TTMI Health & Safety Induction day

Fire Safety and Emergency Procedures

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University Safety Office
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www.tcd.ie/estatesandfacilities/health-and-safety/Fire-Safety/
Module Content

• Fire Legislation
• Chemistry of Fire
• Fire Safety Management
• Emergency Procedures
• Role of the S.O. / Fire Warden
• Fire Safety Register
• Hazard spotting / fire prevention
• Fire Extinguisher use
London fire probe focuses on cladding
With 17 confirmed dead but dozens of people still missing, fire chiefs say no more survivors are expected to be found in London’s 120-apartment Grenfell Tower

- Fire spreads to 24th floor within 15 minutes
- Cladding: Added to tower block in 2016 – could be to blame for rapid spread of fire
  - Design specifications suggest renovation work used “ventilated cavity” cladding
  - Ventilated cavity – 50mm void to vent moisture could act as chimney to spread fire

00:54 local time: Fire believed to have started on fourth floor
Main entrance
Celotex FR5000 insulation 150mm thick
Cladding: Twin aluminium sheets, 3mm thick, with polyethylene core

Sources: Press Association, Construction Enquirer, Architects Journal © GRAPHIC NEWS

Grenfell Tower London – lessons learned?
St Andrews Biomedical Sciences Building, 2019
TCD Emergency Response Plan

Emergency Response Guidance
(Appendix 5 of the Emergency Response Plan)

MASTER COPY
(College Safety Office, West Chapel)

Prepared by: E. Egan/J. Mccray
(College Safety Officer)
Main Fire Legislation / Guidance

- Fire Services Act 1981
- Licensing of Indoor Events Act 2003
- Building Control Regulations 1997 – 2014
- Technical Guidance Document B - Fire Safety 2006/2017
  Vol.1 - Buildings other than dwellings (including Apts.)
  Vol.2 – Dwellings, 2017
- SHWW Act 2005
- SHWW (General Application) (Workplace and Work Equipment) Regulations 2007
- Various Standards (B.S. / I.S.) and Codes of Practice
Fire Services Act

As modified by the Licensing of Indoor Events Act 2003

It shall be the duty of every person having control over premises to:

• Take all reasonable measures to guard against the outbreak of fire

• Provide reasonable fire safety measures and prepare and provide appropriate fire safety procedures for ensuring the safety of persons

• Ensure that fire safety measures and procedures are applied at all times

• Ensure, as far as is reasonably practicable, the safety of persons on the premises in the event of an outbreak of fire
Fire Legislation – SHWW Act 2005

Demonstrate active management!

Employers must have plans and procedures in place for emergencies which must cover:

- first aid
- fire fighting
- evacuation of employees and others
- contacts with the emergency services
- designation of sufficient employees to carry out the emergency plans
Chemistry of Fire
The Fire Triangle

3 factors necessary to start and sustain a fire

• Oxygen
• Fuel
• Ignition Source / Heat
Principles of heat transmission and fire spread
Main Cause of Fire Alarm Activations

- Burning Food – Cookers / Ovens
- Dirty Cookers / Grill Pans
- Burning Toast
- Labs incidents
Alerting Occupiers to Fire

Fire Detection and Alarm Systems

- Manual break-glass system
- Automatic Fire Detection Systems L1 to L4
- Components of a detection & alarm system
  - Detectors - Smoke and Heat
  - Wiring
  - Panel - Zoned or Addressable
  - Sounder / flashing beacon
  - Communication Device
Limiting the Spread of Fire

Compartmentation:

• To limit spread of fire
• Integrity of compartments
• Openings between compartments - Fire doors
Evacuation

Means of Escape

- Alternate Means of Escape
- Protected Escape Routes / Stairs
- Travel distances
- Persons with a disability
Fire Safety Management

Statutory duty

• Identify and assess fire related hazards
• Eliminate or reduce the risk to people / assets
• Implement control systems / procedures
• Monitor and audit
• Record keeping (Fire Safety Register)
• Emergency planning / Pre-fire plans
• Fire Wardens role
Fire Prevention
Procedures on Site

- Regular fire safety checks / FSR
- Hot Work permit system via AEC
- Regular removal of combustible wastes
- No smoking
- Suitable packaging and storage for flammable liquids
Storage of Flammable Liquids

- Stored in suitable cabinets
- Both containers and cabinets for flammable liquids must be clearly identified / labelled
- Separation / segregation of incompatible chemicals
Lab sources of Ignition (Fuel)

- Organic materials
  - wood, packaging

- Flammable liquids
  - Solvents, paints

- Flammable gases
  - butane, propane
Lab sources of Ignition (Heat)

Electrical
Hot surfaces / motors / friction
Bunsen burner
Chemical reactions
Static discharge
Lab Fire Prevention Procedures

- Hot Work - controlled by a permit
- Tidiness of work areas - removal of waste, no clutter in fume cupboards
- Flammable Liquids - containers and storage
- Purchase / store in lab, small quantities only
- Hot plates / naked flames away from flammables
- Separation – oxidisers, flammables, corrosives
Fire Prevention

Electrical precautions:

• Don’t overload sockets
• Plug out appliances at night
• Keep appliances and plugs in good condition - don’t use defective equipment
• No make-shift repairs
• Don’t interfere with electrical services or distribution boards
Fire Safety Management Strategy

P.A.L.E.

P – PREVENT
A – ALERT
L – LIMIT
E – EVACUATE / EXTINGUISH
University procedures
If fire alarm sounds

- Leave building immediately closing doors behind you as you leave
- Move away from the building
- Report to your Assembly Point
- Do not re-enter until instructed to do so and fire alarm is switched off

Familiarise yourself with escape routes
Take instructions from authorised persons only
Fire Assembly Locations
TC SJH Assembly Areas

**TC 1:** Outside Trinity Centre main entrance on lawn area (over towards old stone building)

**TC 2:** Side exit car park, beyond wood decking, across from SJ Hospitals 1 and 2

Sir Patrick Dun Lab (SPD) Assembly point 2: facing main door across road on Memorial Square
University procedures

If you Discover a fire

• Raise alarm at break glass unit (BGU)
• Leave building quickly closing doors behind you
• Inform senior staff member or Front Desk (01 896-2147))
• Move away from the building
• Report to your Assembly Point
• Do not re-enter until instructed to do so

Don’t fight fire unless trained in use of extinguishers and unless alarm raised first
FIRE! - Fire Warden Duties

If the fire alarm sounds or a fire is discovered, the Fire Warden should:

• Ensure that the alarm has been raised (if applicable) (break glass unit (BGU) / alarm call point. Notify security at ext. 1999 or mobile 01-8961999)
• Check that processes have been made safe
• Assist the evacuation in an orderly manner
• Ensure fire doors are kept closed (not locked)
• Fight the fire if trained, it is safe to do so and the alarm is raised
• Ensure that staff or visitors with disabilities are assisted as per the fire evacuation plan
• Account for all the people on the premises at the designated assembly points as far as possible
• Liaise with the fire services in relation to the location of fire hydrants, fire fighting equipment, access to the building and the location of any possible dangers pending the arrival of Security / other assistance
• Ensure people do not re-enter building until authorised to do so and Fire Alarm is switched off
Lead by good example
Personal Emergency Evacuation Plan

• Prepare a PEEP for all known disabled persons and standardised PEEPs for potential visitors
• Facilitate independent escape if possible - provide suitable aids and adaptations
• Do not overplay safety issues – dignity
• What can person do in exceptional circumstances not just everyday situations
• Assign “buddies” if necessary and train accordingly
• Do evacuation drills and ‘mock-ups’
• Identify time required for each person’s escape
Disabled (chair and lift) evacuation
Sample Notice

Mobility Impaired Persons

Evacuation process:

- Fire alarm sounds - able bodied follow evacuation plan
- People who need assistance – move or are assisted to safe refuge area
- Trained Chair operator plus assistants (as necessary) proceed to the safe refuge area where needed
- By use of communications ascertain situation and respond accordingly
- First choice, stay where you are, ready to evacuate if needed
- Use Evacuation Lift if available
- If threatened - move horizontally to another refuge area if safe to do so
- If still threatened – evacuate vertically and out of the building
- If threatened or uncertain at any point evacuate out of the building

Contacts:

Arts Building: ______________________
Declan Reilly (Disability Officer) 8963776
Karl Flynn (Fire / Safety Officer) 8963545

Chair Location:
4th Floor, near stairwell D
Fire evacuation drills

The purpose and objectives of fire evacuation drills include:

• to identify any weaknesses in the evacuation strategy
• to test the procedure following any recent change to working practices
• to familiarise new occupants with procedures
• to test the arrangements for those with disabilities
• to identify weaknesses in emergency communications procedures and systems
• to identify positive and negative reactions of staff with designated responsibilities, such as Fire Wardens
Fire Safety Register Contents

1. Fire Safety Register overview. Guidance for the completion of the FSR. Inspection and testing of Fire Protection Equipment

2. Pre-fire Planning Survey Form (Dublin Fire Brigade)

3. Plans / Maps (Floor plans / Assembly point and Fire hydrant map locations etc.)


5. Action in the event of fire and List of Fire Wardens notices (Note: copies to be posted)

6. Responsible persons

7. Building Fire Risk Assessment and summary sheet

8. Fire Safety Certificate

9. Fire Drill Records (previous three)

10. Fire equipment service reports

11. Fire Alarm Panel – log of all alarm events

12. Fire equipment checklists for completion (fire extinguishers, emergency lighting, fire doors, fire blankets, fire hose reels)

13. Reports of fire hazards / poor housekeeping

14. Fire Safety Training and training records

15. Miscellaneous
<table>
<thead>
<tr>
<th>Hazards and Risks</th>
<th>Those at risk</th>
<th>Resources for Eliminating or Reducing Risk</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire. Low risk of burns, smoke inhalation, serious injury</td>
<td>Staff, Residents, Visitors and Overnight Guests, Contractors</td>
<td>Regular (yearly) fire drills. Note your nearest exit route and an alternative exit route. Exit routes signed and provided with emergency lighting. Escape routes kept clear of obstructions and doors easy to open (not locked). Fire extinguishers and smoke detectors in place and a suitable alarm system installed and monitored 24 hrs by the College Security Centre. Key personnel trained in fire safety, including a trained fire warden. Fire safety induction training given to all new student residents and staff. Emergency response plan in place. No smoking policy indoors in place. Good housekeeping, waste removed daily and areas dusted as required. No hazardous chemicals or other combustibles stored in rooms or basement / attic areas. Electrical checks as required and preventative maintenance programme in place. No unauthorised electrical appliance to be used on premises. Hazard reporting and close out system in place. Contractor risk due to unfamiliarity with the area. There must be an agreed safe system of work for contractors (Hot work permits etc.). AEC to check work on completion and to report unsafe work practices to the College Safety Officer. Those with permanent or temporary disabilities (such as wheelchair users, sight or hearing impairments etc) have been identified and appropriate systems are in place to ensure their safe egress (PEEP - Personal Emergency Egress Plan)</td>
<td>Head of Building</td>
</tr>
</tbody>
</table>

Signed: ______________________________ (Head of Building)  
Date:
Bradford Stadium Fire, 1985

See the shocking speed at which the Valley Parade Fire spread from one small corner of the main stand, to filling it from end-to-end; barely more than 80 seconds.

15.45.41

15.47.04
Even closer to home 2006
Foreseeable?
Hazard Spotting

Emergency exit obstructed

Electric overload

Covered detector head

Fire Door wedged open
Fire Safety Equipment

- Always raise the alarm first
- Always have a clear escape
- Malicious misuse - dangerous and illegal
- Always report extinguishers that have been used (contact Security 01-8961999 - or email estatesandfacilities@tcd.ie for replacements. Ph. 8964000)
- Safe use of fire blankets
Fire Extinguishers

**Red Label:** Water
- Paper, Wood, Solids

**Blue Label:** Dry Powder
- All Purpose – Solids, Liquids, Gases,
- Electrical

**Black Label:** CO₂
- Electrical
Fire Extinguishers

Remember this easy acronym when using an extinguisher - P.A.S.S.

- **P**ull and twist the pin
- **A**im the nozzle
- **S**queeze the handle
- **S**weep side to side at the base of the fire
Fire Blankets

Use:

• To smother contained fires, (Chip pans, Chemical experiments etc.)

• To smother persons clothing on fire

• Remember to protect hands and face when using fire blankets
Front room fire
Don’t leave your skills at work!

Fire Safety at Home

• Fit and maintain a smoke detector
• Unplug electric items
• Bin the chip pan
• Check round at night
• Close doors at night
• Don’t smoke in bed
• Prepare an escape plan
TTMI Health & Safety Induction day

Fire Safety and Emergency Procedures

THANK YOU FOR LISTENING

ANY QUESTIONS?