

NFEC FIRE SAFETY SEMINAR 2010 WORKSHOP: CASE STUDY DISCUSSIONS

Case #1 – Coffee Shop Fire

1) What is the cause of the fire?

- Reused cooking oil overheated.
- Member of public fell when coming forward to help: highlights importance of good housekeeping measures (fire hazard and hampers firefighting/ evacuation efforts).
- Exhaust duct was not cleaned regularly - poor maintenance.
- The hawkers are not careful and trained in fire prevention.

2) Could the spread of the fire be prevented or mitigated by the stall helper?

- Switch off gas supply or install emergency cut off system
- Extinguishing the fire in the cooking pot by covering it with a wet cloth, fire blanket or metal lid.
- Using dry powder/ class K extinguisher if fire is too big to get too close to.
- Conduct fire drills for coffee shops.
- Legal compartmentalization of individual stalls.
- Install fire alarm panels or smoke detector.
- Better housekeeping; areas around stalls to be oil-free, filter, etc, should be cleaned properly.
- Stall helper should not have reused the oil; reused oil have lower flashpoint, more vulnerable to burn.
- Helpers should be trained in basic fire fighting.

3) What are the challenges in preparing your workplace for such fires?

- High cost in purchasing kitchen fire suppression system & maintenance of the suppression system.
- Lack of fire safety awareness & providing training for the kitchen staff
- Attitudes of staff; they may not be open to advices offered on fire safety
- Renovation may cause loss of income from businesses.
- Difficulty in maintenance & cleaning of exhaust ducts – may affect businesses, hawkers, stall owners may not be cooperative.
- No proper guidelines for maintenance of exhaust ducts. (How often to clean the exhaust ducts?)
- Not willing to pay for better maintenance or to service the ducting regularly.
- Fire safety awareness is constantly ignored by staff since they have little incentive
- Time factor, need to act as early as possible
- Difficult to send helpers for training due to cost and time period of such helpers' employment
- Helpers have no ownership of stall
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Case #2 – Timber Factory Fire

1) What is the cause of the fire?

- Presence of flammable vapours in the area of fire origin (heavier than air)
- High fire load (flammable)
- Compressor room is not compartmentalized
- Flammable vapours
- Electrical short circuit
- Ignition source: Isolator that is over-capacity / Cable (supported by bleeding)
- Bulk flammable liquid/spray paint
- Partial enclosure (help fire to spread), vapour does not disperse well
- Human factor
- Electrical equipment faults (e.g. put isolator)
- Improper storage of chemicals

2) Could the spread of the fire be prevented or mitigated?

- Switch off main power supply
- Fire protection system (eg. Sprinkler)
- Check and regular maintenance of electrical points, check for melting / charring within the isolator, make sure there is no over stacking of electrical sockets.
- Engage a license electrical worker for all electrical repairs and maintenance
- Proper fire protection system like smoke or heat detectors
- Proper ventilations, eg. Extractors
- L.E.W (Licensed Electrical Worker) or competent electrician engaged for electrical works
- Safety distance between building and bulk storage facilities and spray paints (such as by compartment)
- Illegal structure, need to get approval, eg from SCDF
- Proper evacuation
- Activate 995- SCDF
- Proper compartmentation of flammables

3) What are the challenges in preparing your workplace for such fires?

- Lack of fire safety awareness (how to get the message to the relevant people in your premises?)
- Unauthorised construction of structures due to lack of storage space. Temporary storage of items in non-designated areas (fire hazard and hampers firefighting/evacuation efforts)
- Most staff ignore safety awareness because they have little incentive
- Language barrier as staff comes from different background
- Cost, eg. Engineering Design
- Space constraint
- Staff training, eg. CERT
- Engage qualified FSM

- Mentality of staff and management (in safety awareness and to provide training)
- Hot work best practices
- No smoking policy in factory
- Designate smoking area at a dist

Case #3 – Woodworks Fire

1) What was the cause of the fire?

- Heat, self-combustion, spark dropped into the saw dust (good conductor, kept in the heat)
- Hot work being carried out
- Accidental due to incipient fire
- Dropped Lights – smouldering embers hotwork
- Arc welding sparks fell onto sawdust. The heated slag is a potential heat source that set the sawdust on fire

2) How could this fire be prevented?

- Separation of the hot works from area with flammable materials
- Use fire blankets, to prevent sparks from coming in
- Mechanical ventilation
- Using of extraction machine to remove saw dust
- Relocate machine, if money is not a problem
- More time to see to the cooling down period
- Switch off both mains and machine after use
- Embers must fully extinguishing and disposed off properly
- Proper Housekeeping
- Contain hot work
- Cover sawdust extraction machine with fire blanket
- PTW System
- Fire watchman
- Remove combustible
- Risk Assessment
- Hot work permit
- Standby Fire Extinguisher
- Training
- Constant supervisor
- To shall have proper storage area
- Preventive measures shall be in place

3) What are the challenges in your recommendations?

- Low resources, small industry
- Difficulty in educating the workers with regard to fire safety
- Attitude (Do not care unless fire happened)
- Not well trained

Case #4 – Illegal Conversion of spaces/Temporary Structure Fire

1) What caused the fire?

- Electrical short circuit
- Praying altar (oil lamp)
- Compressor room is not compartmentalized + flammables stored nearby
- Storing of flammable materials

2) Could this fire be prevented or mitigated?

- Ensure no temporary structure
- FSMs to do more inspections
- Proper ownership
- Request owners to move their illegal structures
- Get SCDF to help
- Use electrical type / battery operated lamps
- Engage a license electrical worker for all electrical repairs and maintenance
- Strict rule on illegal structures
- Management to acknowledge FSM warnings
- Fine owners in order for them to move their illegal structures
- Heightened SCDF enforcement routines
- Engage a LEW

3) What are the challenges in your recommendations?

- Language barrier – many shop owners come from different countries
- High cost for removal
- Conflicting interests between owners (profit-making) and FSMs (safety)

4) Why are such structures dangerous?

- Temporary structures need to have submission; dangerous if not approved
- Need to be certified by PE to be structurally sound
- No fire protection system; as it is not certified
- Location of structures may not be suitable
- Incompatible of the usage; with combustible materials around

5) What should we do to enhance the fire safety of lamp oils?

- Eliminate, if not, find a substitute
- Change location of the oil lamps
- Add in fire protection system
- Enclosure; such as in Chinese Temples, to help the fire from spreading
- Usage of CCTV for monitoring