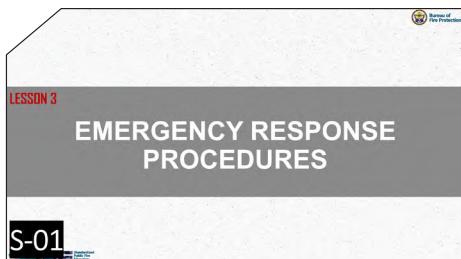
✓ After Fire Assessment

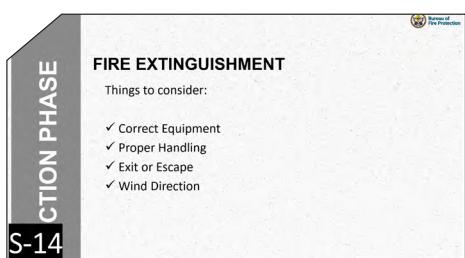
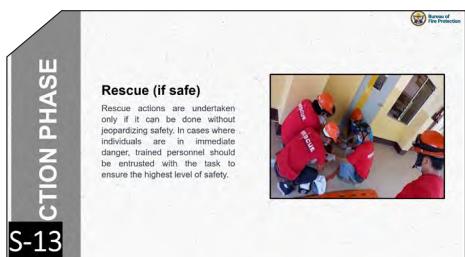
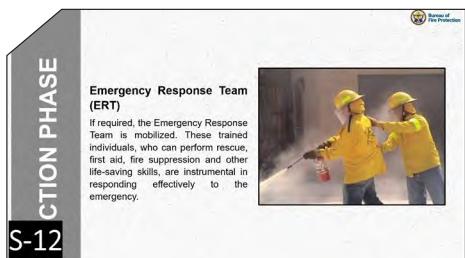
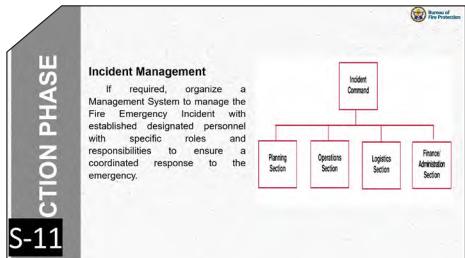
It is important to wait for the decision from the relevant authorities regarding whether it's safe to re-enter the building, proceed with a complete abandonment, or continue with the demobilization process.

Lesson 3

Emergency Response Procedures

Powerpoint and Visual Aids





<p>S-15</p> <p>FIRE EXTINGUISHMENT</p> <p><i>Selecting Portable Fire Protection Equipment</i></p> <p>S.A.F.E.-P.M.</p>	<p>S-19</p> <p>FIRE EXTINGUISHMENT</p> <p>Wind Direction (Outdoors)</p> <p>REMEMBER: When deployed into the wind, the extinguishing agent is carried by the wind, allowing it to reach the base of the fire more efficiently. This approach helps to smother the flames and prevent reignition. Moreover, positioning oneself upwind while using a fire extinguisher prevents the inhalation of smoke and potentially harmful substances, ensuring the safety of the person attempting to control the fire.</p>
<p>S-16</p> <p>FIRE EXTINGUISHMENT</p> <p><i>Selecting Portable Fire Protection Equipment</i></p> <ul style="list-style-type: none"> • S-AFETY CONCERN • A-WARENESS • F-AMILIARITY • E-EFFECTIVENESS • P-REVENT FIRE SPREAD • M-INIMIZE PROPERTY DAMAGE 	<p>S-20</p> <p>FIRE EXTINGUISHMENT</p> <p>T.P.A.S.S</p> <p>REMEMBER: Ensuring to follow the sequence of T.P.A.S.S. ensures the users ease of using the fire extinguisher. Hence, skipping or doing it reversely causes inefficient fire suppression.</p>
<p>S-17</p> <p>FIRE EXTINGUISHMENT</p> <p><i>Proper Handling</i></p> <p>REMEMBER: Proper handling of fire extinguishers is crucial in emergency situations, ensuring both a fast and effective response. Incorrect handling of the extinguisher might cause ineffectiveness in its usage, such as not carrying it upright, pulling the handle, squeezing while the pin is on, and twisting the hose while using the fire extinguisher.</p>	<p>S-21</p> <p>EVACUATION PROCEDURES</p> <p>When the Smoke is Around Stay Low and Go! "Low, Low, Low"</p> <p>REMEMBER: Staying low during fire incidents is crucial for a person's safety as it minimizes exposure to toxic smoke, provides better access to oxygen, and reduces the risk of heat-related injuries. It also enhances visibility, which enables a person to easily navigate through a smoked-filled environment while searching for escape routes. This method improves survivability and mitigates the risk associated with fire emergencies.</p>
<p>S-18</p> <p>FIRE EXTINGUISHMENT</p> <p>Exit at the Back (Indoors)</p> <p>REMEMBER: When using fire extinguisher indoors, make sure you first that have determined a clear or unobstructed fire exit. If you are unable to extinguish the fire, you must ensure a safe route. Consider this while deciding where to keep your fire extinguisher, and make sure you have numerous exits available when you retrieve it.</p>	<p>S-22</p> <p>EVACUATION PROCEDURES</p> <p>When Someone Catches Fire Stop Drop and Roll "S.D.R."</p> <p>REMEMBER: When clothes touched by fire, stop, drop, and roll helps smother flames on clothing, reducing more burns. This basic approach works well for extinguishing a fire on oneself, limiting injuries, and promoting quick self-rescue. Individuals can immediately respond to clothes ignition by halting, lowering to the ground, and rolling, suppressing the flames and minimizing the danger of serious burns and injury.</p>

<p>S-23</p> <p>EVACUATION PROCEDURES</p> <p>When Using the Staircase or the Fire Exit Stairs Right Side Walking "Make it Right"</p>  <p>REMEMBER: During evacuation, always walk on the right side to avoid congestion between the occupants leaving the area and the firefighters or rescuers going inside the building.</p>	<p>S-27</p> <p>AFTER FIRE ASSESSMENT</p>  <p>FIRE LINE DO NOT CROSS</p> <p>It is important to wait for the decision from the relevant authorities regarding whether it's safe to re-enter the building, proceed with a complete abandonment, or continue with the demobilization process.</p>
<p>S-24</p> <p>EVACUATION PROCEDURES</p> <p>Don'ts During Fire Emergency Evacuation</p> <p>DO NT The following actions should be avoided:</p> <ul style="list-style-type: none"> Use elevators Ignore alarms Panic Block exits Return to belongings Disregard evacuation routes Fail to call for help Choose to hide in bathrooms Bring heavy belongings Use cellphones in hazardous areas 	<p>S-28</p> <p>THANK YOU!</p>
<p>S-25</p> <p>ASSEMBLY AREA</p>  <p>The choice of an assembly area should be well thought out and communicated to all occupants. This should be located at a safe distance from the building, ensuring that occupants are not at risk from falling debris, structural damage, or secondary hazards like gas leaks or spreading fire. It should be easily accessible and identifiable to all occupants. The area should have adequate space to accommodate all occupants from the building. It should not be overcrowded as this can impede emergency responders' access and make it difficult to maintain order.</p>	
<p>S-26</p> <p>ACCOUNTING</p>  <p>In the Assembly area should facilitate the accountability of occupants. This includes a designated liaison personnel conducts the checking in and accounting for all evacuees to check for injuries and ensure that no one is left behind.</p>	

Volume 5

Fire Safety for Business Establishments

Annexes & References

Exercise Guide

A. Purpose

Participants will be able to practice their own evacuation action plan and fire extinguishment skills, and be evaluated on the good practices and things that need to be improved.

B. Roles and Responsibility

✓ Bureau of Fire Protection

- > Instructor – BFP personnel assigned in giving fire safety lectures
- > Evaluator – BFP personnel tasked to evaluate the skill performance of the occupants during fire drill and evacuation
- > Lecture Monitor – BFP personnel tasked to ensure that the instructor or evaluator had follow the standard set by this module

✓ Participant Occupancy

- > Evacuation Leader – overall leader who oversees the management of evacuations
- > Fire Floor Warden – The employee or occupant that is tasked with ensuring that all occupants leave the respective floor or area and reporting to the evacuation leader if someone is missing.
- > Evacuation Manager – ensures that their respective occupants leave the room and report to the fire floor warden in case there is someone missing. This role applies when there are multiple rooms with many occupants on the floor.
- > Assembly Area Manager – tasked with ensuring orderliness in the assembly area, either in arrangement in their respective assembly area or roll call for the respective occupants.
- > Fire Suppression Team – tasked with performing fire extinguishment using available fire suppression equipment in the occupancy.

C. Procedure (Evacuation)

• Things to Prepare

- > Post-Drill Analysis Checklist
- > Clipboard
- > Ballpen and Pencil
- > Sound System
- > Projector
- > White Board (optional)

✓ Before the Evacuation Drill

- > Inform the participant occupancy scheduled for the seminar in advance so they can prepare the necessary tools and equipment that will be used during the fire seminar and drill (see Annexes – Letter for Participant Occupancy).
- > Instruct the participant occupancy to notify any nearby authorities or communities that may be notified during the simulation in order to reduce fear among those who are not participants in the drill.

✓ Pre-Drill Preparation

- > Determining the following prior to the start of fire seminar and drill:
 - » Members of Fire Evacuation Team
 - » Emergency Action Plan of the occupancy
 - » Fire suppression equipment is to be used during the drill
 - » The designated evacuation area and exit routes
- > Briefing on what to be done during the fire drill and evacuation.
- > Implementing the occupants' roles and responsibilities based on the Emergency Action Plan Organizational Structure.
- > In the event that there is no EAP, the BFP will have jurisdiction, and the employer or manager will assign specific roles to the individual or occupants.
- > Give an instruction on when and what the signal is for the assigned occupant to sound the alarm.
- > There will be an occupant or employee who will be assigned as a victim during the drill. The occupants will be placed in random rooms, given that other participants do not have an idea where the missing

occupants are.

- > Before the start of the drill, advise the occupancy's fire evacuation team to go to their respective offices or area.

✓ **During the Drill**

- > The BFP personnel will instruct the assigned occupant to start the alarm.
- > The BFP personnel will observe occupants to see how they manage and conduct fire evacuations through fire evacuation checklist (see annexes – Post Drill Analysis).
- > The participants will be evaluated based on their good practices, orderliness, evacuation management, communication effectiveness, and familiarization of the occupant with the evacuation plan of the occupancy.
- > Take notes on the things to be improved and the things to be done by the participants to improve their performance in the evacuation drill, these might include:
 - » Bad practices (obstruction, not taking drills seriously, and unmanaged evacuation)
 - » Selection of an unsafe assembly area (not in open space, nearby infrastructure that can cause fallen debris, far from emergency vehicle access roads)
 - » Absence of fire safety features (absence of fire exits, emergency lights, signages, fire evacuation floor plan, fire detection and alarm system, automatic fire suppression system in (15m above) and other fire code provisions that can significantly affect the evacuation of the occupants.
- > The drill will be terminated as soon as the evacuation leader reports to the BFP evaluator that victims are determined and all of their occupants are complete and well accounted for.

✓ **Post Drill**

- > Conduct debriefings with the participants on what went well, what went wrong, and what should be done.
- > After the debriefing, advise the participants to proceed with the fire extinguishment drill.

D. Procedure (Fire Extinguishment)

✓ Things to Prepare

- > Post-Drill Analysis Checklist
- > Clipboard
- > Ballpen and Pencil
- > Safety Goggles (from participants)
- > Fire Extinguisher (from participants)
- > Fire Pit Drum (from BFP)
- > Gasoline and Diesel
- > Torch

✓ Before the Evacuation Drill

- > Advise the participant occupancy to select a location for the fire drill, ensuring that the area is within an open space far from fire hazards.
- > Advise the participant to prepare a fire extinguisher to be used during the fire extinguishment drill.

✓ Pre-Drill Preparation

- > Prepare a standby fire extinguisher to be used in case of emergency.
- > The distance from the fire pit up to the starting line must not be less than 10 meters.
- > Ensure fire hazard clearance within the perimeter of the fire pit.
- > Participants shall be advised to wear safety goggles prior to the start of the drill.
- > A fire extinguisher must be placed on the ground while waiting for the go signal from the BFP evaluator.

✓ During the Drill

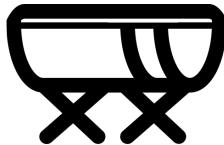
- > Fire pit will be ignited by fire before the start of the signal or whistle from the BFP evaluator.
- > As the BFP evaluator signals or blows the whistle, the participant will start to extinguish the fire from the starting line to the fire pit and observe standard practices in handling fire extinguishers (see annexes: Post-Drill Analysis).
- > The participant must perform T.P.A.S.S. sequentially.
- > Participants must be not less than 3 feet away and not more than 6 feet away from the fire pit.

- > The fire extinguishment ends as the fire has been extinguished.

✓ **Post Drill**

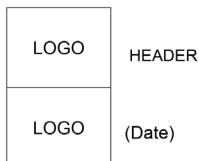
- > Conduct debriefings with the participants on what went well, what went wrong, and what should be done.
- > The drill ended after providing post-drill analysis to the participant.
- > Ensure that the post-drill analysis checklist is signed and reviewed by the occupancy representative at the end of the drill activity.

E. Fire Pit with Stand



F. Torch

A Fire Torch can be wrapped by cloth on its tip; and must not be less than 1 meter in length and not too long to compromise the igniting of the fire pit.

**NAME OF RECIPIENT (All Caps)****Designation****Name of Company/Office****Address****Address****Dear (Recipient Surname):**Greetings from the Name of Station!This pertains to the fire safety seminar and drill to be conducted on _____, at
_____.

In this regard, we have to inform your good office that you will need to prepare the following materials to be used during the fire safety seminar and drill:

Projector and Laptop
Sound System
White Board and Marker
At least five (5) Dry Chemical 10 lbs fire extinguisher
2 Liters of Gasoline and Diesel
Safety Goggles

For confirmation and coordination, please don't hesitate to contact _____ Name _____, designation, at the contact number or via email at station email.

Hoping that this request will merit your most favorable response.

Thank you and God bless!

Respectfully Yours,

Signatory (Fire Marshal)

Post-Drill Analysis

Name of Establishment	Date Conducted Drill
Establishment's Address	
	Announced Drill <input type="checkbox"/>
Type of Occupancy	Unannounced Drill <input type="checkbox"/>

Instruction: Put a check on the corresponding boxes based on your assessment; check N/A if the following question is not applicable to your type of occupancy.

ALARM OR NOTIFICATION	Yes	No	N/A
<ul style="list-style-type: none"> ● Has the participant been alerted immediately, right after the sound of an alarm? ● Aside from the alarm system, is there a verbal instruction given to the participants? ● Is the alarm clear and audible in different parts of the building? 			
EXITING THE ROOM			
<ul style="list-style-type: none"> ● Are the participants able to assist those with special needs when evacuating? ● Is there a participant assign to assist the employees when leaving the room? ● Do the participants close the door after leaving the room? ● Do the participants unplug the appliances or machines after leaving the room? 			
EXITING THE FLOORS			
<ul style="list-style-type: none"> ● Did all occupants locate fire exits? ● Do participants leave their respective floor areas in an orderly manner? ● Is there an employee tasked with guiding the other occupants when leaving? ● Did all participants proceed and use exit doors? ● Does evacuation go well-managed and does not congest? ● Are participants always positioned on the right side when evacuating? 			
PROCEEDING TO PUBLIC WAY			
<ul style="list-style-type: none"> ● Is there a participant that will assist in the evacuation flow of the employees going to the assembly area? ● Do all participants use the exits and proceed to a public street or sidewalk? ● Are the participants managed properly from exit discharge to the assembly area? ● Are the participants managed and arranged in the assembly area? ● Is there a participant tasked with accounting for other occupants of the establishment? ● Are the assigned victims determined, and are all participants well accounted for? 			

Score Range (Number of yes)	Interpretation	Score
16 – 19	EXCELLENT	6
9 – 15	FAIR	4
0 – 8	NEEDS IMPROVEMENT	2

SCORE _____

Twist Pull Aims Squeeze Sweep (T.P.A.S.S.)

Instruction: The lecturer will pick at least five participants to be graded on the T.P.A.S.S. drill. Aside from the selected participants, those others who perform T.P.A.S.S. will not be graded.

Default score for T.P.A.S.S. is **three (3) points**. For every mistake in the performance of the drill, their score will be deducted by one (1) point, unless their score reaches zero (0). The penalties are as follows:

- Putting a fire extinguisher on the floor while executing the drill
- A fire extinguisher is dropped during the performance of the drill.
- Not following the sequence of T.P.A.S.S.
- Using a fire extinguisher against the wind direction
- Not hitting the base of the fire.

SCORE _____

EVACUATION SCORE + T.P.A.S.S. SCORE + 1 = TOTAL SCORE _____

VERBAL INTERPRETATION _____

(1 – 4 NEEDS IMPROVEMENT; 5 – 6 SATISFACTORY; 7 – 8 VERY SATISFACTORY; 9 – 10 EXCELLENT)

PREPARED BY:

NOTED BY:

LECTURER/EVALUATOR

OCCUPANCY'S REPRESENTATIVE

Things to Consider: The lecturer must exert an effort to bring a real fire extinguisher so that the discussion will be more exciting and realistic. Allow them to interact and participate in the demonstration to evaluate their understanding of the topic. Have a sense of humor in executing the demonstration to make it appealable to the participant's however; stay sensitive and respect their differences. The most important thing to consider also is to strive to allow the participants to develop muscle memory that shall naturally aid them in using this portable device during fire.

For this demonstration, safety of both the public and the participants is the utmost priority, hence, the facilitator must secure a sixty (60) square meters of clear space wherein no participant is allowed inside. (See illustration below). The participants should be kept at a safe distance outside that area until such time that the return demo is to be performed. Only ONE participant at a time should be allowed inside the demonstration area. Additional safety precautions have to be made by the facilitators such as a fire extinguisher on standby, medical first aid kit and other necessary equipment. The clear demonstration area should be provided with a cordon line as a form of separation.



EVALUATOR NOTES: (observation during evacuation)

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 - > NFPA (2022) Emergency Evacuation Planning Guide for People with Disabilities, NFPA 1 Batterymarch Park, Quincy, MA 02169, education@nfpa.org,
 - > NFPA (2023) FAQs about building evacuation, <https://www.nfpa.org/Public-Education/Staying-safe/Safety-in-living-and-entertainment-spaces/High-rise-buildings/FAQs-about-building-evacuation>
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