

CASE STUDY
OF
FIRE INCIDENT

Presented By

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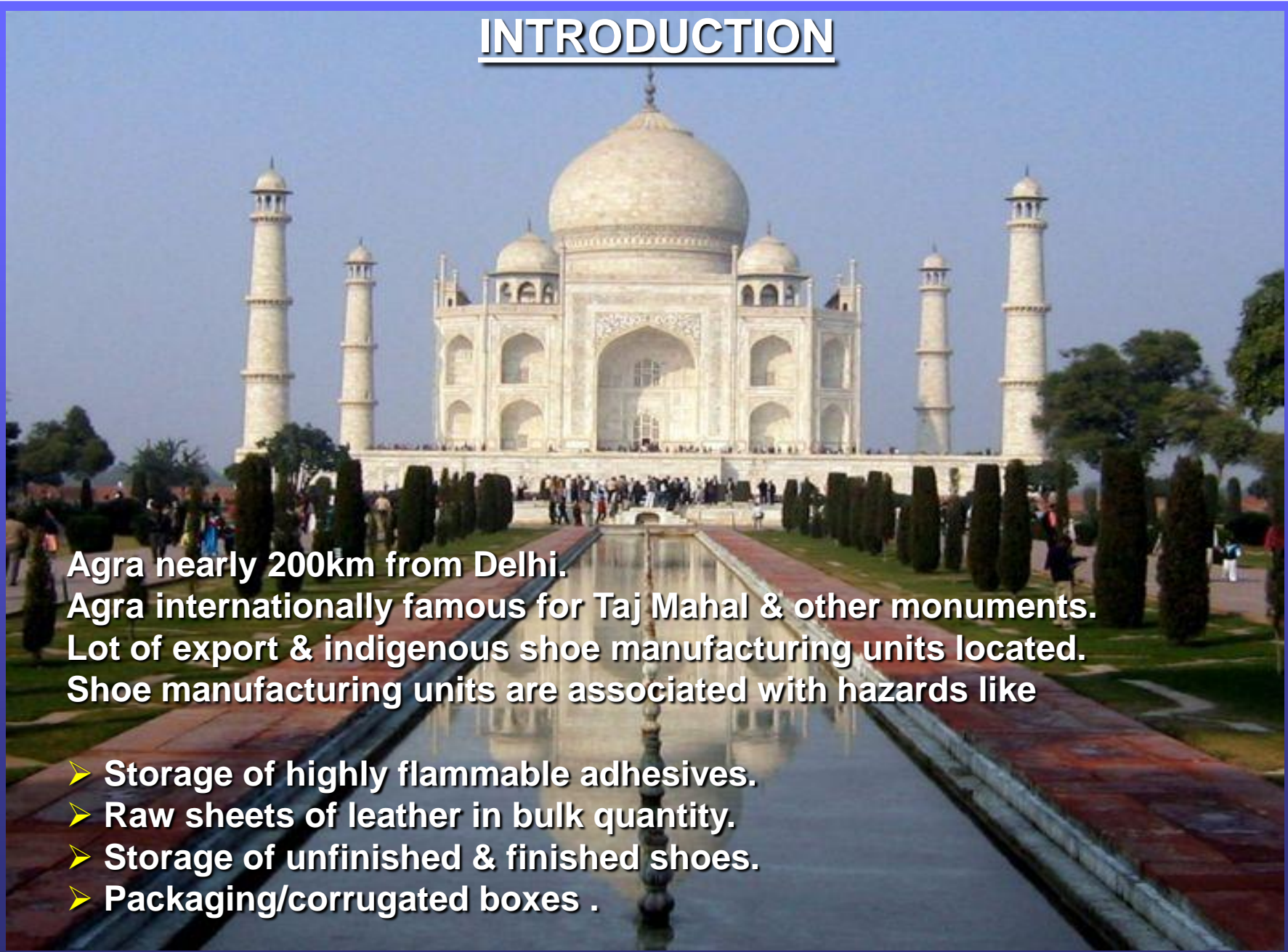
Ajay Kumar Gupta

**Deputy Director, U. P. Fire Service, Agra Range,
Agra.**

Factory
M/s Shreeji International
Export Shoe Manufacturing

Jeoni Mandi, Agra
Incident Date : 24, May 2002

INTRODUCTION



Agra nearly 200km from Delhi.
Agra internationally famous for Taj Mahal & other monuments.
Lot of export & indigenous shoe manufacturing units located.
Shoe manufacturing units are associated with hazards like

- Storage of highly flammable adhesives.
- Raw sheets of leather in bulk quantity.
- Storage of unfinished & finished shoes.
- Packaging/corrugated boxes .

M/S SHREEJI INTERNATIONAL PREMISE

- **Situated in one of the portion of 1st Floor of LIC building.**
- **Other commercial units situated in this LIC building**
 - **RCF Godown**
 - **M/s Usha International Factory**
 - **Khoda Shoes**
 - **Dainik Jagran Newspaper Press**
 - **M/s S M Export**
 - **M/s Jaipur Golden Transport**
 - **U P Rajya Bhandran Nigam Godown**



A View of L. I. C. Building, AGRA

M/S SHREEJI INTERNATIONAL PREMISE

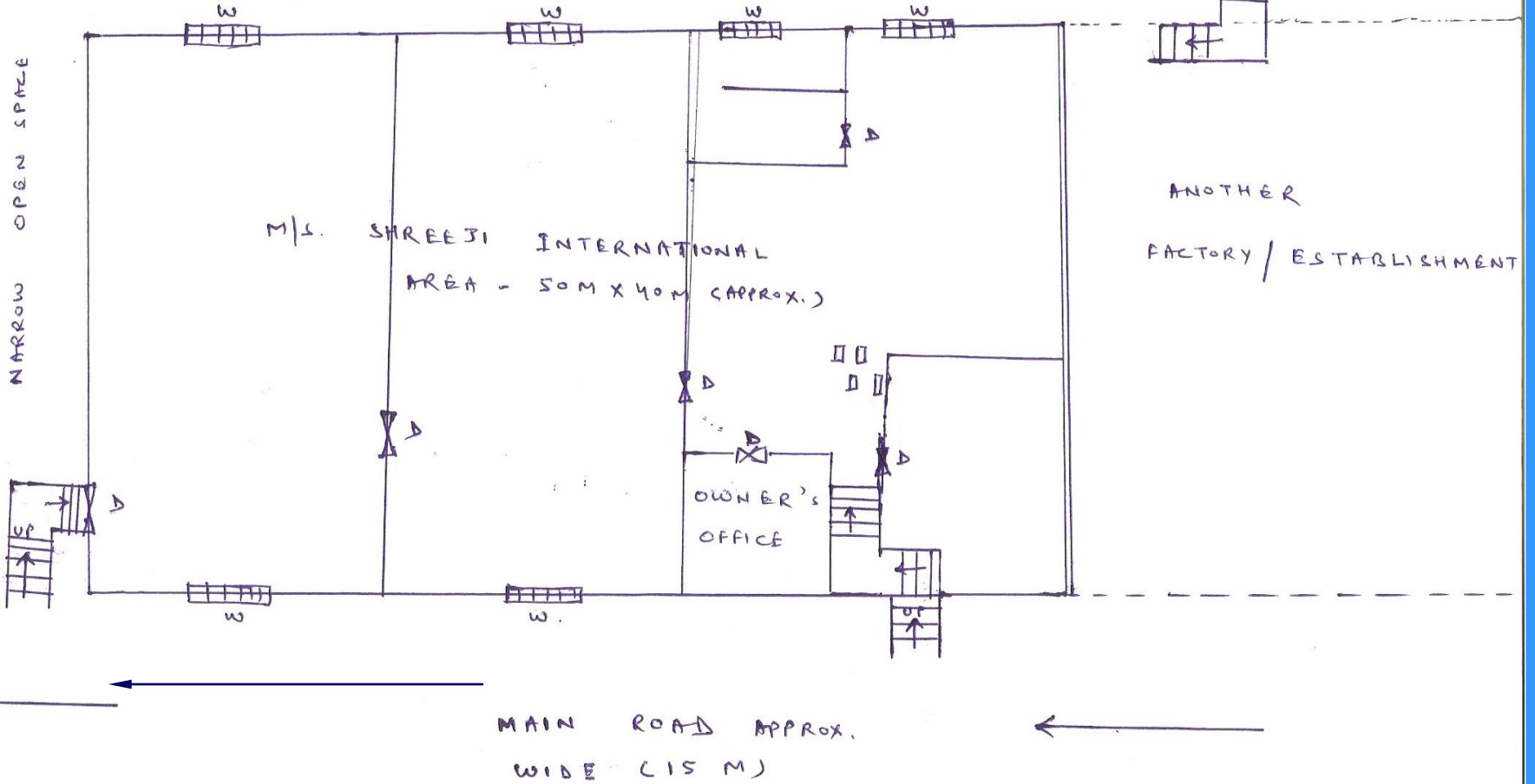
Engaged in shoe manufacturing since 1991.

**Registered under U.P. Factories Act, 1948 on
12, Oct 1996 for 50 workers & 50 H. P.**

License renewed up to 31, Dec 2002.

Provided with 2 staircases.

OPEN SPACE



FIRST FLOOR PLAN OF
M/S. SHREEJI SHOE INTERNATIONAL FACTORY

M/S SHREEJI INTERNATIONAL PREMISE

Deficiencies Noticed :

1 No. Staircase fitted with iron channel gate normally kept locked.

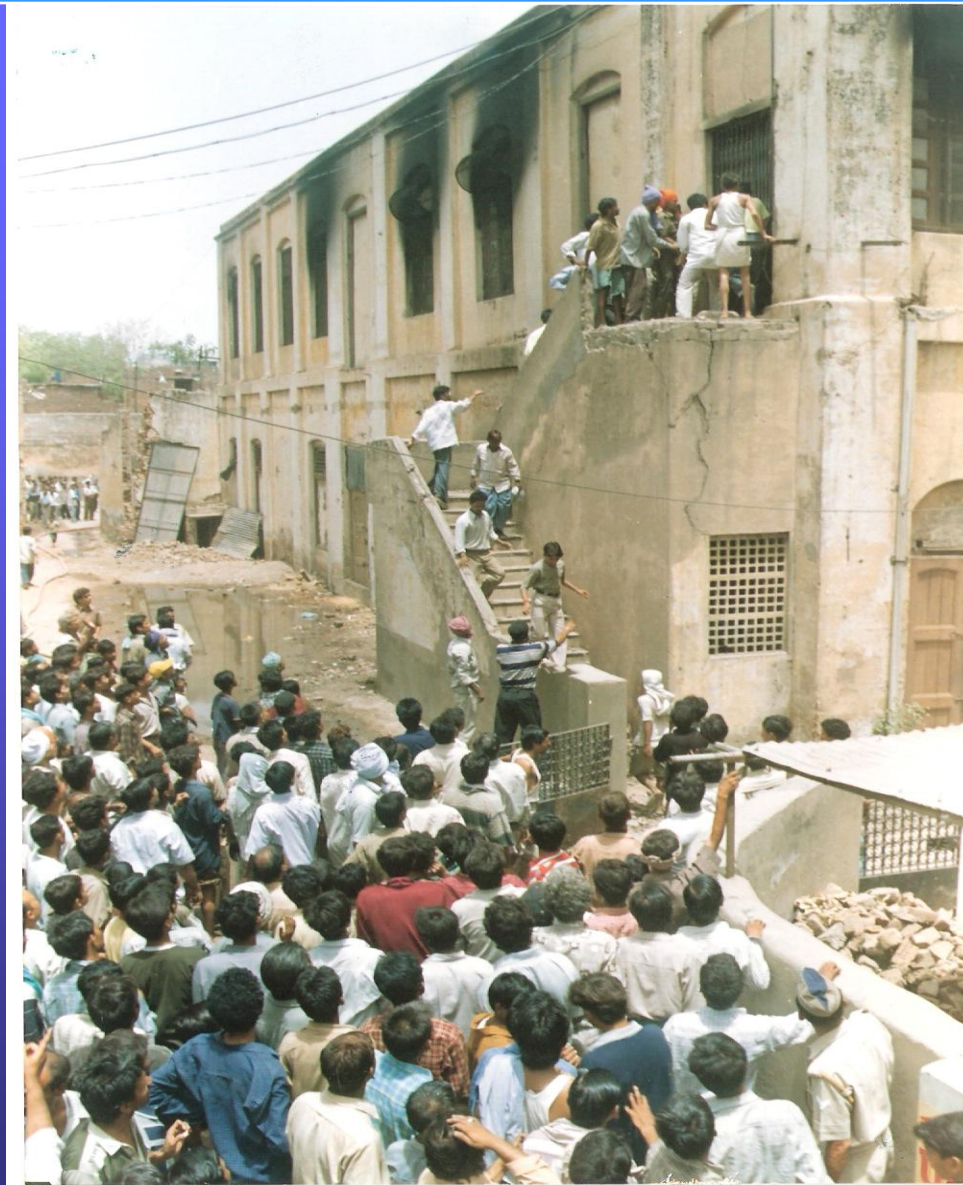
Other main staircase used for both entrance & exit.

Storage of 30-40 drums of each 20 lts. cap of highly flammable adhesive near entrance point of main staircase.

Approx. 300-350 employees working on incident day.

Distance of factory from nearest Fire Station – 7 km.

Except few unserviceable Fire Extinguishers, No other fire fighting equipment was available in the factory.



Side View of Shoe Factory, AGRA

INCIDENT

At around 10.15 AM, few employees were transferring adhesive from bigger to smaller containers.

Due to negligent smoking, flammable vapour present caught fire & resulted into explosion.

Due to lack of primary containment of fire with fire fighting equipments, fire spread very quickly to other portion of the factory.

Exit gate being locked, around 60-70 employees assembled on back side room having a window fitted with wire mesh.

Tried to break the mesh, but failed & trapped in it.

Fire reported at Idgah fire station thro' CCR - 10.32 AM

Fire Service reported at site - 10.45 AM.



View of window fitted with wire mesh

FIRE FIGHTING & RESCUE OPERATION

Fire fighting alongwith rescue operation started : 250-300 employees trapped inside were rescued by fire service personnels assisted by locals by breaking exit channel lock & window wire mesh.



FIRE FIGHTING & RESCUE OPERATION



Due to high flame intensity & ongoing explosions, all others trapped in back side portion could not be rescued.

FIRE FIGHTING & RESCUE OPERATION



Meanwhile all top district officials arrived at site and directed fire service of nearby districts, Air Force, COD & Army.

FIRE FIGHTING & RESCUE OPERATION



Huge crowd gathered.

Created law & order problem.

Hampered rescue & fire fighting operation.

District Police force managed the crowd with great difficulty.

FIRE FIGHTING & RESCUE OPERATION

Detail Of Fire Service Units Involved :

- **U.P.Fire Service, Agra**

Water Tender	- 6
Foam Tender	- 1
Diesel Pump	- 2
Personnel Deployed	- 75

- **U.P. Fire Service, Firozabad**

Water Tender	- 2
Personnel Deployed	- 12

- **U.P. Fire Service, Mathura**

Water Tender	- 1
Personnel Deployed	- 5

- **U.P. Fire Service, Hathras**

Water Tender	- 1
Personnel Deployed	- 6

FIRE FIGHTING & RESCUE OPERATION

➤	COD, Agra	
	Water Tender	- 1
	Personnel Deployed	- 7
➤	Fire Service, Mathura Refinery	
	Water Tender	- 1
	Personnel Deployed	- 3
➤	Air Force Station, Agra	
	Water Tender	- 1
	C.F.T	- 2
	Transport Vehicles	- 2
	Ambulance	- 1
	Personnel Deployed	- 24
➤	Army Personnel Deployed	- 185
➤	Heavy Cranes	- 4
➤	Ambulances From Govt. Hospitals	- 12
	Fire Controlled At	- 2.45 PM

FIRE FIGHTING & RESCUE OPERATION



Rescue operation started for searching of trapped casualties by breaking rear wall of the room along with dousing of pocket fires .

FIRE FIGHTING & RESCUE OPERATION



FIRE FIGHTING & RESCUE OPERATION

- **Around 39 casualties completely burnt brought down & shifted to hospital.**
- **Army & fire vehicles of Air Force, COD & nearby district returned to their respective units at 7.00 PM**
- **Fire Service, Agra remained at site for searching operation of casualties and extinguishing the smouldering fire.**
- **Two more casualties were searched & shifted to hospital on 25, May 2002.**
- **On 26, May 2002. Hon'ble chief minister visited the site and appreciated the efforts made by local administration in handling the fire disaster.**
- **Fire and rescue operation continued up to 28, May 2002.**
- **Later on 3 casualties expired during treatment in hospital.**

LOSS OF LIFE & PROPERTY



Total No. of casualties	-	44
Total No. of Persons injured	-	10
Approx. Cost of property at risk	-	Rs. 8.83 Crores
Approx. Cost of property damaged	-	Rs. 1.05 Crores
Approx. Cost of property saved	-	Rs. 7.78 Crores

RECOMMENDATIONS PROPOSED IN MAGISTERIAL INQUIRY OF INCIDENT

Registration of all the unregistered shoe factories.

Training in handling hazardous material, operation of fire fighting equipments, evacuation procedures for the workers employed in the factories.

Chief fire officer should be empowered for the enforcement & upkeepment of fire & safety arrangements in the factories.

Sufficient storage of water for handling fire incidents either in the form of overhead tank or in the under ground tank.

Storage of flammable materials like adhesives at a safe place away from the work place.

Provision of min. 2 exit gates.

'No Objection Certificate' from the Fire Service Deptt. for enforcement of fire & safety requirements in the factories to be mandatory before the renewal of factory license under U.P. factories Act.

EXTRACT FROM U.P FACTORIES ACT,1948

- **Mandatory registration of factory by Factory Deptt. with its subsequent renewal if 10 or more workers are involved in manufacturing process.**
- **Mandatory approval of plans of factory premises including type, category & other details.**
- **Section 7(a) - Every occupier shall ensure the health, safety & welfare of the workers while at work .**
- **Section 13 - Effective & suitable provision for ventilation.**
- **Section 16 - Proper space or no over crowding in a factory.
Minimum occupant load – 4.2 Cu. M / Person.**
- **Section 17 - Sufficient & suitable lighting in the premise.**
- **Section 21 - Safety / fencing guard for machines**

EXTRACT FROM U.P FACTORIES ACT, 1948

- Section 29 - Provision of lifting machine / chain pulley.**
- Section 31 - Provision of only standardize pressure vessels with its periodical testing by a competent person.**
- Section 32 - Sound construction & properly maintained floors, steps, passages & gangways.**
- Section 38 - Provision of safe means of escape for all the persons in the event of fire with necessary equipment & facilities as prescribed for extinguishing fire. Familiarization of workers with means of escape & their training accordingly.**
- Section 45 - Provision of medical first aid box.**
- Section 67 - Prohibition of employment of a person below 14 yrs. of age.**

REQUIREMENT OF FIRE & SAFETY FOR A LEATHER FACTORY AS PER NATIONAL BUILDING CODE OF INDIA

(FOR BUILT UP AREA MORE THAN 500 M² & 1000 M²)

Minimum 2 staircases out of which one shall open directly to the exterior or to an open area.

Cap. of exit in accordance with section 4.4 of NBC Part-IV.

No flame or ignition to be allowed in the room storing/ using volatile flammable substances.

Proper care of faulty electrical connection.

Storage of flammable liquids shall be as per Petroleum Act, 1934.

Occupant load - 10 Sq.M / Person.

REQUIREMENT OF FIRE & SAFETY FOR A LEATHER FACTORY AS PER NATIONAL BUILDING CODE OF INDIA

First Aid Fire Fighting Equipment as per IS-2190.

Hose Reel.

Wet Riser.

Down Comer.

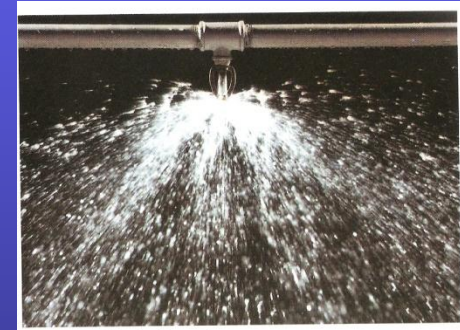
Yard Hydrant.

Automatic Sprinkler System.

Manually operated Electric Fire Alarm System.

U/ g Static Water Storage Tank of cap. 75000 lts.

Terrace tank of cap. 20000 lts.



REQUIREMENT OF FIRE & SAFETY FOR A LEATHER FACTORY AS PER NATIONAL BUILDING CODE OF INDIA

Fire Pumps With Min. Pressure of 3.5 Kg/ Cm²

1 No. Electric Pump of Cap. 2280 Lpm

1 No. Diesel Pump of Cap. 2280 Lpm

1No. Electric Pump of Cap. 180 Lpm

1 No. Terrace Pump of Cap. 900 Lpm

On the basis of the recommendations submitted in the Magisterial Inquiry and no. of severe fire incidents, the Govt. of U.P. has enforced U P Fire Prevention & Fire Safety Act- 2005. Which includes the fire & safety requirements mentioned in Building bye-laws, National Building Code of India and any other law for the time being in force for the Buildings / Premises mentioned in the aforesaid Act to avoid reoccurrence of such type of incidents in future which may result into colossal National loss in terms of life and property.

MAIN FEATURES OF THE ACT

- SECTION – 2 – DEFINITIONS

- BUILDINGS: MEANS A HOUSE, OUT HOUSE, STABLE, LATRINE, URINAL, SHED, HUT, WALL (OTHER THAN A BOUDARY WALL) OR ANY OTHER STRUCTURE WETHER OF MASONARY, BRICKS, MUD, METAL OR OTHER MATERIAL.
- PREMISES : MEANS ANY LAND OR ANY BUILDING OR PART OF THE BUILDING APARTNENT THERTO WHICH IS USED FOR STORING EXPLOSIVE SUBSTANCES AND DANGEROUSLY INFLAMMABLE SUBSTANCES.
- AND OTHER DEFENITIONS

SECTION – 3 OF THE ACT (INSPECTION OF BUILDINGS, PREMISES ETC.)

- THIS SECTION DEFINES THE ENTRY PROCEDURES IN A BUILDING / PREMISES BY THE NOMINATED AUTHORITY AS DEFINED IN THE ACT.

SECTION - 4

MEASURES FOR PREVENTION & FIRE SAFETY

- THIS SECTION DEFINES THE PROCEDURES FOR RECORDING THE DEVIATION OR CONTRAVENTIONS WITH REGARD TO FIRE PREVENTION & FIRE SAFETY MEASURES AS DEFINED IN THE BUILDING BYE LAWS, N. B. C. OF INDIA FOR DIRECTING TO THE OWNER OR OCCUPIER OF THE AFFORESAID BUILDING OR PREMISES.

SECTION-5

POWER TO SEAL BUILDINGS OR PREMISES.

- THIS SECTION DEALS WITH SEALING PROCEDURES OF THE BUILDING / PREMISES ON THE RECOMMENDATIONS OF NOMINATED AUTHORITY BY THE DISTT. MAGISTRATE.

SECTION – 6

PROVISIONS REGARDING CERTAIN BUILDINGS AND PREMISES.

- THIS SECTION IMPOWERS CHIEF FIRE OFFICER TO ENTER AND INSPECT ANY BUILDING INCLUDING A BUILDING UNDER CONSTRUCTION FOR ASCERTAINING THE ADEQUACY OF FIRE SAFETY MEASURES AS PER THE PROCEDURES LAID DOWN IN THE AFFORESAID SECTION.

SECTION – 8

DEFAULT POWERS OF CHIEF FIRE OFFICER

- THIS SECTION IMPOWERS C. F. O. TO TAKE SUCH STEPS AS MAY BE NECESSARY FOR THE COMPLIANCE OF SUCH NOTICES ISSUED UNDER SECTION 4 OR 6 OF THE ACT.

SECTION – 9 (APPEAL)

- THIS SECTION DEFINE THE PROCEDURES TO APPEAL AGAINST THE NOTICES OF THE NOMINATED AUTHORITY OR THE C.F.O. TO THE STATE GOVT.

SECTION – 10

(BAR OF JURISDICTION OF COURTS)

- THIS SECTION DEFINES THAT NO COURT SHALL ENTERTAIN ANY SUIT, APPLICATION OR OTHER PROCEEDINGS IN RESPECT OF ANY NOTICE OR ORDER UNDER THIS ACT AND NO SUCH NOTICE OR ORDER SHALL BE CALLED IN QUESTION OTHERWISE THAN BY PREFERING AN APPEAL UNDER THIS ACT.

SECTION – 11 (PENALTIES)

- THIS SECTION DEALS WITH THE PENALTIES IN CASE OF CONTRAVENTION OF ANY PROVISION OF THIS ACT FOR A TERM WHICH MAY EXTEND TO 10 YEARS IMPRISONMENT OR WITH FINE WHICH MAY EXTEND TO ONE LAC RUPEES OR WITH BOTH AND WHERE THE OFFENCES IS A CONTINUING ONE WITH A FURTHER FINE WHICH MAY EXTEND TO Rs. 5000/- FOR EVERY DAY AFTER THE FIRST DURING WHICH SUCH OFFENCE CONTINUE.

SECTION – 13

(SANCTION OF PROSECUTION)

- THIS SECTION DEFINES THAT NO COURT SHALL PROCEED TO THE TRIAL OF AN OFFENCE UNDER THIS ACT, EXCEPT ON THE COMPLAINT OR UPON INFORMATION RECEIVED FROM THE NOMINATED AUTHORITY.

SECTION – 14 (JURISDICTION)

- THIS SECTION DEFINES THAT NO COURT INFERIOR TO THAT OF CHIEF JUDICIAL MAGISTRATE SHALL TRY AN OFFENCE PUNISHABLE UNDER THIS ACT.

CONCLUSION

- APART FROM THIS ACT, THE GOVT. OF UTTAR PRADESH HAS ALSO ISSUED SEVERAL G.O.s TO ENFORCE STRICTLY FOR ADHERANCE OF FIRE SAFETY MEASURES IN THE BUILDINGS OR PREMISES SENSITIVE/ VULNERABLE FROM FIRE SAFETY POINT OF VIEW TO AVOID REOCCURENCE OF SUCH INCIDENTS OF FIRE WHICH MAY RESULT INTO COLOSSAL LOSS OF HUMAN LIFE AND NATIONAL PROPERTY.

Thank You