

# Brock University

## Occupant Fire Safety Manual

Part 1 - Introduction.....	1
1.1 Fire Safety Plan.....	1
1.2 Emergency Warden System.....	1
1.3 Emergency Numbers .....	2
Part 2 – Building Fire & Life Safety Systems.....	3
2.1 Building Exits .....	3
2.1.1 Stairwells.....	3
2.1.2 Crossover Floors.....	3
2.1.3 Areas of Refuge .....	3
2.2 Fire Alarm System .....	4
2.2.1 Fire Alarm Description.....	4
2.2.2 Sequence of Operations .....	4
2.2.3 Communications .....	5
Part 2 – Fire Safety Organization .....	6
2.1 Brock Fire Safety Team .....	6
2.2 Emergency Warden System .....	7
2.3 Building Owner – University – General Responsibilities .....	8
2.4 Employer, Academic & Administrative Division Heads – General Responsibilities	8
2.5 Human Resources – Environment Health & Safety (HR-EHS) – General Responsibilities.....	9
2.6 Campus Security Services (CSS) – General Responsibilities .....	10
CSS Supervisors / Managers.....	10

2.7 Facilities Management (FM) – General Responsibilities .....	11
FM Supervisors/Managers .....	11
2.8 Emergency Warden & Supervisor – General Responsibilities .....	12
2.9 Building Warden Coordinator – General Responsibilities .....	13
2.10 Faculty & Staff – General Responsibilities .....	14
2.11 Occupant – General Responsibilities .....	15
Part 3 – Emergency Procedures .....	16
3.1 Occupant Emergency Procedures .....	16
3.2 Emergency Warden & Supervisor Emergency Procedures .....	17
Part 4 – Fire Prevention .....	18
4.1 Fire Extinguishment, Control & Confinement .....	18
4.2 Fire Prevention .....	21
General Hazards .....	21
Electrical Hazards .....	22
Storage Areas .....	22
Flammable & Combustible Liquids .....	22
4.3 Persons Requiring Assistance (P.R.A) .....	25
IMPORTANT NOTES: .....	26

# **Part 1 - Introduction**

## **1.1 Fire Safety Plan**

A Fire Safety Plan ensures that the fire safety features and emergency response procedures of a building are understood by those expected to use them, provides direction concerning occupant safety in the event of an emergency, and mitigates the possibility of fires through fire safety education and prevention. For the purpose of emergency response, by both the building staff and the Fire Department, the plan details the fire safety systems installed throughout the building plus the associated Ontario Fire Code maintenance (check, inspect, test) requirements. To ensure the plan's effectiveness, it must be made available to fire fighters upon their arrival to the building/facility. The schematic diagrams and details of the fire safety systems will facilitate a rapid response to the emergency at hand.

The Ontario Fire Code requires that all fire safety plans be approved by the local Authority Having Jurisdiction; however, this provision in no way relieves the building owner of their responsibilities as set out in the Ontario Fire Code. Whenever a defect or deficiency is discovered in any fire or life safety device, the property owner or his agent must take immediate corrective action.

## **1.2 Emergency Warden System**

The Plan also identifies the structure of an Emergency Warden System, describes action to be taken in the event of a fire emergency, and details emergency/procedural duties, as required by Section 2.8 of the Ontario Fire Code.

The intent of this Emergency Warden manual is to outline Brock's campus wide Fire Safety Management System for daily and emergency operations. The basic Emergency Warden system is the same throughout the University, but each building/location will require a specific manual in order to highlight unique hazards or circumstances.

## 1.3 Emergency Numbers

Department / Individual	Contract Info
Emergency Services (Police, Fire, Ambulance)	911
Campus Security Services	NON-EMERGENCY: 905-688-5550 EXT: 4300 EMERGENCY: 905-688-5550 EXT: 3200 Twitter: @BrockSecurity Web-page: <a href="#">Campus Security Services</a>
Emergency Preparedness & Life Safety Officer	T - 905-688-5550 EXT: 3284 E-mail – <a href="mailto:rfraser2@brocku.ca">rfraser2@brocku.ca</a> Twitter: @Brocklifesafety Web-page: <a href="#">Emergency Preparedness &amp; Life Safety Officer</a>
Human Resources & Environmental Health & Safety	T – 905-688-5550 ext.: 5994 T – Brock Be Safe – 905-688-5550 ext.: 7233 Web-page: HR-EHS - <a href="#">Brock HR-EHS</a> Web-page: <a href="#">Brock Be Safe</a>
Facilities Management	T – 905-688-5550 ext.: 3717 Web-page: <a href="#">Brock Facilities Management</a>
Student Health Services	T – 905-688-5550 ext.: 3243 Twitter: @BrockSHS Web-page: <a href="#">Brock Student Health Services</a>
Student Development Centre	T – 905-688-5550 ext.: 4750 Web-page: <a href="#">Brock Student Development Centre</a>
Human Rights & Equity Services	T – 905-688-5550 ext.: 4019 Web-page: <a href="#">Brock Human Rights &amp; Equity Services</a>

# **Part 2 – Building Fire & Life Safety Systems**

## **2.1 Building Exits**

### **2.1.1 Stairwells**

There are stairwells located throughout the campus in virtually all buildings; stairs that are designated as “**EXIT STAIRS**” will be identified as such with required exit signs.

### **2.1.2 Crossover Floors**

Crossover floors are present ONLY in the Schmon Tower due to the height of the tower; during a fire alarm, all floors are accessible throughout the building despite the fact that they may be locked electronically during normal operations.

### **2.1.3 Areas of Refuge**

An “**Area of Refuge**” is a term used to define where a person can safely be stationed in the building if they are unable to evacuate using the Exit Stairs. At Brock University the Areas of Refuge are any designated Exit Stair within the building.

Exit stairs are designed and constructed fire separations from the remainder of the floor area, in addition the landings are designed to accommodate wheel chairs (in some cases can accommodate more) and waiting persons who cannot descend the stairs without impeding the evacuation of the rest of the occupants.

Once inside the Exit Stair there is a higher level of protection from smoke and fire and are therefore the safest place and operationally an ideal place to remain. It should be understood that rescue by fire fighters is not inevitable, nor is evacuating via the elevator a certainty. If it is a true emergency, the fire department will retrieve all those persons waiting in/at the Areas of Refuge.

It is critical that either a co-worker, Emergency Warden or Buddy advise Campus Security Services and or the Fire Department of the persons waiting in the Area of refuge and or the persons contact the 24x7 emergency number **(905-688-5550 ext.: 3200)** and advise them of their location and nature of impairment.

## 2.2 Fire Alarm System

### 2.2.1 Fire Alarm Description

All buildings on campus are equipped with a single stage fire alarm and in some cases are also equipped with an emergency voice communication (fire alarm speakers and or fire phones).

A single stage fire alarm system is designed such that an activation of a fire alarm device within that building will initiate **EVACUATION** signals throughout that building. Evacuation signals mean that the floors/areas receiving this signal **MUST** exit the building immediately.

### 2.2.2 Sequence of Operations

Upon activation, the following will occur:

- An evacuation tone will be communicated via the fire alarm speakers to the entire building where the alarm occurs
- Where installed, fire alarm strobe lights will activate
- A fire alarm signal will be transmitted to an independent off-site monitoring station
- HVAC systems will shut down
- Magnetic door hold open devices and all Magnetic locks will release
- FIRE DO NOT ENTER signs will illuminate where buildings are connected to the building receiving the alarm, for example. Where Thistle East connects to Mackenzie Chown A Block and where Decew Residence connects to Vallee Residence, etc.



## 2.2.3 Communications

**Firefighters' Phones:** ONLY the Schmon Tower and Thistle Complex are equipped with Firefighter Phones, these phones are located outside the EXIT STAIRS (Area of Refuge) on every level. The master handset (fire phone) for the fire alarm is located at the main fire alarm control panel in the CACF room located in the Schmon Tower lobby ST215.

- In the event of a fire, these phones would be utilized by the responding fire department to coordinate responses.
- That said these phones CAN be used by anyone during an alarm to report dangerous conditions, Persons Requiring Assistance who have taken a position at the Area of Refuge can use them to communicate with responders at the fire alarm panel, etc.
- Direct connect to the Lobby Fire Panel, and Control Room
- Break Glass and life receiver off of cradle
- Approximately 10 – 20 second delay to connect (will hear what sounds like a “busy” signal)
- Line can handle up to 6 phones at one time from different locations



## **Part 2 – Fire Safety Organization**

### **2.1 Brock Fire Safety Team**

Due to the size and complexity of the university, responsibilities for fire safety and plan implementation is divided across several administrative departments. Those with direct responsibility for some aspects of the plan include the following individuals, who together constitute the Brock Fire Safety Committee:

- Emergency Preparedness & Life Safety Officer
- Manager, Environment, Health and Safety
- Electrical Manager/Coordinator
- Mechanical Manager/Coordinator
- Campus Planning & Design Project Manager
- Director, Campus Security Services
- Director, Residence and Food Services

A number of University departments have specific technical and administrative responsibilities but every department, unit, and individual has a role to play in preventing fires, maintaining the integrity of the life safety systems and responding quickly to any emergency that arises. Therefore the Fire Safety Team includes:

- Building Owner / University
- Employer / Academic and Administrative Division Heads
- Human Resources & Environment, Health and Safety (HR-EHS)
- Campus Security Services (CSS)
- Facilities Management (FM)
- Department of Residence (RES)
- Emergency Wardens & Supervisors
- Occupants: Staff, Faculty, Students and Visitors
- Joint Health and Safety and Science Safety Committees

## **2.2 Emergency Warden System**

The term “Emergency Warden” is a general term that is used to describe building occupants / employees who volunteer to monitor and facilitate egress during emergency situations requiring an evacuation. Although Emergency Wardens are designated in advance and appointed to specific areas within the university; the duties so assigned are also the responsibility of individuals who are supervising or leading others at the time the alarm sounds.

Emergency Wardens may include but are not limited to:

- Professors, Lecturers, Instructors, Teaching Assistants and Demonstrators
- Supervisors of workers or a workplace
- Speakers, Performers, Tour Guides, Life Guards
- Residence Life and other Building/Facility Operational Staff

The number of Wardens required is entirely dependant on the size of the area that a department or unit occupies. A Warden Coordinator is required for each Building or significant operational area within a building. It is up to the department or unit administrator, in coordination with the Building Warden Coordinator and the Emergency Preparedness & Life Safety Officer, to determine the number of Wardens for each area needed to facilitate an effective evacuation. It is highly recommended that alternate wardens be selected for those occasions when the primary Wardens are absent from their work area.

## **2.3 Building Owner – University – General Responsibilities**

The Building Owner/University shall:

- Ensure the fire safety of occupants at all times.
  - Comply with the Ontario Fire Code in all areas of building safety, including implementing an approved fire safety plan and keeping it maintained and current.
- Ensure that building occupants and supervisory staff are familiar with fire emergency procedures.
- Appoint, organize and instruct supervisory staff in fire safety
- Designate and train sufficient alternates to replace “supervisory staff” during any absence.
- Ensure that fire drills are conducted in accordance with the fire code.
- Provide alternate measures for the safety of occupants during shut down of fire protection equipment.
- Implement the accepted fire safety plan and notify the chief fire official of any changes.
- Ensure that checks, tests, and inspections, as required by the fire code, are completed on schedule and those records are retained.
- Post and maintain on each floor area the emergency procedures for occupants.
- Ensure the approved fire safety plan or parts thereof are distributed to all tenants.
- Revise the fire safety plan when changes occur that will affect the information therein - at a minimum review the fire safety plan annually and document the review.

## **2.4 Employer, Academic & Administrative Division Heads – General Responsibilities**

- Comply with the Ontario Fire Code, as it may apply to the space or area controlled.
- Ensure that Building Warden Coordinators and Emergency Wardens are designated and trained to carry out the duties assigned to them under the Fire Safety Plan.
- Ensure that all employees (including persons with disabilities) are provided with the knowledge and means to enable them to react appropriately to fire emergencies.

- At a minimum, provide all staff the following information:
  - The location of all stairwell exits
  - The closest stairwell exit from the work place
  - The location of fire alarm pull stations
  - The sound of fire alarm signals
  - The building cross-over floors (where applicable)
  - The staging area
- Train staff in the testing of any life safety or fire protection equipment that a tenant has installed, such as "specialized extinguishing systems, fire alarm panels, fire extinguishers"
- Identify any employees who require assistance to evacuate the building and facilitate an individual-specific evacuation plan as necessary.
- Practice and encourage employees to practice fire prevention and fire safety.
- Encourage all employees to participate in fire drills conducted in the building; to cooperate with Building Warden Coordinators and Emergency Wardens and building staff during fire alarms and building evacuations.

## **2.5 Human Resources – Environment Health & Safety (HR-EHS) – General Responsibilities**

HR-EHS has general administrative responsibility for overseeing the development, implementation, posting, and revision of Brock's general and building specific fire safety plans. The Emergency Preparedness & Life Safety Officer has primary responsibility for day-to-day plan and code compliance. Other HR-EHS Fire Safety related responsibilities include:

- Organize and monitor the evacuation system by recruiting and training Emergency Wardens, scheduling recorded fire drills and evaluating results.
- Educate staff, students, and the public about fire safety procedures, life safety equipment, individual responsibilities, and the essentials of the evacuation system as laid out in the Main Campus FSP.
- Ensure that all necessary records related to the entire mechanical, electrical and organizational fire/life safety systems are kept and available upon request.
- Communicate to, develop, and maintain a working relationship with each relevant Authority Having Jurisdiction (AHJ).
- Conduct building surveys and inspections to ensure/enforce Code compliance, review building specific fire hazards with Occupants and conduct/document incident or alarm investigations.
- Monitor activities, practices and building use in the context of Plan requirements and providing related advice for correction where necessary.

## **2.6 Campus Security Services (CSS) – General Responsibilities**

- Review the Fire Safety Plan (FSP) and familiarizing themselves with their roles and responsibilities.
- Become familiar with the floor areas, exits and location of fire fighting equipment, and emergency contact lists.
  - Drawings and contact lists will be provided to Security Services and held in locations accessible to CSS staff
- Know how to operate the life safety systems and equipment for which CSS is responsible.
- Conduct specific check, test, and inspect requirements of the Ontario Fire Code, (see Part 6, section 6.6 – “Maintenance” of this Plan) as assigned.
- Enforce (in conjunction with Parking Services) parking rules and signage to keep access roadways, Fire Routes, and building Siamese Connections clear and accessible for emergency response
- Assist in fire prevention by reporting fire hazards or unsafe conditions to Facilities Management or HR-EHS.
- Participating in fire drills as described in the plan

### **CSS Supervisors / Managers**

Ensure that the duties above are assigned and that personnel receive the appropriate training and time allocation to enable diligent completion.

## **2.7 Facilities Management (FM) – General Responsibilities**

The Facilities Management Department has general responsibility for the integrity, construction, and operation of all the university grounds, equipment, and buildings. FM staff will perform the day-to-day duties required to ensure that the physical fire/life safety systems and other related measures are in place and operable.

The duties of the FM staff include the following:

- Become familiar with the FSP(s) and its application in relation to the campus and buildings;
- Become familiar with the building layout, separations, exits and the location, operation and maintenance of fire/safety equipment relevant to their expertise and assigned duties.
- Keep all egress, access and exit routes areas clear and accessible. Make suitable adjustments to occupancy or signage when routes are compromised, working with HR-EHS to minimize manage and communicate any egress restrictions or adjustments to local Wardens and occupants.
- Ensure that the check, inspect and test requirements for fire and life safety equipment of the Ontario Fire Code as summarized in the Plan are implemented for FM areas of responsibility. All such work shall be recorded, maintained as per OFC / NFC, and made available to the AHJ as requested.
- Consult with HR-EHS and CSS on the temporary shutdown of fire protection systems in an area or building and arranging for alternative measures, including staffing for fire safety. Refer to “Application for Scheduled Work on Fire Protection Equipment” request form for procedures when working on fire systems.
- With the agreement of the Fire Department, ensuring that the fire protection systems and Fire Alarm Systems are “Reset”, repaired and restored back to normal operation including the monitoring of such, following alarm activations, maintenance, or an emergency.
- Assist in fire prevention by noting and reporting to the appropriate local or FM supervisor, or HR-EHS, where fire hazards or unsafe conditions exist and when corrections are completed.

### **FM Supervisors/Managers**

Ensure that the duties above are assigned and that personnel receive the appropriate training and time allocation to enable diligent completion.

## **2.8 Emergency Warden & Supervisor – General Responsibilities**

Emergency Wardens and Supervisors will execute their duties with the utmost regard for their own personal safety. All Emergency Wardens (and Supervisors as appropriate) should:

- Become familiar with floor plans, access to exits, special risks or hazards (e.g. chemical, physical, or electrical), and the location of fire fighting equipment in their area.
- Know the sound and sequence of the building's fire alarm system.
- Be familiar with personnel on your respective floor, or in your area who may require assistance to evacuate.
- Attend all training sessions provided for Emergency Wardens and promote active participation of other Emergency Wardens in this training.
- Participate in fire drills, and encourage full Emergency Warden, employee and occupant participation in the drills.
- Assist in fire prevention by noting and reporting to the relevant supervisor, Facilities Management, or HR-EHS where fire hazards or other unsafe conditions exist.
- In conjunction with the Building Warden Coordinator keep the list of Emergency Wardens for your assigned floor / area up to date.
- In conjunction with the Building Warden Coordinator ensure that an alternate Emergency Warden(s) has been selected for your area and is advised when you are absent (e.g. meeting, illness and vacation).
- The Emergency Warden system is designed and in place to assist with an orderly evacuation of the floor area or building during all emergencies. Reasons for evacuation MAY not include only a fire or fire alarm.
- EW's may be asked to perform other duties based on conditions at the time of an emergency including, but are not limited to: searches of floors or areas, assisting at temporary shelters, managing bus loading or marking alternate transportation routes

## **2.9 Building Warden Coordinator – General Responsibilities**

The Building Warden Coordinator is responsible for organizing and coordinating the activities of the 'Emergency Warden system' for a building or multi floor section of a large or complex building. The Building Warden Coordinator responsibilities include:

- Understand the emergency evacuation procedures of the building.
- Recruit and coordinate Emergency Wardens and alternates where required. Ensure that Emergency Wardens have been selected for optimum building coverage; provided with this Plan; and are trained to discharge related duties.
- Maintain a current contact list of all persons who are members of the building/section's Emergency Warden System'.
- In conjunction with the Emergency Preparedness & Life Safety Officer and HR-EHS, establish a suitable area of refuge in the event non-ambulatory persons cannot be evacuated.
- Facilitate the establishment of suitable external staging areas for employees to gather and be counted with the assistance of the Emergency Preparedness & Life Safety Officer.
- Participate in the building full evacuation or warden-only fire drills.
- Report any apparent fire or life safety deficiencies to the Emergency Preparedness & Life Safety Officer and Environmental Health & Safety.
- Ensure that a back-up Emergency Warden(s) has been selected for your position and is advised when you are absent (e.g. meeting, illness and vacation).
- Work with the Emergency Preparedness & Life Safety Officer to organize building or area short-term Fire Watch as required (if necessitated by a system compromise).
- Advise all participants in the 'Emergency Warden system' that their role is to assist with an orderly evacuation of the floor area or building during all emergencies. Reasons for evacuation MAY not include only a fire or fire alarm.
- Regularly communicate with Emergency Wardens to keep them involved and apprised of building conditions and activities that might affect evacuation.

## 2.10 Faculty & Staff – General Responsibilities

Individuals are responsible for themselves and anyone they are supervising, at the time the alarm sounds

All Faculty & Staff will:

- Know the sound of the building's fire alarm and procedures to follow upon hearing the fire alarm; insist that everyone immediately exit the building. Respect and support the efforts of the Emergency Wardens where possible.
- Become familiar with the exit routes from offices, classrooms, labs and lecture halls.
- Keep access to exits and EXITS inside and outside, clear of combustibles and hazards at all times.
- Keep doors in fire separations closed at all times.
- Advise relevant Supervisors, Building Warden Coordinators or HR-EHS of all hazards, especially those that may negatively affect evacuations.
- Read posted "In Case of Emergency" signs and draw students' attention to them before they are actually needed.
- Monitor classroom occupancy and advise the Course Supervisor or the Scheduling Office if posted limit is exceeded. Do not let unscheduled students into classes if space is an issue.
- Do not spend time arguing with those who refuse, note names and locations, and inform an Emergency Warden, Campus Security member or Firefighter outside. Individuals who stay behind may be charged by the Fire Department if they need to be rescued.
- Help mobility impaired individuals to exit or to a (pre-planned where possible) safe refuge, preferably a fire stair landing or an enclosed, fire-rated space near the fire stairs and then advise an Emergency Warden, Campus Security member or Firefighter of their location.
- If you are assigned to assist someone to evacuate, ensure that you know the procedures to be carried out in that eventuality.
- Participate in all fire drills and other fire safety training conducted.

Please access the University [HR-EHS website](#) or the [Emergency Life Safety website](#) for more safety information.

## 2.11 Occupant – General Responsibilities

All occupants will:

- Know the sound of the building's fire alarm and procedures to follow upon hearing it.
- Keep doors in fire separations closed at all times.
- Keep access to exits and EXITS inside and outside, clear of combustibles and hazards at all times.
- Become familiar with the exit routes from offices, classrooms, labs and lecture halls.
- Assist in fire/emergency prevention by noting and reporting to local supervisors, Building Warden Coordinators, FM, RES or HR-EHS (as appropriate) any unsafe conditions or hazards, especially those that may negatively affect evacuation.
- Read posted "In Case of Emergency" signs and draw students' attention to them before they are actually needed.
- Participate in all fire drills and other fire safety training conducted.

Please access the University [HR-EHS website](#) or the [Emergency Life Safety website](#) for more safety information.

## **Part 3 – Emergency Procedures**

### **3.1 Occupant Emergency Procedures**

Individuals are responsible for themselves and anyone they are supervising, at the time the alarm sounds

#### **IF YOU DISCOVER A FIRE**

##### **SHOUT:**

1. Activate the nearest Fire Alarm Pull Station to begin building evacuation
2. Warn others immediately to leave the building at the nearest safe exit or fire stair.
3. Attempt fire suffocation with a cover or extinguisher ONLY if safe (small, contained fire & exit route clear) and able, up to– 1 minute max, otherwise
4. Leave the fire area and close doors; **do not lock!**
5. Call Emergency Services – **911** - from a safe location to ensure response and then Brock (905-688-5550) **X3200** to advise Campus Security of location/circumstance.

#### **WHENEVER YOU HEAR A FIRE ALARM AT BROCK:**

##### **GET OUT:**

1. Close doors behind you – **DO NOT LOCK** - Leave building via closest safe Exit or Fire Stair.
2. **NEVER** use elevators.
3. If you encounter fire or smoke in the Fire stair, cross-over where possible to use an alternate Fire Stair/Exit.
4. Help mobility impaired individuals to exit or to a pre-planned safe area of refuge, preferably a fire stair landing or an enclosed, fire-rated space near the fire stairs and then advise an Emergency Warden, Campus Security member or Firefighter of their location.
5. Once evacuated, keep a safe distance (30m) from exit or proceed into an unaffected building.

##### **STAY OUT:**

- Do not re-enter building until so authorized by the Fire Department, Campus Security Services, the Building Warden Coordinator, or a Brock Emergency Warden (regardless of alarm bell status).

## **3.2 Emergency Warden & Supervisor Emergency Procedures**

### **IF YOU HEAR THE FIRE ALARM**

1. Implement the building evacuation procedures.
  - Wear your vest, whistle, and if practical carry a pen and paper to record notes during the evacuation.
2. Proceed to clear your specific area. Check and close all doors. Inform people to leave the building. Advise against use of elevators.
  - Close doors to slow the spread of fire,
  - Be sure to check all washrooms, seminar/meeting rooms' lounges, etc.
3. Instruct occupants to leave the building via the closest fire stairs, proceeding to the ground.
4. Instruct all occupants to proceed with caution when entering the stairwell. If smoke is encountered during the descent, exit the stairwell and proceed to an alternate exit.
5. When you have completed your assigned duties, immediately evacuate via the closest fire stairs, proceeding to the ground floor.
6. Maintain doorway access for public services (e.g. Fire Department).
7. Verify with team members that all occupants have evacuated the floor and that persons requiring assistance are in a secure area.
8. Update Campus Security and the Building Warden Coordinator on the status of your floor or area.
9. Deter re-entry to the building until you receive an All Clear authorization by firefighters or Campus Security Services.

## Part 4 – Fire Prevention

### 4.1 Fire Extinguishment, Control & Confinement






It is the responsibility of the Fire Department to provide fire-fighting duties. The production of toxic fumes in buildings makes firefighting potentially dangerous, particularly if a large amount of smoke is being generated.

Before anyone attempts to use a fire extinguisher, one **MUST** ensure that the nearest fire alarm pull station activated has been.

Only persons who have been trained and are comfortable with the use of fire extinguishers should consider using one to extinguish a small fire. Fire extinguishers are designated to extinguish small, manageable fires.

To use a fire extinguisher, remember the acronym **P.A.S.S.**:

- **Pull:**
  - The Pin at the top of the extinguisher to release the locking mechanism and allow discharge.
- **Aim:**
  - At the base of the fire, not the flames; this is important - extinguish the fuel to put out the fire.
- **Squeeze:**
  - The lever slowly to the extinguishing agent if the handle is opened, discharge will stop.
- **Sweep:**
  - From side to side; using a sweeping motion; move the extinguisher back and forth until the fire is completely out.
  - Operate the extinguisher from a safe distance several feet away, and then move towards the fire once it starts to diminish. Be sure to read the instructions on your fire extinguisher - different fire extinguishers recommend operating them from different distances. Remember: aim at the base of the fire, not at the flames!!!!

CLASS OF FIRE	FUEL
	<p>Combustible solids such as wood, paper, textiles, and many plastics, you can remember Class 'A' fires by the characteristic Ash they leave.</p>
	<p>Burning liquids, a fire involving flammable or combustible liquids (or gases) is classified as a Class 'B' fire. Think of B for Boil.</p>
	<p>Energized electrical equipment, kitchen appliances, switchgear, or faulty wiring could become involved in a Class 'C' fire. Remember 'C' for Circuit. If you remove power from a Class 'C' fire, it usually becomes a Class 'A' fire.</p>
	<p>Combustible metal fires, sodium, potassium, magnesium, and aluminum are examples of metals that will burn at high temperatures, and which could be involved in a Class 'D' fire.</p>
	<p>Fires in cooking appliances that involve combustible cooking media vegetable or animal oils and fats</p>

### Will you be exposed to a fire for a long time?

No; portable extinguishers do not last a long time. The following information will help you understand that fire extinguishers are a “first aid” approach.

Type of Extinguisher	Reach of Extinguisher Stream	Duration of Discharge
Pressurized Water	30-40 feet	1-minute
Carbon Dioxide	3-8 feet <small>Approximate based on size</small>	10 - 20 seconds <small>Approximate based on size</small>
Dry Chemical (A-B-C)	6-20 feet <small>Approximate based on size</small>	10 - 20 seconds <small>Approximate based on size</small>

## 4.2 Fire Prevention

Fire prevention is the best way to fight fires. Fire prevention is everyone's responsibility. If you notice a fire hazard report it to your supervisor immediately. To ensure and promote a safe workplace, every employee should adhere to the following fire prevention measures.

### General Hazards

- Keep all hallways, aisles and corridors free from obstructions
- Ensure that all fire doors remain closed at all times. Doors should never be propped open.
- Smoke in safe, outdoor Designated Smoking Areas only. (Smoking is a major cause of fires and related death).
- Avoid placing combustible materials directly in contact with electrical outlets, or electrical panels.
- Maintain a minimum clearance of 18" from all sprinkler heads. They are not meant to be used as hangers, or points to fasten objects



## Electrical Hazards

- Disconnect all electrical appliances with heating elements after each use, or at the end of the workday.
- Electrical wiring that is defective, frayed, or cracked must be replaced.
- Extension cords are designed for temporary use only. If they are to be used, they should be free from damage and protected from physical damage. Never run extension cords under mats or carpets.
- If a circuit breaker consistently “trips” discontinue using the device that is causing the circuit to trip. Only a certified electrician should assess and repair problems in the electrical distribution system.
- Circuit breaker panels shall not be covered or obstructed by stored material.

## Storage Areas

- Storage areas should be kept clean and free of debris.
- Material should not be stored near an electrical outlet.
- Electrical equipment and devices should not be operated, or connected to an electrical source in a storage room.
- Service (mechanical/electrical/communication) rooms should not be used for storage.

## Flammable & Combustible Liquids

Due to some of the inherent hazards in a lab environment, additional fire safety measures must be observed at all times. Flammable liquids, compressed gases, oxidizers, and a lengthy list of other chemicals can prove to be deadly in the event of a laboratory fire. The best defense against these hazards is prevention and safe operating procedures.

Flammable Storage Regulations:

The Ontario Fire Code includes regulations for storage and handling of flammable and combustible liquids. Please observe the following regulations within your laboratory:

- Chemicals should **NEVER** be stored in alphabetical order without consideration for chemical compatibilities. This system may contribute to the probability of incompatible materials being stored next to one another (e.g., butadiene next to bromine or chlorine). Incompatible reagents should not be stored next to each other.

- Flammable liquids may be stored in containers of up to 5L in volume. Metal containers (ULC approved) of up to 25L are also acceptable.
- Approved glass or plastic containers (those the liquid was shipped in) of up to 5L in size are permitted ONLY if metal containers would cause a chemical reaction or would affect the liquid's purity. Otherwise, glass or plastic containers may not be used for volumes greater than 1L.
- The maximum volume of flammable AND combustible liquids permitted in any given laboratory is 300L; of which only 50L may be flammable, (this means you can have up to 50L of flammable liquids in the "open lab" area). Storage of quantities in excess of this within labs MUST be within approved metal "flammable liquids" cabinets.
- Flammable liquid storage cabinets may contain up to 500L of flammable AND combustible liquids, of which 250L may be flammable.

#### **Other Requirements:**

- ALL storage containers containing flammables MUST be labeled with a conspicuous flammable symbol or wording
- Flammable storage cabinets MUST be labeled to indicate that the cabinet contains flammable materials, and that open flame must be kept away
- Storage outside of the cabinet should be limited to materials used in the current process.
- The vent cap on chemical storage cabinets should not be removed unless the cabinet is attached to an approved ventilation system.
- If a cabinet is connected to a ventilation system, the connection must have either a thermally actuated damper or sufficient insulation on the vent piping to avoid compromising the fire protection ability of the cabinet.
- Glass containers should be stored on the bottom shelf of storage cabinets.
- When dispensing flammable liquids, use proper bonding and grounding techniques (in the case of non-conductive containers, other measures to minimize static buildup must be taken)
- All refrigerators, freezers or other cooling units must be labeled with appropriate hazard signs to indicate whether it is suitable for storing hazardous chemicals. Label chemical hazard refrigerators with the sign "For Chemical Storage Only. No Food or Drink Allowed."
- If radioactive materials are to be stored, a refrigerator must be clearly labeled "Caution, Radioactive Material. No Food or Beverages May Be Stored in This Unit."

- The containers placed in the refrigerator should be completely sealed or capped, securely placed, and labeled. Avoid capping materials with aluminum foil, parafilm, corks, and glass stoppers.
- Refrigerators should be frost free to prevent water drainage.

### **Compressed Gas Cylinders**

The following Fire Code regulations address compressed gas cylinders:

- Compressed gas cylinders are required to be secured in the upright position by a suitable retaining strap or chain.
- Any cylinders that are not in use are required to have a protective valve stem cap in place.
- Cylinders of gases that may react with one another are not to be stored in the same area.
- Cylinders of flammable gases are not to be stored with oxidizing materials or with cylinders containing gases that support combustion.

## 4.3 Persons Requiring Assistance (P.R.A)

It is the Employer's responsibility to ensure that persons requiring assistance (P.R.A) to evacuate are provided information on plans in place to ensure their safety during emergency situations. Alternatively, Persons Requiring Assistance also have a responsibility to indicate if alternative measures are required if their reason for requiring assistance is not obvious.

People who may require assistance may fall into one of the following five groups<sup>1</sup>:

- **Mobility**
  - Mobility limitations may make it difficult for a person to use stairs or move quickly over long distances. These can include reliance on mobility devices such as a wheelchair, scooter, walker, crutches or a walking cane.
  - In addition, people with a heart condition or various respiratory difficulties can experience certain levels of mobility limitations.
- **Vision**
  - Vision loss can include a broad range of conditions ranging from complete blindness to partial or low vision that cannot be corrected with lenses or surgery.
  - A person's ability to read signs or move through unfamiliar environments during an emergency may be challenged, creating a feeling of being lost and/or being dependant on others for guidance.
- **Hearing**
  - A person can be deaf, deafened or hard of hearing. The distinction between these terms is based on the individual's language and means of communicating rather than the degree of hearing loss.
  - In an emergency, the method in which emergency warnings are issued becomes critical to how a person with hearing loss is able to respond and follow instructions to safety.
- **Non-Visible Disabilities**
  - Non-visible disabilities can include communication, cognitive, sensory, mental health, learning or intellectual disabilities in which an individual's ability to respond to an emergency is restricted.
  - They can also range from allergies, epilepsy, haemophilia, diabetes, thyroid condition, multiple sclerosis, pulmonary or heart disease and/dependency on dialysis, sanitary or urinary supplies.

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<sup>1</sup> Emergency Preparedness Guide for People with Disabilities / Special Needs – Emergency Management Ontario, 2007.

Persons Requiring Assistance (PRA) should be identified prior to emergencies. Supervisors, Demonstrators, etc. should ensure their personnel discuss methods of evacuating persons requiring assistance, or what action to take in the event that a person is unable to evacuate.

In the case of persons who can evacuate the building, assistance may take any of the following forms:

- Assisting the person to ensure they do not fall and become injured while evacuating.

In the case of persons who cannot evacuate, Emergency Wardens and others designated to do so must know:

- The location of the Stryker Stair Chairs; chairs are located in the following locations
  - Campus Security vehicle
  - 12<sup>th</sup> floor, Schmon Tower
  - 4<sup>th</sup> floor, Schmon Tower
  - 4<sup>th</sup> floor, Welch Hall outside the IRC
  - Level 100, south side of the Market in the designated Area of Refuge opposite Career Services
- The areas of refuge where a person can safely be left if evacuation from the building is not possible.
- The procedure for reporting the location of persons left in the building to Fire Department or building personnel.

## **IMPORTANT NOTES:**

- It should be understood that rescue by fire fighters is not inevitable, nor is evacuating via the elevator a certainty.
- The elevator lobby is not a safe place to remain and wait for retrieval by the fire department or building staff. The exit stair (either inside the stair or immediately outside the stair) is the safest place and operationally an ideal place to stay. Exit stairs are designed to provide protection from smoke and fire and are therefore the safest locations in the building.
- In the event that a person or person(s) chose to or have to remain on their floor or in the building during an evacuation and is in NO immediate danger (i.e. there is no fire in the building, or the fire is not in the vicinity and is not likely to spread to other areas of the building), they should move to the Area of Refuge (Exit Stair) and take

up a position immediately outside the stair until the alarm has been cleared or the situation changes.

- Fire-fighters may concentrate their efforts on investigating and/or controlling any fire that may be occurring.
- Should fire-fighters decide that a rescue of the PRA's is necessary; they may or may not use the elevator on "Fireman's Service". Should this be the case, standard protocol dictates that they take the elevator to a safe floor somewhere below the "fire floor" and ascend the rest of the way using the exit stairs.