

# **FIRE SAFETY**

DO NOT MISUSE FIRE SERVICES,  
SOME WHERE SOME ONE NEED  
THEM

1

## **DUE TO FIRE**

**ART, ARCHITECTURE & ADOBE**

**DESTROYED.**

**UNRECOVERABLE**

**LOSS OF LIFE.**

**HISTORY**

**WIPE OUT.**

**HUMAN PROGRESS & PROSPERITY**

**STUNTED.**

**“FIRE IS ADORABLE”**

2

# **FIRE SAFETY**



3

# **FIRE --- ESSENTIAL FOR**

**SURVIVAL**

**COMFORT**

**CONVENIENCE**

**PROGRESS**

**PROSPERITY**

**DEVELOPMENT**

**BUT**

# **FIRE LEADS TO**

**DESTRUCTION**

**DEVASTATION**

**DISTRESS**

4

## **EVERY ONE MUST KNOW**

- WHAT IS FIRE ?
- THE COMMON CAUSES OF FIRE,
- THE CONDITIONS FAVOURING FIRE,
- WHAT TO DO INCASE OF FIRE,
- HOW TO CALL FIRE BRIGADE,
- WHAT TO DO WHEN FIRE BRIGADE ARRIVALS.
- THE NEAREST FIRE LARM (IF PROVIDED),
- HOW TO OPERATE FIRE ALLARM,
- THE NEAREST “MEANS OF ESCAPE”,
- THE NEARES FIRE EXTINGUISHERS,
- HOW TO OPERATE EXTINGUISHER.

5

## **WHAT DO WE KNOW ABOUT FIRE**

**FOR COMBUSTION TO OCCUR THE THREE FACTORS TOGETHER ARE REQUIRED.**

- **FUEL**, TO START THE FIRE.
- **HEAT**, TO PROPOGET THE FIRE. (INGITION TERMPERATURE)
- **OXYGEN / AIR**, TO SUPORT COMBUTION. (16% OXYGEN)

**THE TRIANGLE CONSTITUTED BY THESE THREE FACTORS IS KNOWN AS TRIANGLE OF FIRE.**

6



## WHAT IS FIRE

### (THEORY OF COMBUSTION)

**A**

**FIRE (COMBUSTION) - IS A CHEMICAL REACTION, IN WHICH HEAT, LIGHT & VARIOUS GASES ARE EVOLVED.**

**B**

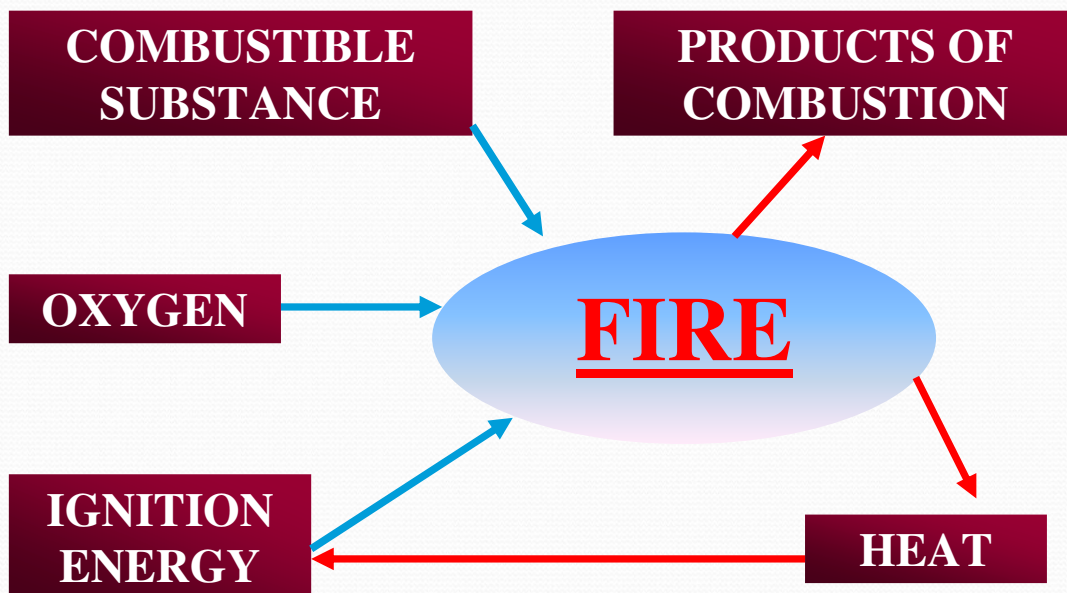
**THERE MUST A COMBUSTIBLE MATERIAL, OXYGEN & SUFFICIENT HEAT TO START COMBUSTION.**

**C**

**FIRE IS A RAPID OXIDATION WITH GENERATION OF THERMAL ENERGY IN THE FORM OF LIGHT, HEAT & FLAME**

7

## WHAT DO WE KNOW ABOUT FIRE



8

# FIRE HAZARDS IN BUILDING

THE FIRE HAZARDS IN THE BUILDING CAN BE DIVIDED INTO TWO CLASSES.

**A**

## INTERNAL FIRE HAZARD

- PERSONAL OR LIFE HAZARD
- HAZARD TO STRUCTURE
- HAZARD TO CONTENTS  
(FIRE HAZARD WITHIN THE BUILDING ITSELF)

**B**

## EXTERNAL FIRE HAZARD

- WHICH ARISES AS A RESULT OF FIRE IN THE SURROUNDINGS PROPERTY (EXPOSURE HAZARD)

9

# CLASSIFICATION OF FIRE

**C**

**A**

**ORDINARY SOLID COMBUSTIBLE FIRES**  
ex. WOOD, PAPER etc.

**L**

**B**

**LIQUID OR LIQUIFIABLE SOLID COMBUSTIBLE FIRES** ex. KEROSCENE, WAX

**A**

**C**

**COMBUSTIBLE GASES FIRES**  
ex. LP gas , ACETYLENE GAS etc.

**S**

**D**

**METAL FIRES**  
ex. ALUMINIUM, ZINC MAGNESIUM etc.

**S**

**E**

**ELECTRICAL FIRES TO ELECTRICAL EQUIPMENT OR APPLINCES**

10

# TRIANGLE OF FIRE



**FIRE RESULTS FROM COMBINATION  
OF**

**FUEL**

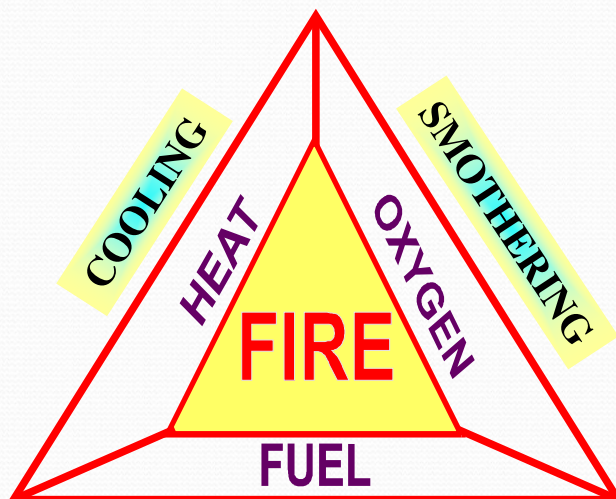
**HEAT**

**OXYGEN**

11

## **LEARN HOW TO PUT OUT A FIRE**

**EXTINGUISHMENT IS REMOVAL OF MINIMUM ONE ELEMENT -  
HEAT / FUEL / OXYGEN**



**Methods of extinction**

### **Cooling**

Removal of heat.  
(Best cooling media is water.)

### **Smothering**

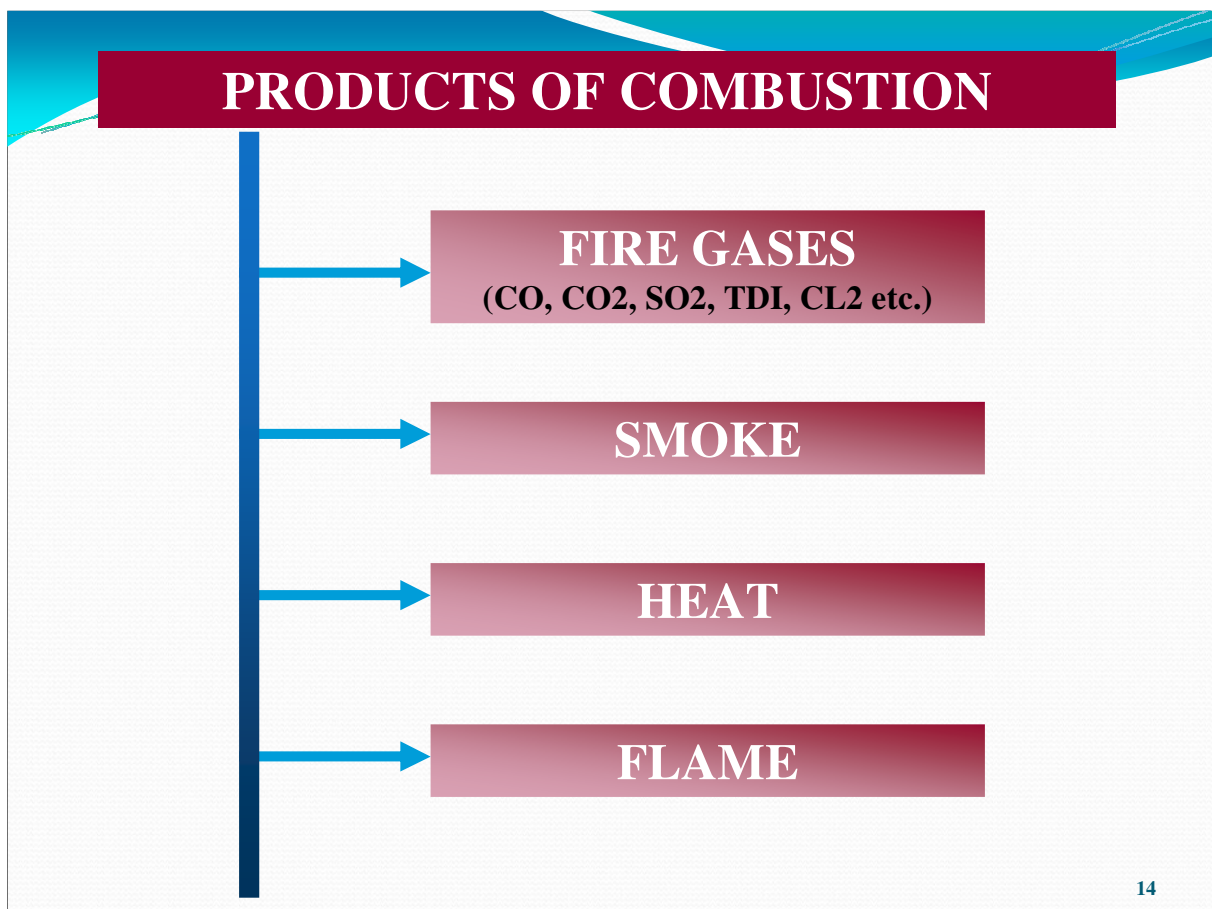
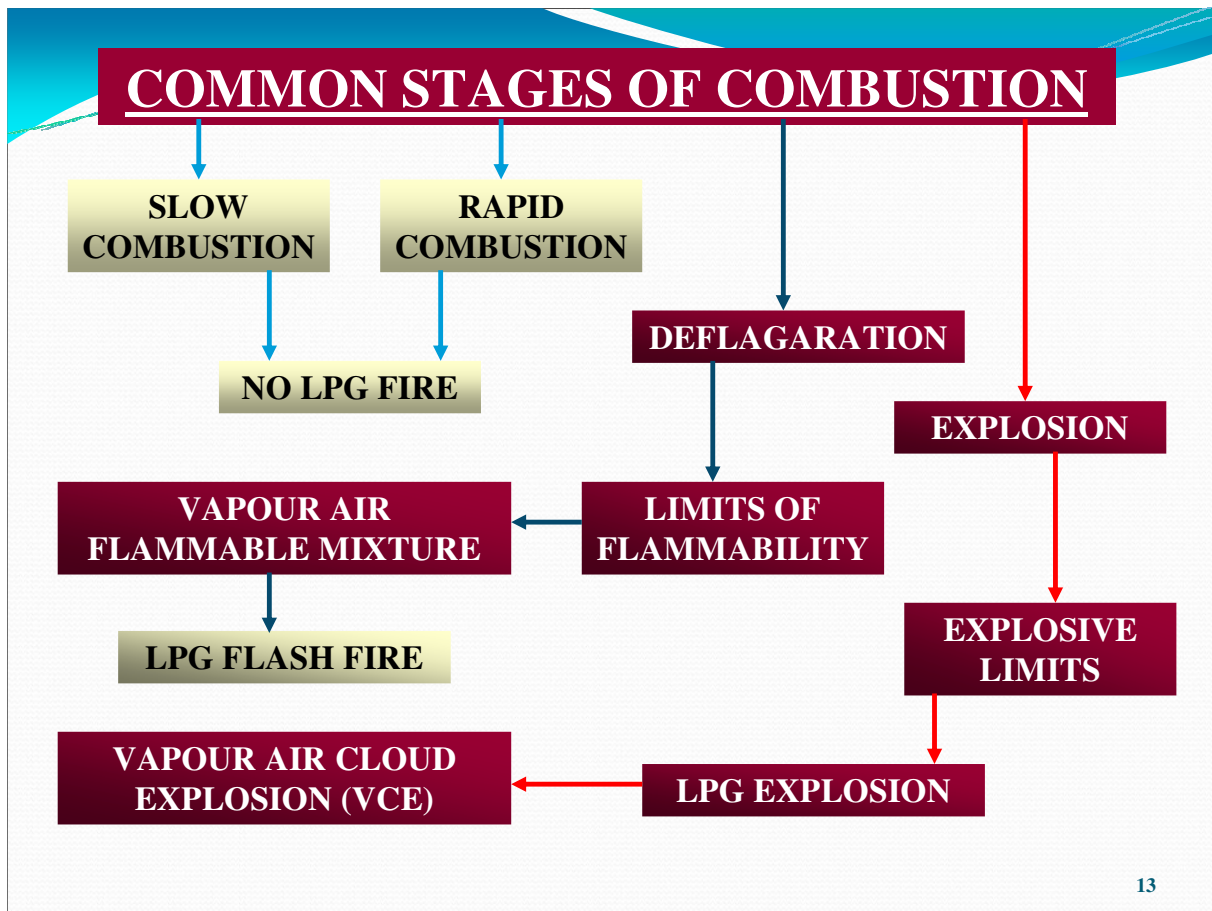
Reducing % of oxygen.  
Cutting off the supply of  
oxygen. (Blanketing, Use foam)

### **Starvation**

Removal of fuel or removal of  
combustible material near by.

12





## **EFFECTS OF PRODUCTS OF COMBUSTION ON HUMAN BEING**

### **HOT GASES**

**TOXIC (SUFFOCATION,  
ASPHYXIATION)  
RESULTS IN DEATHS &  
INCAPACITATION IN FIRE.**

### **SMOKE**

**TOXIC, OBSCURES VISIBILITY  
RESULTS IN PANIC, STAMPED,  
SUFFOCATION, INJURY & DEATHS.  
HAMPER FIRE FIGHTING RESCUE  
OPERATION & INCREASES WATER  
DAMAGE.**

### **HEAT**

**CAUSES BOILING /  
SUPERFICIAL BURNS,  
DAMAGES RESPIRATORY  
TRACT / LUNGS INCREASES  
BREATHING RATE & CAUSES  
PANIC.**

### **FLAME**

**CAUSES DIRECT BURNS RESULTING IN  
DEATHS & INCAPACITATION.**

**All these products trap people results in death. 80 % are caused due  
to suffocation & 20 % death are reported due to direct burns.**

## **CONCEPTS OF FIRE SITUATION**

**FUEL, HEAT &  
OXYGEN IS REQUIRED  
FOR COMBUSTION**

**MOST OF THE FIRE ARE  
CAUSED DUE TO HUMAN  
NEGLIGENCE.**

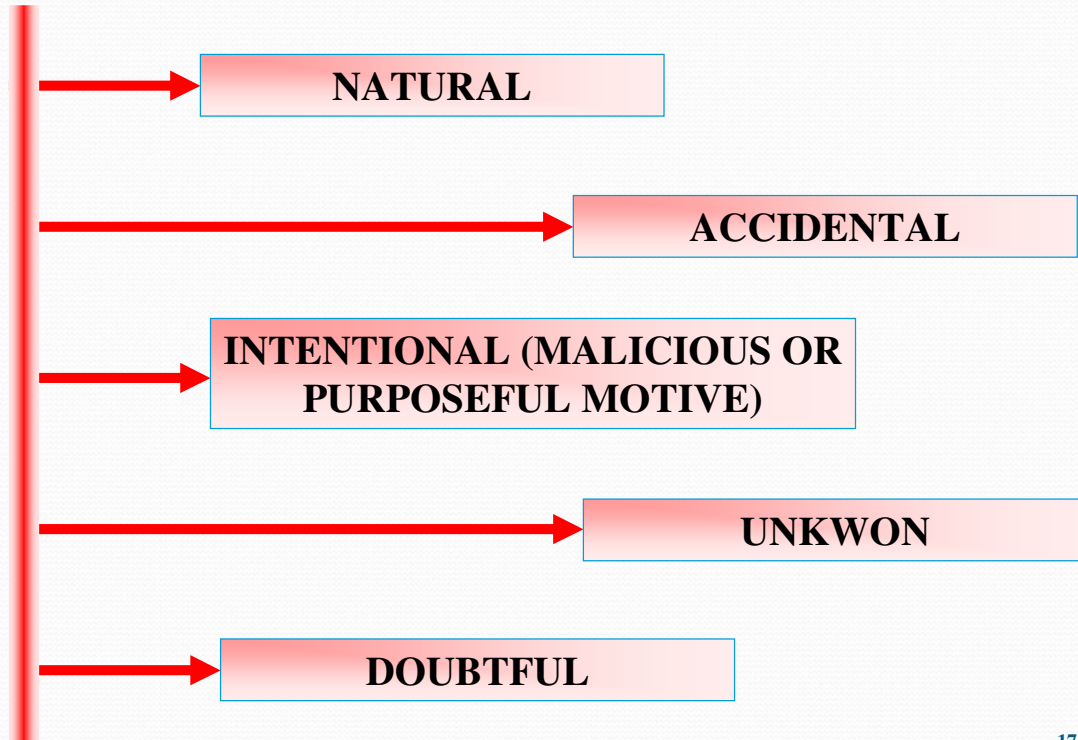
**FIRE SPREADS DUE TO TRANSMISSION OF HEAT BY  
CONDUCTION, CONVECTION OR RADIATION & ALSO  
BY BURNING CINDERS, FLYING SPARKS OR DUE TO  
DRAFTS**

**SMALL FIRES GET  
CONVERTED INTO  
INFERNAL IF NOT  
DEALT WITH  
PROPERLY IN TIME.**

**FIRES ARE  
ORIGINALLY IN  
INCIPIENT STAGE &  
SPREAD RAPIDLY IF  
NOT TACKLED IN TIME**

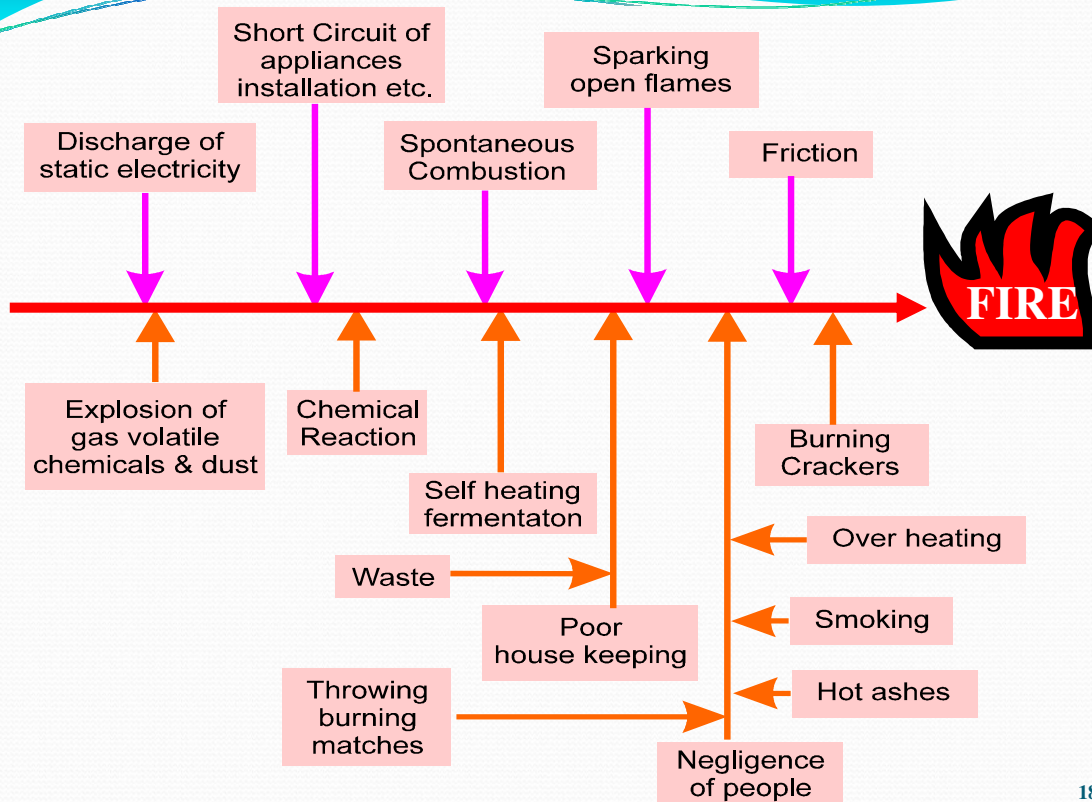


## PROBABLE CAUSES OF FIRE



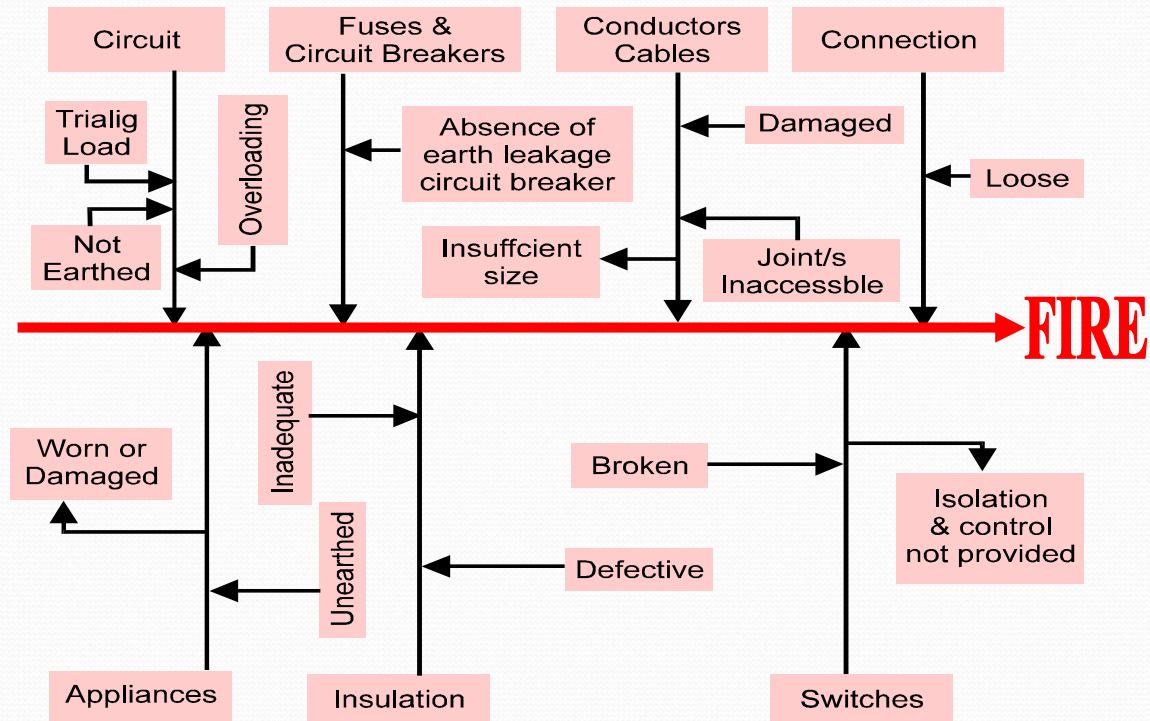
17

## COMMON CAUSES OF FIRE



18

## ELECTRICITY THE MOST COMMON CAUSE OF FIRE



19

## FACTORS DEVELOPING HEAT IN THE ELECTRIC CIRCUIT

### OVERLOAD

- MELTING OF FUSE WIRE
- BREAK DOWN OF INSULATION

(If fuse wire is uprated by consumer.)

### SHORT CIRCUIT

- DAMAGE TO INSULATION AT THE POINT OF SHORT CIRCUIT.
- ELECTRICAL SPARKS

(120 amp. current at 240 vlt. raises the temp. over 1000°C)

### LOCALISE REISISTENCE IN THE CIRCUIT

If the circuit is not correctly bounded. High resistance path causes localise heating at the poor junctions.

### IN LINE ARCHING

Breakage in the conductor, when current is flowing, causes sparking of temp. more than 1000°C.

20

## **STATIC ELECTRICITY THE CAUSE OF FIRE**

The ability of electrically insulating material to build accumulation of electric charges on their surfaces, gives rise to the "Term Static Electricity".

If surface of the material is not connected to the earth or oppositely charged object, the accumulation & density of the charges increases, resulting in spark where electrical potential is high. This gives rise to the phenomenon called "Lightning flash".

Several million volts potential between the storm clouds & earth are discharged & current of average capacity about 20000 amp. having energy  $10^{10}$  joules in each flash. (About 30000 volts) is dissipated.

The lightning striking combustible material causes ignition & striking human being causes electric shock & burns.

Earthing, bonding, humidification & ionisation are the preventive measures.

21

## **FIRE PREVENTIVE MEASURES**

**DO SMOKING AT SAFE PLACES, USE ASHTRAY FOR SMOKING**

**DO NOT SMOKE IN BED IT MAY BE FATAL.**

**WHEN ELECTRICITY FAILS, USE TORCH LIGHT & NOT CANDLE/WICKER LAMPS.**

**KEEP FLAMMABLE MATERIAL (Kerosene etc.) AWAY FROM STOVE & BURNERS**

**DO NOT BEND OVER BURNING APPLIANCES**

**KEEP MATCHES, LIGHTERS, CRACKERS AWAY FROM CHILDREN**

**DO NOT LEAVE ELECTRICAL IRONS/HEATERS UNATTENDED WHEN SWITCHED ON.**

**DO NOT USE FAULTY ELECTRICAL WIRING / EQUIPMENT.**

22



**NEVER OVER LOAD  
ELECTRICAL  
CONNECTION BY USING  
MULTIPLUGS.**

**USE DESIGNED  
APPLIANCE FOR  
DESIGNED ELECTRICAL  
LOAD.**

**NEVER CHECK GAS  
LEAKAGE WITH  
NACKED FLAME ALWAYS  
USE SOAP SOLUTION**

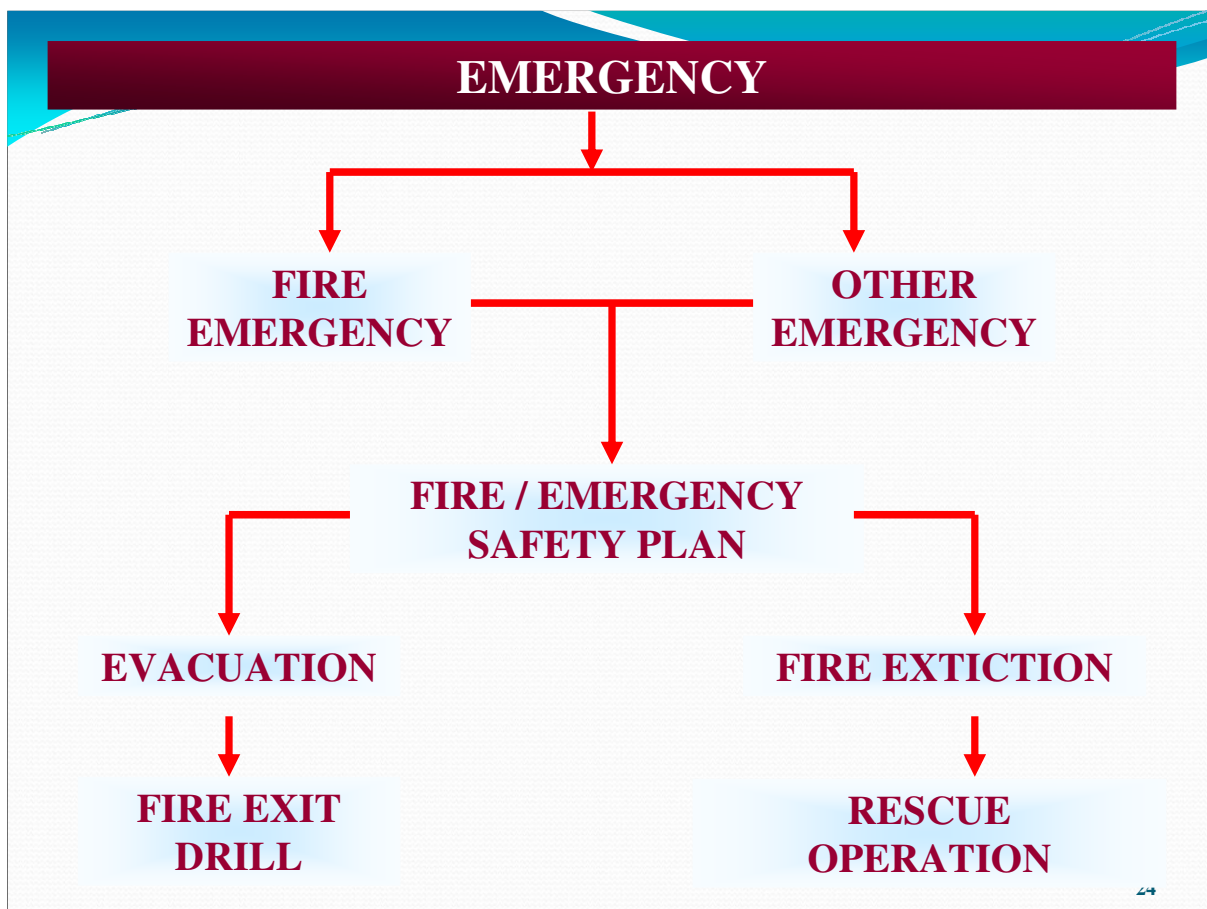
**TAKE PROPER  
PRECAUTION AT THE  
TIME OF WELDING  
CUTTING**

**CARRY OUT TESTING OF  
ELECTRICAL WIRING,  
INSULATION & EARTHING  
REGULARLY.**

**NEVER STORE GAS  
CYLINDER WITH OTHER  
MATERIAL & NEAR HEAT/  
NACKED FLAME.**

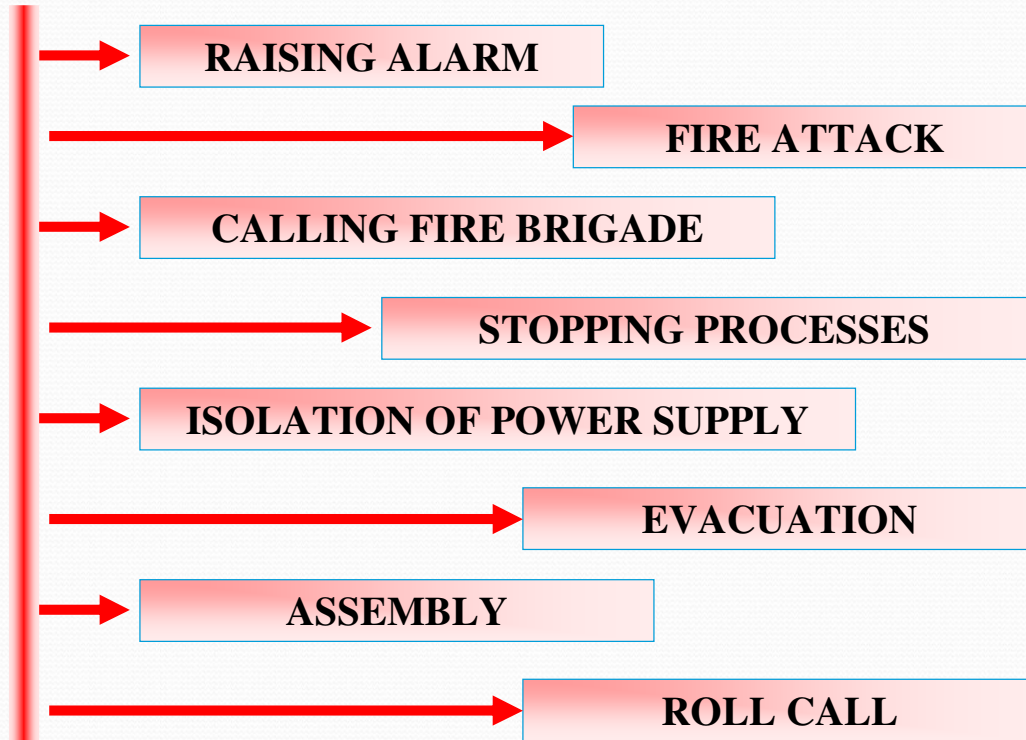
**DO NOT COVER ELECTRICAL BULBS, SWITCH  
BOARD WITH CURTAIN OR CLOTH OR PAPER.**

23



24

## ASPECTS OF PLAN OF ACTION



25

## AIMS OF FIRE EXIT DRILL

**EVACUATE & RESCUE THE PERSONS THERE IN THE BUILDING.**

**TO GIVE REQUIRED INFORMATION TO LOCAL FIRE BRIGADE PERSONNEL & TO ASSIST THEM.**

**PRACTICE, REHEARSE, REVIEW & UPDATE FIRE SAFETY PLAN.**

**RESTRAIN THE FIRE SPREAD & FIGHT THE FIRE TILL LOCAL FIRE BRIGADE IS ARRIVED.**

**RESCUE AND FIRE FIGHTING OPERATION. (ACT WITHOUT THINKING)**

**NEVER ENTER BUILDING ONCE EVACUATED.**

26

## PURPOSE OF FIRE SAFETY PLAN

**INDENTIFICATION.**

**ELEMINATION OF HAZARDS  
THROUGH INHERENT SAFE  
DESIGN.**

**CONSEQUENCES ANALYSIS  
HAZARDS.**

**IDENTIFICATION &  
SPECIFICATION OF  
PREVENTIVE MEASURES.**

**IDENTIFICATION OF  
CONTROL & MITIGATION  
MEASURES.**

**COMMUNICATION OF MANAGEMENT PROCEDURE TO THE  
PEOPLE INVOLVED & TO BE AFFECTED BY FIRE.**

27

## THE PERSONS INVOLVED IN FIRE SAFETY

**THE PERSONS RELATED WITH THE FIRE SAFETY  
CAN BE IDENTIFIED AS UNDER.**

**USERS / OWNERS / OCCUPANTS**

**EMPLOYEES / WORKERS**

**EMPLOYER / MANAGER**

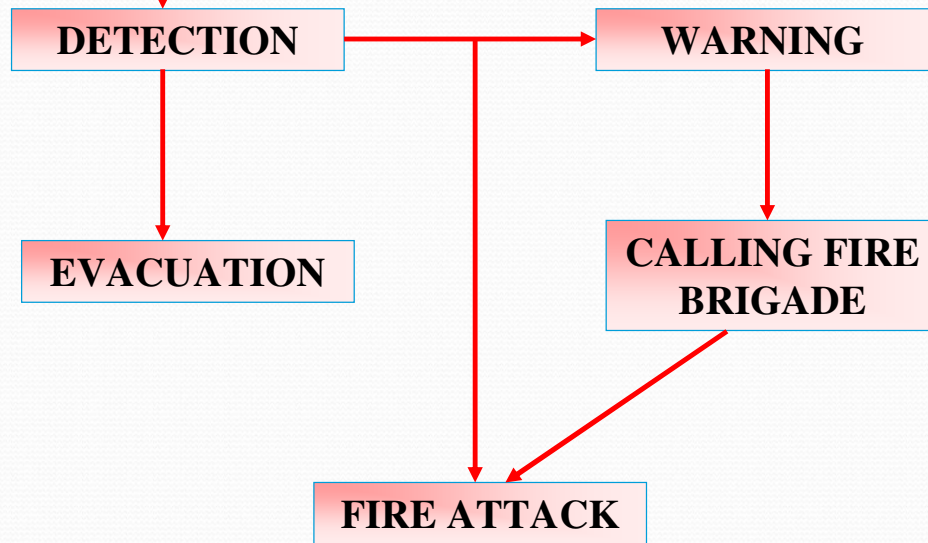
**FIRE SAFETY OFFICIAL**

**MEMBERS OF THE PUBLIC**

28

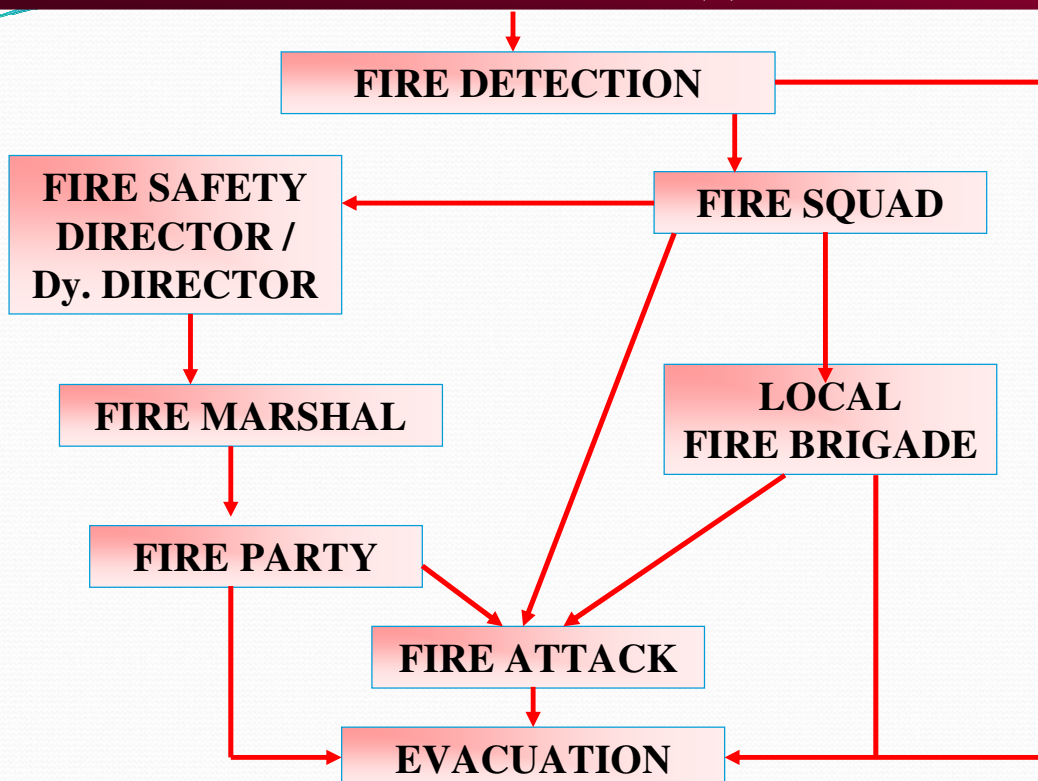


## ACTION PLAN (1)



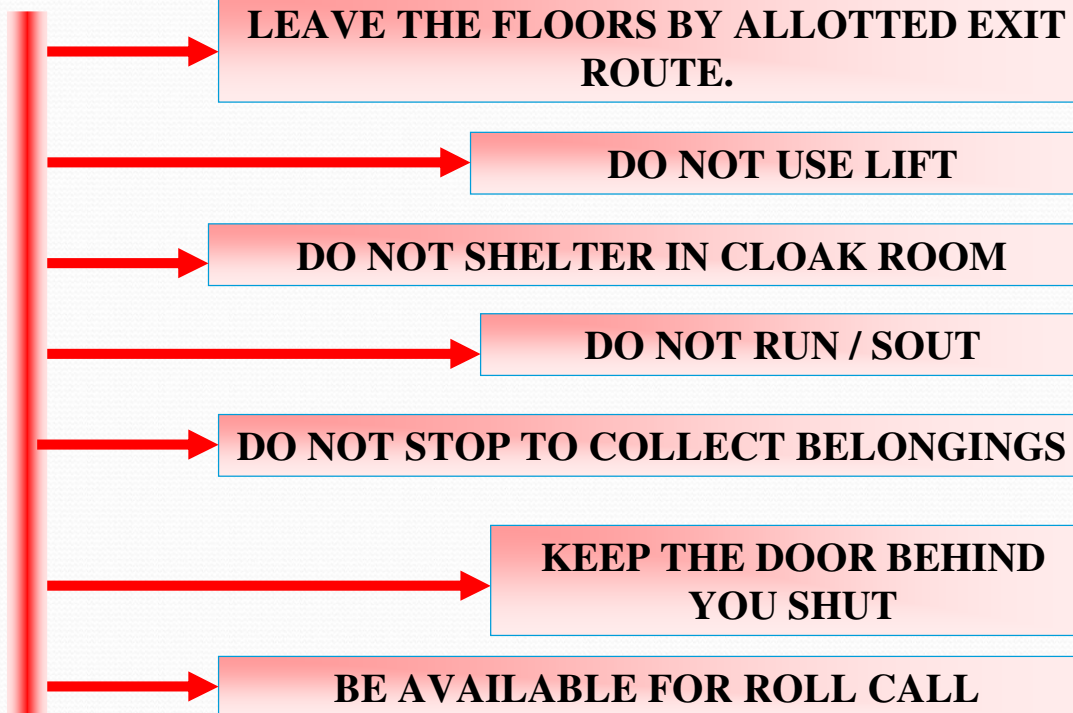
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## ACTION PLAN (2)



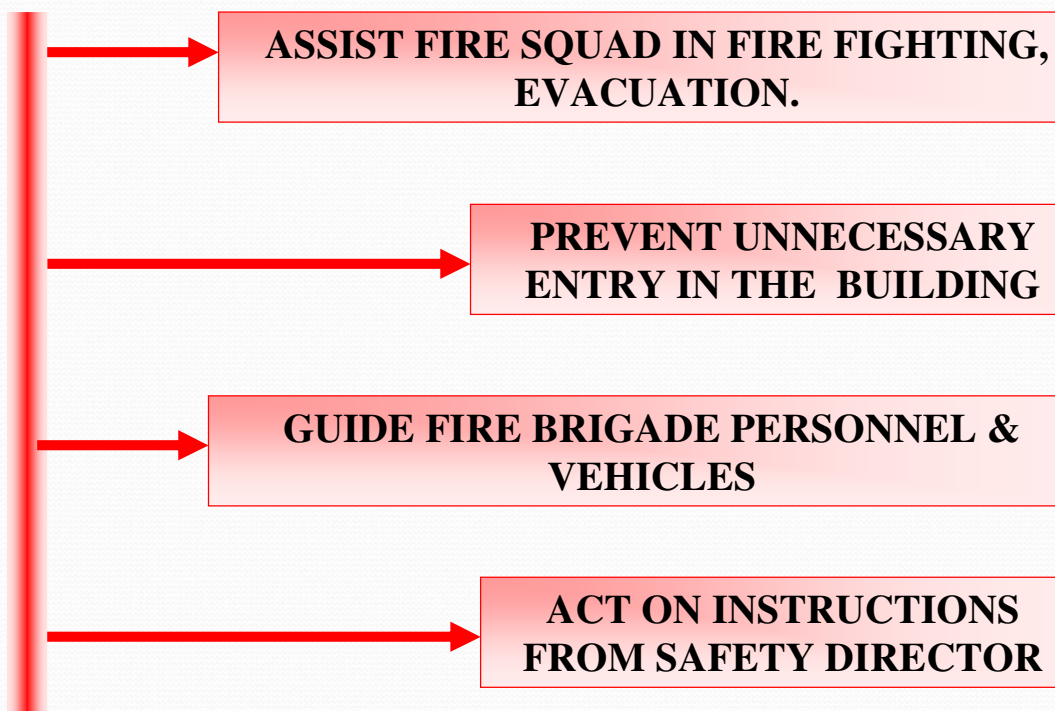
30

## **STEPS TO BE TAKEN BY THE OCCUPANTS**




31

## **ACTION BY SECURITY STAFF**



32

## **STEPS TO BE TAKEN BY THE OCCUPANTS**

- 
- LEAVE THE FLOORS BY ALLOTTED EXIT ROUTE.**
  - DO NOT USE LIFT**
  - DO NOT SHELTER IN CLOAK ROOM**
  - DO NOT RUN / SOUT**
  - DO NOT STOP TO COLLECT BELONGINGS**
  - KEEP THE DOOR BEHIND YOU SHUT**
  - BE AVAILABLE FOR ROLL CALL**

33

## **HOW TO CALL FIRE BRIGADE**

- 
- DIAL 101 or 3085991-2-3-4, 3086181-2, 3076111-2-3 & 102 (Ambulance),**
  - GIVE CORRECT & DETAILED ADDRESS,**
  - GIVE CALLING TELEPHONE NUMBER IT IS REQUIRED FOR CALL VERIFICATION,**
  - REPLACE TELEPHONE HANDSET PROPERTY & WAIT FOR VERIFICATION.**
  - ON ARRIVAL FURNISHING DETAILS TO THE FIR BRIGADE & ASSIST THEM**

34



## **REMEMBER**

**ALL THE SAFETY MEASURES TOGETHER  
ARE PROVEN UNMANAGEABLE.**

**ALL THE ACTIVE & PASSIVE MEASURES  
MUST BE THOROUGHLY COMPLIED WITH.**

**EFFICIENT & WELL MAINTAINED FIRE  
DETECTION & PROTECTION SYSTEM ARE  
FOUND EFFECTIVE.**

**INTERNAL FIRE FIGHTING MOST  
RELAIBLE, USEFULL & EFFECTIVE**

35

## **CONCLUSION**

### **CONSEQUENCES OF FIRE**

**LOSS OF LIFE.**

**LOSS OF PROPERTY.**

**UNEMPLOYMENT.**

**LOSS OF SKILLED WORKERS.**

**SHORTAGE OF COMMODITIES.**

**PRICE INCREASE & INFLATION.**

**NATIOAL PROGRESS AFFECTED.**

**WHATEVER BURNS NEVER RETURNS**

**HENCE**

**PREVENT FIRES BEFORE THEY START.**

36

MFS



**“DO NOT MISUSE US  
SOMEWHERE SOMEONE  
BADELY NEEDS US”**

*Thank you,*