FIRE SAFETY PLAN FOR:

Advanced Technology & Academic Centre
Lakehead University
955 Oliver Road
Thunder Bay, Ontario
P7B 5E1

Reviewed without change – January 2024

Reviewed by:

Tiffany Moore
Lakehead University
Health & Safety

Reviewed by:

Kevin Anderson
Director of Fire Prevention
Thunder Bay Fire Rescue

Table of Contents

Chapter 1: Introduction

As required by the Ontario Fire Code, Section 2.8, (Ontario Regulation 213/07 of the Ontario Fire Protection and Prevention Act, as amended), this Fire Safety Plan has been prepared by Lakehead University for the *Advanced Technology & Academic Centre*, 955 Oliver Road, Thunder Bay, Ontario.

The purpose of the plan is to provide safety information for all occupants in the event of a fire, to ensure the effective use of life saving features in the building, and to prevent fires from being initiated. This fire safety plan has been designed to suit the resources of the *Advanced Technology & Academic Centre*. This plan must be approved by Thunder Bay Fire Rescue; however, Lakehead University is responsible for ensuring that the information provided in this fire plan is accurate and complete.

Information found within this Fire Plan includes: contact information, an audit of building resources, maintenance of building resources (as required by the Ontario Fire Code), building schematics, and an outline of responsibilities, emergency procedures, control and extinguishment of a fire, fire protection measure and fire hazards and prevention.

The Fire Protection and Prevention Act, Part VII, Section 28 states that any person who contravenes any provision of the fire code is guilty of an offence. If convicted a company or corporation is liable to a fine of not more than $100,000. Any individual, director or officer of a corporation is liable for a fine of not more than $50,000 or imprisonment for a term of not more than one year, or both.

The Fire Safety Plan shall be reviewed as often as necessary, but at intervals not greater than twelve (12) months, to ensure that it takes account of changes in use and other characteristics of the building. The Chief Fire Official is to be notified regarding any subsequent changes in the contents of the approved Fire Safety Plan.

This official document is to be kept readily available at all times for use by staff and fire officials in the event of an emergency

The approved location of the Fire Safety Plan for the *Advanced Technology & Academic Centre* is the *Security Office, UC 1016*. In addition, copies will be kept in the Health & Safety Office and in a Fire Safety Plan box located by the Fire Alarm Annunciator.

Electronic copies of the Fire Plan will be posted on the Health & Safety website.

Chapter 2: Audit of Human Resources

Building Owner	Lakehead University 955 Oliver Road Thunder Bay, ON P7B 5E1 Phone: 343-8110
President	Dr. Gillian Siddall 955 Oliver Road Thunder Bay, ON P7B 5E1 Phone: 343-8010 ext.8200
Vice President, Finance& Administration	Kathy Pozihun Phone: 343-8010 ext.8383
Director, Physical Plant	Hugh Briggs Phone: 343-8010 ext.8790
Health & Safety, Office of Human Resources	Tiffany Moore Phone: 343-8010 ext.8806 Ursula MacDonald Phone: 343-8010 ext.8671
Security Staff	On site 24/7, minimum 3 people Phone: 343-8911 (Emergencies) Phone: 343-8010 ext.8569 (Non-emergency)
Maintenance Staff	Physical Plant, available from 8am to 4pm (After hours contact Security) Phone: 343-8010 ext.8273
Cleaners	Physical Plant, Mr Joe Benc, Facilities Manager Phone: 343-8010 ext.8962

	Physical Plant, Services Supervisor Phone: 343-8010 ext.8968
Fire Alarm Monitoring Company	Tbay Tel Phone number and passwords are held by Security Services (343-8010 ext.8569).

Chapter 3: Audit of Building Resources

3.1 General Description

The *Advanced Technology & Academic Centre* located at 955 Oliver Road is a non-combustible six (6)-storey building with one (1) basement level constructed in 2002.

The operating hours of the building are 6am to 10pm, Monday to Friday.

i. Occupancy and Use

Basement- Mechanical room, Electrical room, Generator room, Sprinkler room.

Main Floor- Mechanical room, electrical room, Storage room, Janitors closet, Washrooms, Lecture halls, TSC equipment room.

Second Floor- Mechanical room, Electrical room, Storage room, Washrooms, Janitors closet, Lecture halls, Offices, TSC Data Centre.

Third Floor- Electrical room, Washrooms, Janitors closet, Lecture halls, Computer rooms.

Fourth Floor- Electrical room, Washrooms, Janitors closet, Lecture halls, Computer rooms, Electronics Lab, Robotics Lab, Offices.

Fifth Floor- Electrical room, Storage rooms, Washrooms, Janitors closet, Lecture halls, Offices, Conference Rooms, TSC Control room.

Sixth Floor- Leased to the **Northern Ontario School of Medicine:** Mechanical room, Storage rooms, Washrooms, Janitors closet, Lecture halls, Offices.

ii. Fire Department Access

Firefighters will access the property via Balmoral Street, Lakehead University Drive South. Security Services will call in detailed instructions to the city's Emergency Service Dispatch and provide specific information regarding the alarm, including the building entrance to use and any details concerning the fire (ie. Which zone is affected, etc.).

Security Officers on patrol are responsible for removing the access bollards between the Medical School and the *Advanced Technology & Academic Centre*.

3.2 Fire Alarm System

This building is provided with an Edwards EST3 single stage system with dual communication paths and meets ULC monitoring standards.

Main Control Panel location: *Advanced Technology & Academic Centre* Northeast Entrance (X1007).

Annunciator Panel location: A parallel annunciator is located in the security office, UC 1016.

i. Sequence of Operation

Upon activation of a fire alarm initiating device in any portion of the building, a general fire alarm will sound throughout the building.

ii. Ancillary Functions

The fire alarm system is activated by:

- Manual pull stations
- Smoke detectors
- Duct smoke detectors
- Heat detectors
- Beam detectors
- Sprinkler Flow Switch
- Standpipe Flow Switch
- FM-200 Extinguishing System

Upon activation of the fire alarm system:

- A fire alarm signal will be transmitted to the Security Office and confirmed at their annunciator panel. A fire alarm signal will also be transmitted to an independent off-site monitoring station.
- The fire alarm annunciator and control panel will display information regarding which zone is affected and which fire safety device tripped the alarm (Flow valve, FM-200 System).
- The Air Handling Units, equipped with Duct smoke detectors, will shut down.
- Door hold opens will release.
- Pressurization fans in the North and South stairwells will initiate.

Fire dampers are present throughout the building, located in the duct work. Dampers operate via thermal melts and are not tied to the fire alarm system.

3.3 Special Extinguishing Systems

The second floor TSC server room, (AT 2007 and AT 2007CA), is equipped with a FM-200 clean agent Fire Suppression System.

The control panel and FM-200 tanks for the AT 2007 FM-200 suppression system is located in room 2007AC of the *Advanced Technology & Academic Centre*.

The FM-200 Suppression System is supervised by the *Advanced Technology & Academic Centre* fire alarm system and will be displayed on the annunciator at the Northeast entrance (X1007) and in the Security Office (UC 1016). For more information refer to the SDS for FM-200 gas in Appendix B.

i. Ancillary Functions

The FM-200 Suppression System is activated by:

- Manual Pull stations (5 second delay prior to activation).
- Any two (2) heat or smoke detectors (30 second delay prior to activation).

Upon activation of the FM-200 Suppression System:

- After a brief delay, as described above, the FM-200 Suppression System will activate and gas will be released.
- The fire alarm for the *Advanced Technology & Academic Centre* will also be activated, alerting occupants to evacuate immediately.

3.4 Standpipe System

The *Advanced Technology & Academic Centre* is equipped with a standpipe and hose system located throughout the building.

The control valves are located in AT 0003, as shown on the floor plan.

Fire hose cabinets are located throughout the building, as indicated on the floor plans. All fire hose cabinets house portable fire extinguishers.

The Fire Department access is located on the north side of the building, as shown on the site plan.

3.5 Sprinkler System

The building is fully sprinklered. Water flow switched and supervisory devices are connected to the fire alarm system. Shut off valves are located in room AT 0003 in the basement level, as shown on the floor plans.

In addition, the Server room (AT 2007 and AT 2007CA) are protected by a Pre-action Sprinkler System which is connected to the AFP-200 Panel in 2007CA. In order for the Pre-action Sprinkler System to initiate both a smoke detector and a sprinkler head must be activated to initiate water flow.

The Fire Department access is located on the north side of the building, as shown on the site plan.

3.6 Fire Pump

A fire pump supports the standpipe and sprinkler systems in the *Advanced Technology & Academic Centre.* The fire pump is located in AT 0003 and is driven by and electric motor with a rated water flow capacity of 500 USGPM at 50 psi. Emergency power for the fire pump is supplied by the *Advanced Technology & Academic Centre's* emergency generator.

3.7 Fire Hydrants

Private hydrants are located as shown on the site plan. The private hydrants are connected to the municipal water supply.

3.8 Fire Extinguishers

Fire extinguishers are located throughout the building. See floor plans for locations.

3.9 Elevators

Two elevators serve the building, ATAC North and ATAC South. The ATAC South elevator will run on emergency power. Refer to floor plans for locations.

All occupants are directed to not use the elevator in the event of a fire alarm.

3.10 Emergency Power

Emergency power is provided by the emergency generator in the basement of the *Advanced Technology & Academic Centre* (AT 0001B). This emergency generator runs off diesel fuel and will power the life safety systems in the *Advanced Technology & Academic Centre* and the Medical School for approximately ten (10) hours. The 750 Litre diesel tank is located in the generator room (AT 0001B)

The fire alarm system is tied into the emergency generator and is also equipped with battery backup contained within the fire alarm panel. In the event of a power failure, the batteries provide sufficient power to allow the fire alarm to operate in "supervision" mode for 24 hours and the alarm to sound for at least 60 minutes.

3.11 Main Hydro Shut-Off

There are three (3) main hydro disconnect switches located in the basement electrical room, AT 0001A, as shown on the floor plan. These will disconnect power to the *Advanced Technology & Academic Centre,* the *Advanced Technology & Academic Centre* and the Medical School, or the Medical School only.

3.12 Water Shut-Off Valve

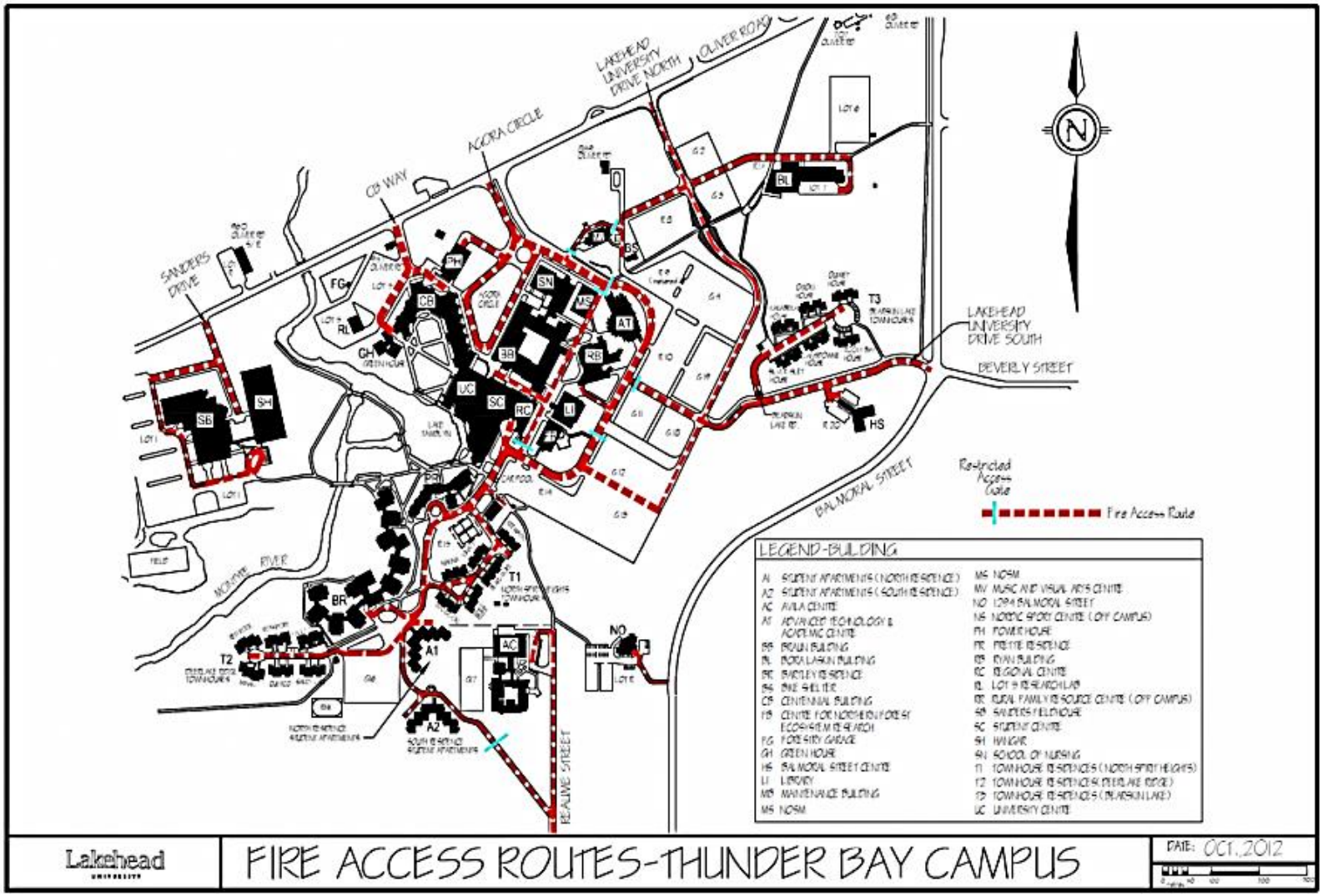
The main water shut-off valve for the *Advanced Technology & Academic Centre* is located in AT 0003. Refer to floor plan for location.

Upon request, Maintenance may access outdoor buried curb stops to shut off the buildings water supply.

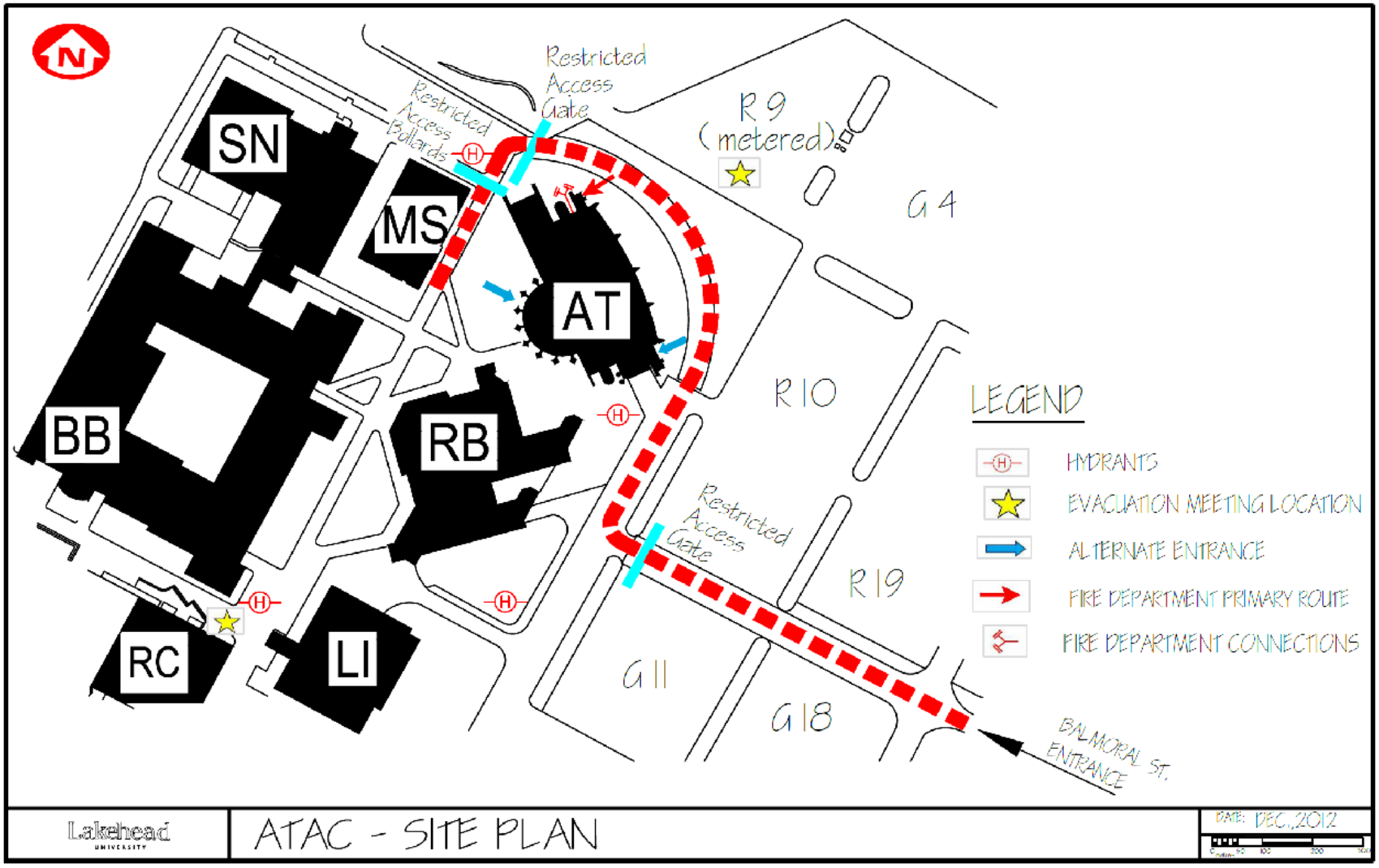
3.13 Hazards

Only commercial products are used and stored in the *Advanced Technology & Academic Centre*.

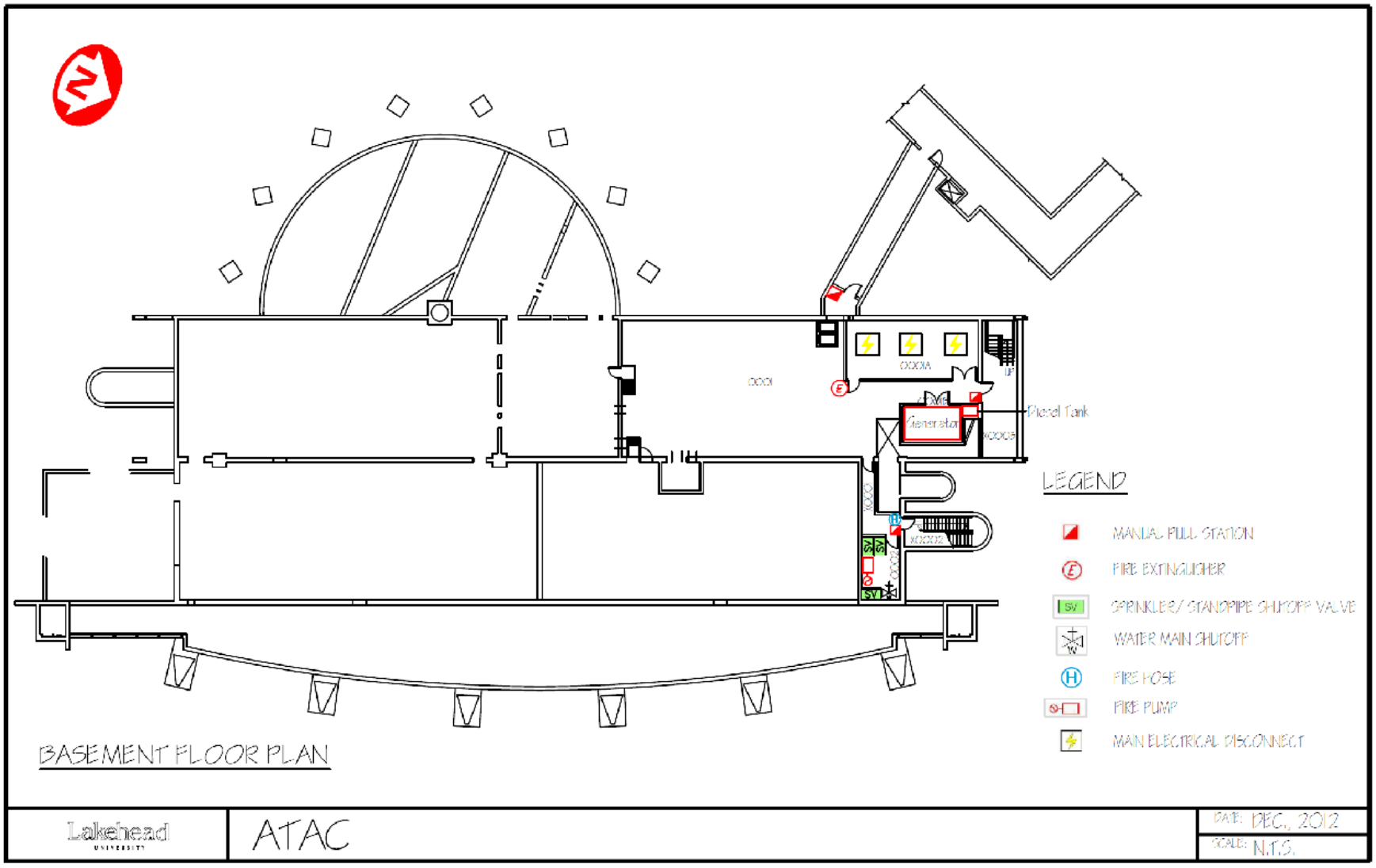
Chapter 4: Building Schematics 4.1 Fire Access Routes



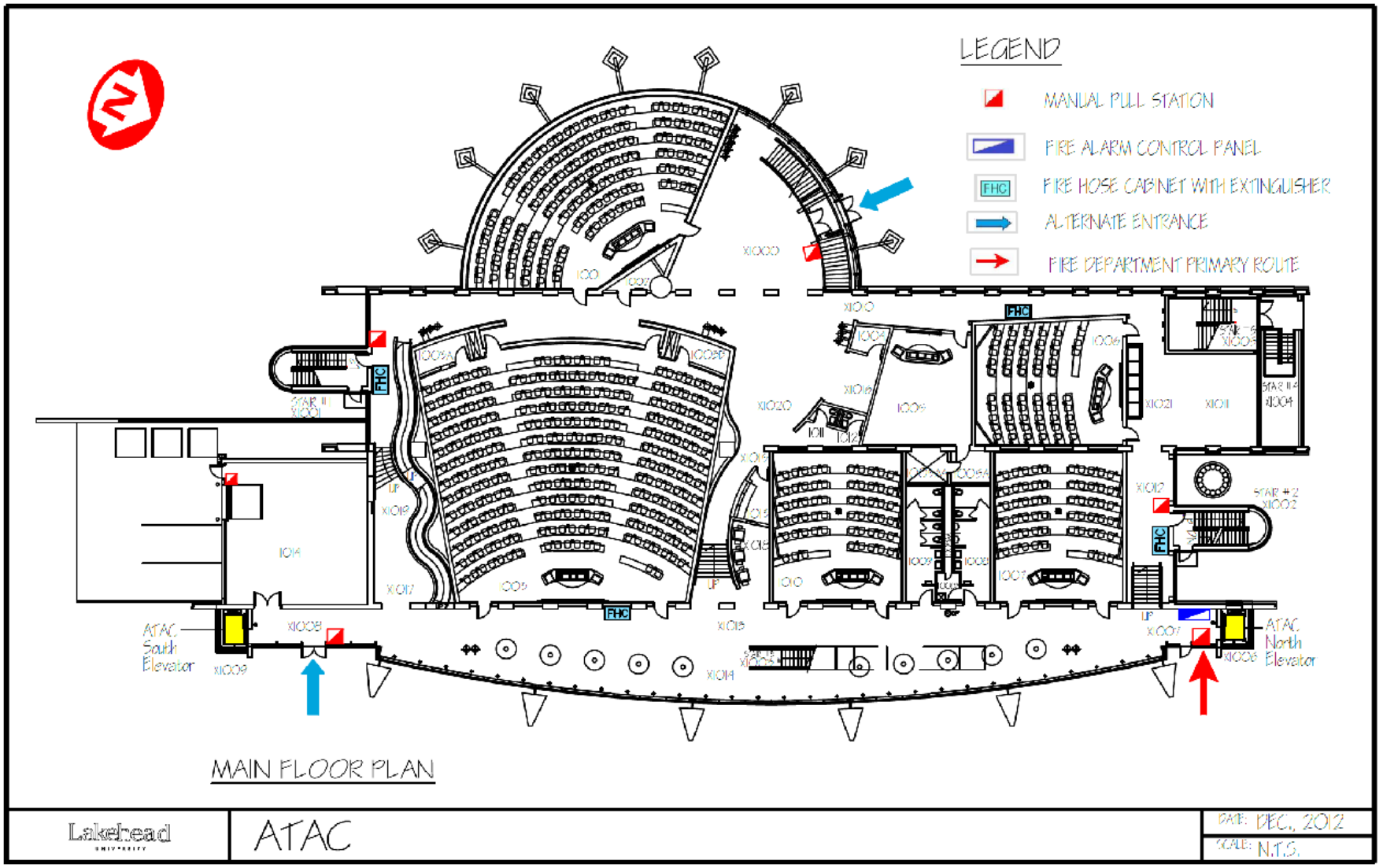
4.2 Site Plan


N
SN
MS
AT
BB
RB
RC
LI
Restricted Access Bollards
Restricted Access Gate
R 9 (metered)
G 4
R 10
R 19
G 11
G 18
Restricted Access Gate
BALMORAL ST. ENTRANCE
LEGEND
HYDRANTS
EVACUATION MEETING LOCATION
ALTERNATE ENTRANCE
FIRE DEPARTMENT PRIMARY ROUTE
FIRE DEPARTMENT CONNECTIONS
Lakehead UNIVERSITY
ATAC - SITE PLAN
DATE: DEC., 2012

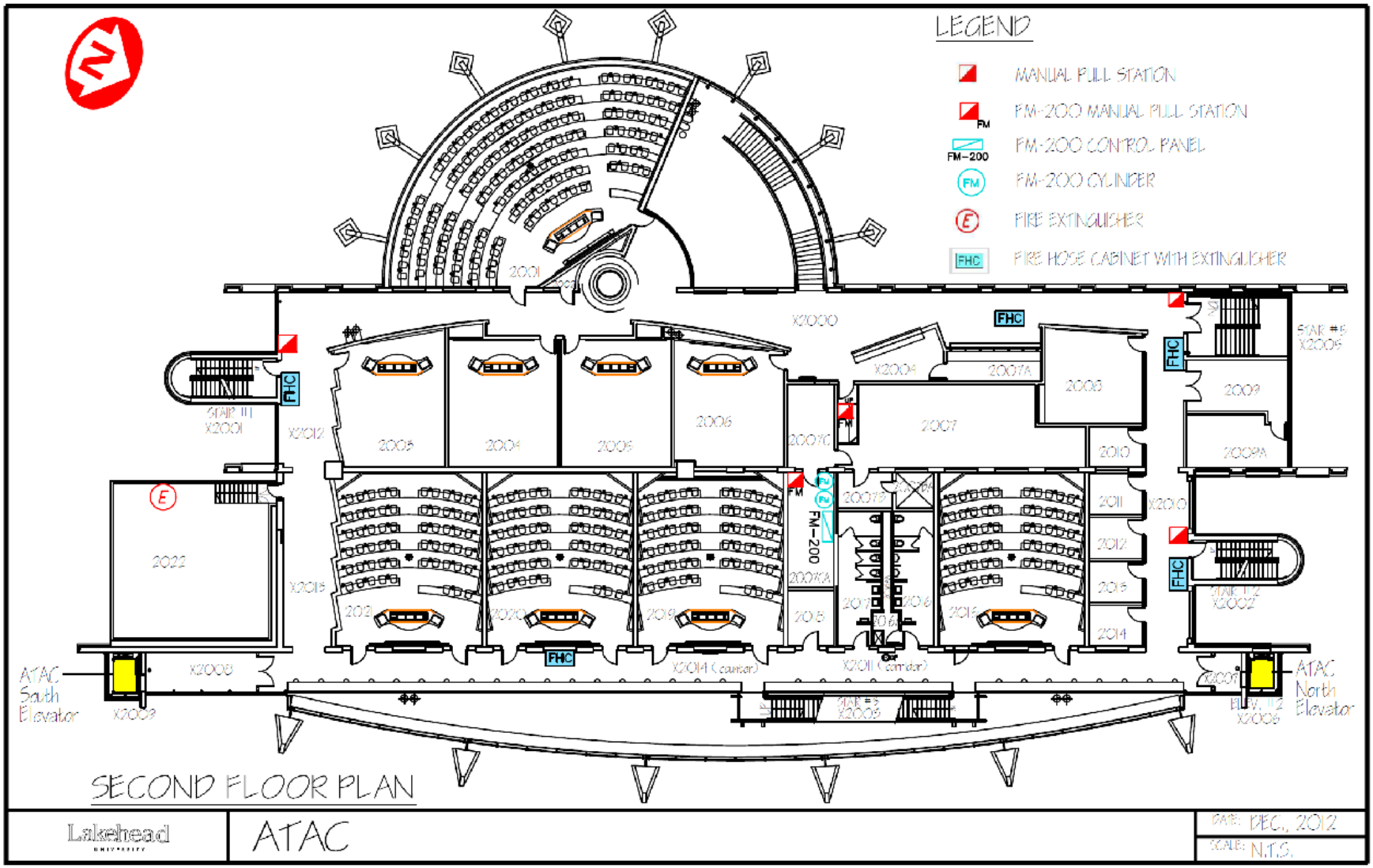
4.3 Basement Floor Plan



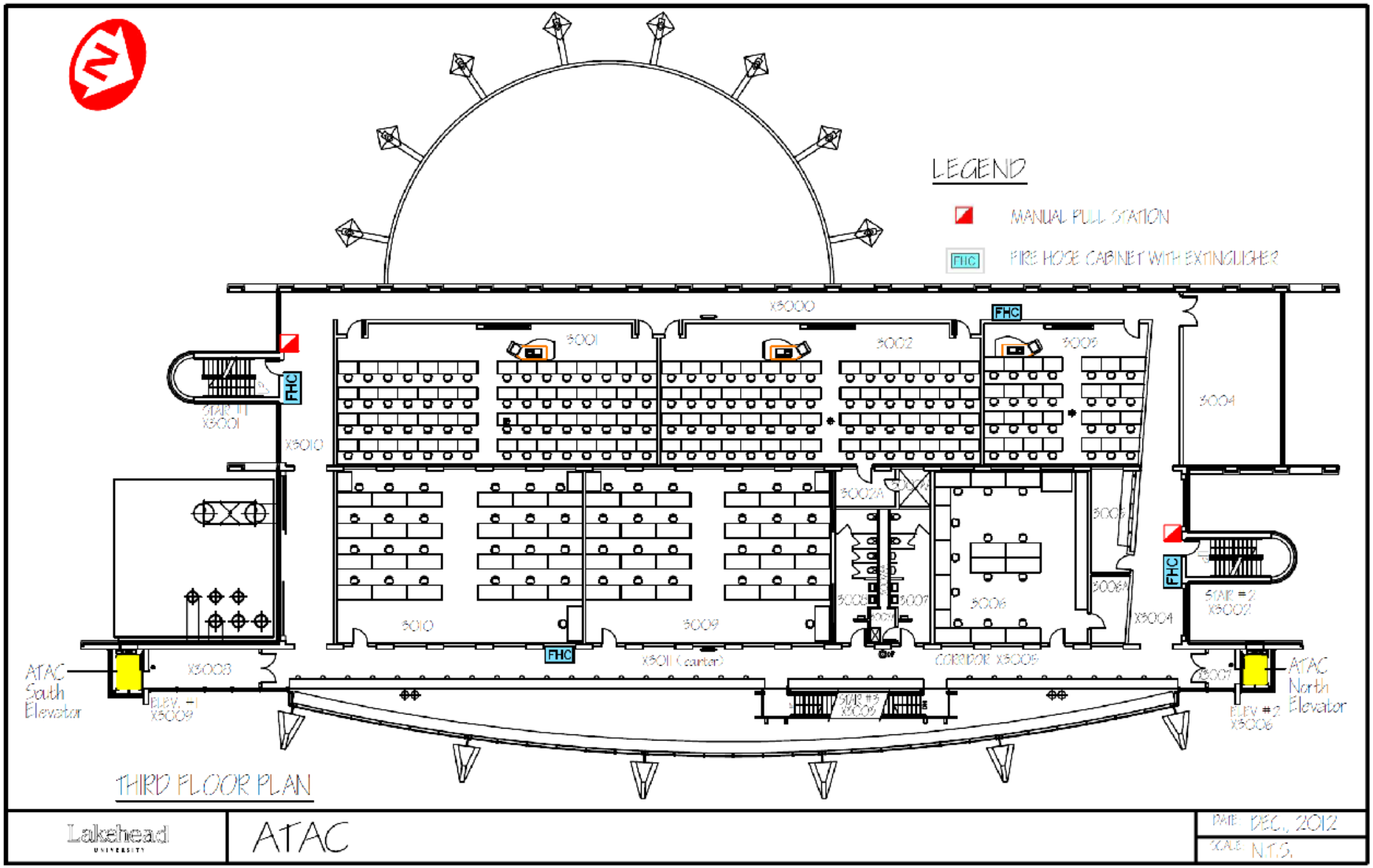
4.4 Main Floor Plan



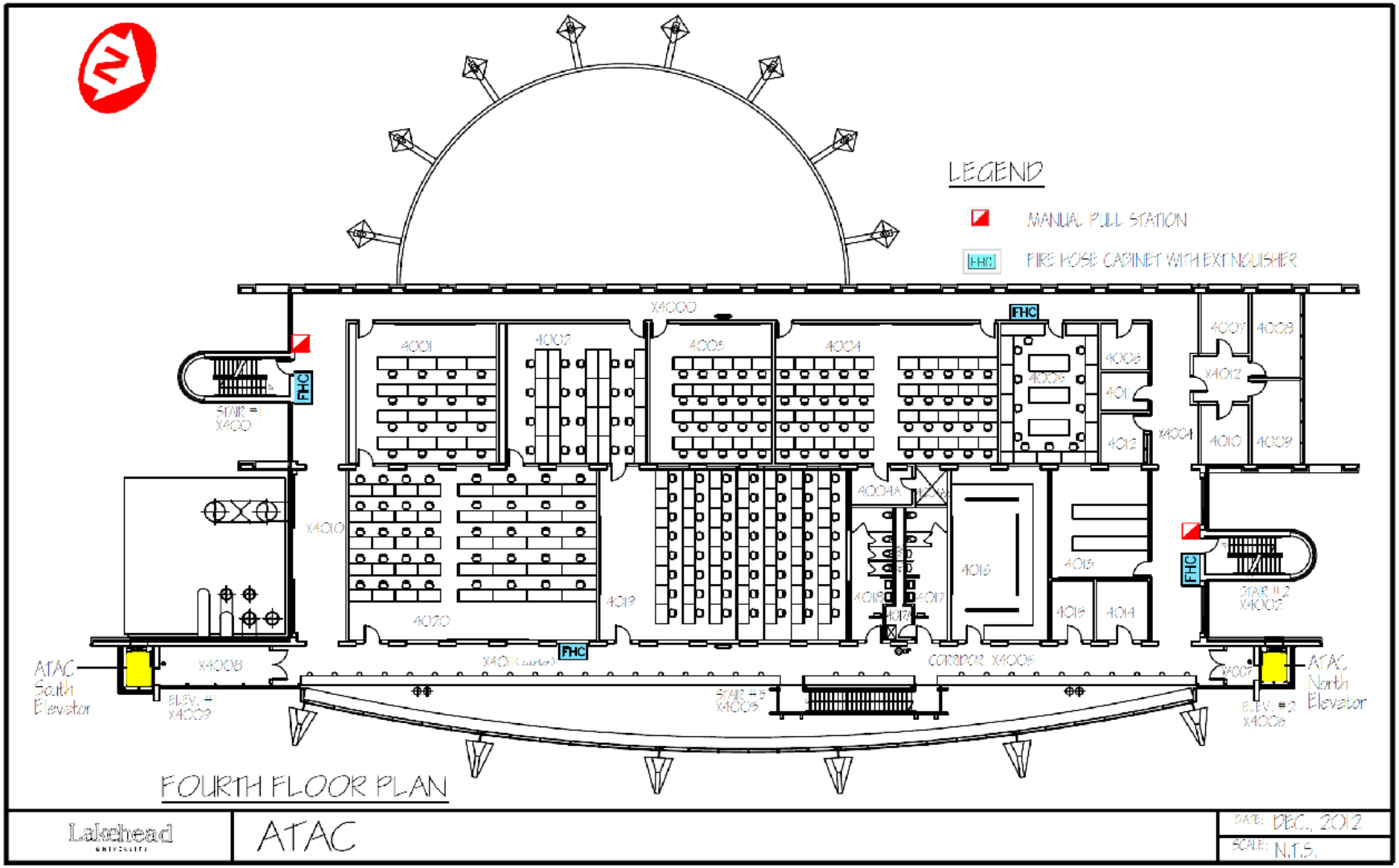
4.5 Second Floor Plan



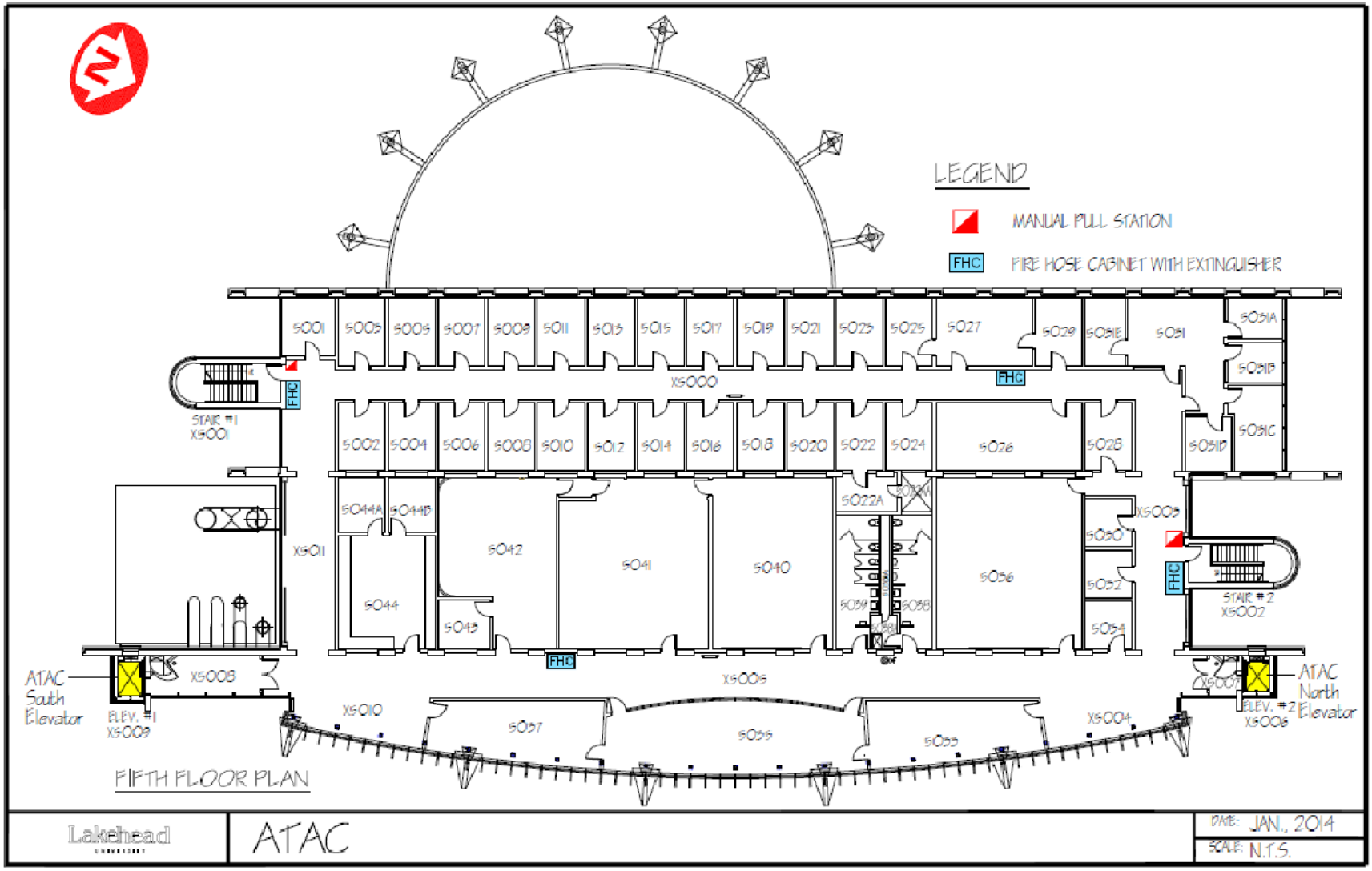
4.6 Third Floor Plan



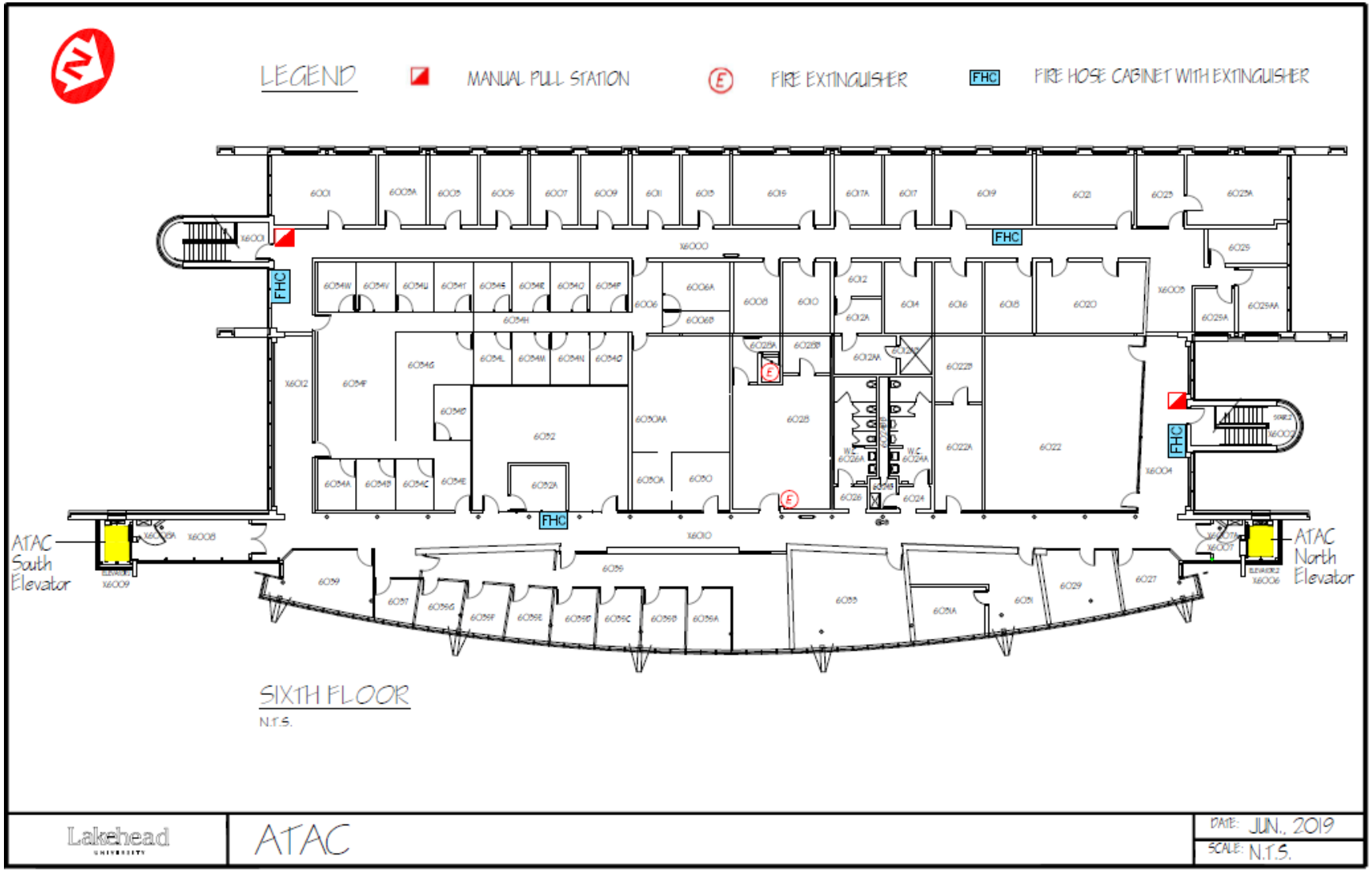
4.7 Fourth Floor Plan



4.8 Fifth Floor Plan



4.9 Sixth Floor Plan



Chapter 5: Responsibilities & Emergency Procedures

The preparation and implementation of a Fire Safety Plan, helps to assure effective use of people and resources to control and eliminate fire hazards in the workplace and to respond effectively to a fire emergency. This will reduce the incidence of fire, protect life safety and reduce the impact of fire should one occur.

The procedures outlined in this Plan will be conducted with all due regard for personal safety

It is not the intent of this Plan to place a person in a hazardous situation that they are not trained or properly equipped for.

Many parties will have a role to play in promoting fire safety in the workplace. Each party will be responsible for certain administrative functions to be performed throughout the year. Some may be responsible for ensuring that tasks are carried out, while others may be responsible for carrying out those tasks.

5.1 Building Owner and Management (President, VP Finance & Administration)

The Ontario Fire Code defines "owner" as "any person, firm, or corporation having control over the property under consideration". Article 1.2.1.1 of the Ontario Fire Code states, "Unless otherwise specified, the Building owner is responsible for carrying out the provisions of this Code". Therefore, owners must take responsibility for ensuring compliance with the Ontario Fire Code.

i. Tenants

Tenants or lease holders who have control over any building or a portion of a building also have obligations in regards to fire safety. These specific obligations may be accounted for under the terms of any contracts between these parties. For tenants of Lakehead University Property, the physical requirements of the Fire Code will be provided by Lakehead (e.g. Maintenance of the facility and fire safety equipment). Tenants will be responsible for the personnel in their area and must generate their own fire emergency procedures and evacuation plans. Tenants must ensure that the Ontario Fire Code is not contravened, for example, allowing fire hazards to exist within their area.

The building owner / occupant have numerous responsibilities related to fire safety and must ensure that the following measures are enacted:

Responsibilities	Owner	Tenant
Comply with the Ontario Fire Code	X	X
Ensure the Fire Safety Plan is developed, approved and fully implemented	X	X

Keep a copy of the approved Fire Safety Plan on the premises in an approved location	**X**	**X**
Both Lakehead University and the tenant will review the Fire Safety Plan annually and revise when changes occur that will affect the information therein, such as contact information or changes to the fire protection system	**X**	**X**
Lakehead University will ensure the Chief Fire Official is notified regarding changes in the Fire Safety Plan	**X**	
Establishment of emergency procedures to be followed at the time of an emergency	**X**	**X**
Post and maintain at least one (1) copy of the fire emergency procedures	**X**	**X**
Appointment and organization of designated supervisory staff (Managers, Fire Wardens, Maintenance staff, Security) to carry out fire safety duties	**X**	**X**
Instruction of supervisory staff and other occupants so that they are aware of their responsibilities for fire safety	**X**	**X**
Designate and train sufficient alternates to replace supervisory staff during any absence. "*Supervisory staff shall be instructed in the fire emergency procedures as described in the fire safety plan before they are given any responsibility for fire safety*", as outlined in Section 2.8.1.2. (1) of the Ontario Fire Code. It is not necessary that the supervisory staff be in the building on a continuous basis, but they shall be available on the notification of a fire emergency, to fulfill their obligations as described in this Fire Safety Plan	**X**	**X**
Hold drills in accordance with the Ontario Fire Code and in consultation with the Chief Fire Official, incorporating Emergency Procedures appropriate to the *Advanced Technology & Academic Centre*	**X**	
Keep adequate records of training and fire drills for a period of at least one-year	**X**	
Ensure that hazards are identified and eliminated or controlled	**X**	**X**
Maintenance of building facilities and ensure that building life safety and fire protection systems provided for occupant safety are maintained	**X**	
Provisions of alternate measures for safety of occupants during shut down of fire protection equipment	**X**	**X**
Assuring that checks, test and inspections as required by the Ontario Fire Code are completed on schedule and that records are retained for a minimum period of two (2) years	**X**	

5.2 Employers, Managers and Supervisors

Employers are responsible for fire safety within their area of operation. Employers, Managers and Supervisors must:

- Comply with the Ontario Fire Code within the space you control or lease.

- Ensure that Fire Wardens have been designated and trained to carry out the duties assigned to them under this Plan. Contact Human Resources for a current list of building Fire Wardens.
- Identify key personnel in your department requiring fire extinguisher training. To arrange training contact the Office of Human Resources – Health & Safety (343-8806).
- Review the fire emergency procedures outlined in this Plan with your employees.
- Ensure any person who requires assistance to evacuate the building is identified and that a specific plan is established in the event of an emergency. This plan will be formulated in consultation with the areas fire warden.
- Practice and encourage employees to participate in fire drills conducted in the building.
- Encourage employees to cooperate with Fire Wardens and Security staff as they provide direction during fire alarms and building evacuations.
- Respond to any requests to eliminate fire hazards.
    - Eliminate those departmental fire hazards which you can control.
    - Report any fire hazards that you cannot control to Security, Physical Plant or another Supervisor or department (when another department is involved).

5.3 Physical Plant (Mechanical & Electrical Staff)

- Be familiar with the floor area, exits, the locations of any fire safety equipment and the sound of the building's fire alarm.
- Be familiar with the operation of all fire protection and life safety systems and equipment.
- Provide specific checks, tests, and inspection requirements of the Ontario Fire Code assigned to you, as summarized in Chapter 11 of this Plan.
- Notify the appropriate persons of any planned or unplanned shutdown of fire protection or life safety equipment.
- Assist in implementing alternate measures for fire safety to compensate for the inactive system, as outlined in the Chapter 9 of this Plan.
- Restore the fire protection and fire alarm systems to normal operation after repairs or maintenance are completed or as soon as you are authorized to do so after an emergency.
- Assist in fire prevention by controlling fire hazards and conditions of possible safety threats.
- Promptly address and correct any fire hazards reported to you.
- Physical Plant will be notified by Security of any fire drills taking place.

i. Emergency Procedures -Physical Plant Staff

Upon notification by Security Services that a fire alarm has been activated, Physical Plant staff will stand by for further instructions.

Electrical Staff will:

- Be notified of all fire alarms and attend the site of any actual fire emergencies, or if the fire alarm system cannot be reset by Security Services.
- Prepare to disconnect the electrical service to the affected area. Disconnection will be at the direction of the Fire Department.
- Request assistance of other Physical Plant Departments as needed.

5.4 Security

- Be familiar with the floor area, exits, the locations of any fire safety equipment and the sound of the building's fire alarm.
- Participate in fire drills as described in this Plan.
- Assist in fire prevention by controlling fire hazards and conditions of possible safety threats.
- Promptly report or correct any fire hazards you have been informed of.
- Provide specific checks, tests, and inspection requirements of the Ontario Fire Code assigned to you, as summarized in the Chapter 11 of this Plan.
- Notify the appropriate persons of any planned or unplanned shutdown of fire protection or life safety equipment.
- Assist in implementing alternate measures for fire safety to compensate for the inactive system, as outlined in Chapter 9 of this Plan.
- Be familiar with the procedures and operation of the Fire Alarm and Security Systems.
- Be familiar with your role upon notification of a fire alarm.
- Know where the Fire Plan is kept and how to access the buildings material safety data sheets.
- Security must have quick access to fire safety equipment (Fire Alarm Panel, generator room, pull station keys, elevator keys, and service/fire access roads).
- Be available to assist the Fire Department.

As with any emergency Fire Alarms will take priority over any other university business

i. Emergency Procedures- Security Services

Upon receiving notification of a fire alarm at the security office, you will:

1. Check the fire panel and print out for the exact location of the alarm.
2. Over the radio, notify the security personnel and dispatch all patrol officers to the appropriate building.
3. Call the monitoring company and verify they have received the alarm signal and have contacted the fire department.
4. Open electronic access gates if present on the buildings Fire Access Route.
5. Await further instructions from the Security Officers on the scene. Upon receipt of a report from the Security Officer on scene, the Security will:

   a. Contact Fire Dispatch (684-1525) to provide specific information regarding the alarm.
   b. Contact Physical Plant and Electrical staff (343-8273) if there is a known fire.
6. Alert Human Resources at 343-8806 or 343-8671 or after hours using the Emergency Contact phone numbers filed with Security.
7. DO NOT touch the fire panel.
8. Any information received on the cause of the alarm will be relayed immediately to the Security Officers on scene.
9. Ensure the Fire alarm system is not silenced or reset until authorization is given by the Fire Department.

Upon notification of a fire alarm, Security Officers assigned to patrol will:

1. ONE officer will meet the Fire Department at the designated entrance.
   a. Advise the Fire Department of any information regarding the cause of the alarm or details of the fire and relay any concerns regarding the zone affected.
2. ALL OTHER officers will immediately report to the area in distress and report to the other security personnel the condition of the site.
   a. One officer will check the zone indicated by the annunciation panel as being in distress, if it is safe to do so. Report findings to the security office and indicate if there is a need for other services to be called (ie. Ambulance, Electrical, Mechanical). The officer will also report if there is an actual fire, smoke present or if the cause of the fire is known.
   b. Ensure fire access routes are unobstructed (Remove any bollards and open gates).
   c. One officer will control crowds and ensure that all persons are kept away from the building and the roadway is clear for the Fire Department. Ensure no one re-enters the building until the Fire Department has given the all clear.
3. Security officers will follow the instructions of the Fire Department personnel.
4. Once authorized by the Fire Department, Security Officers will silence the alarms, reset the activated device, return elevators to normal service, reset maglocks (if applicable) and provide the “All Clear” announcement to those who have evacuated the building.
5. Security will facilitate the Fire Department’s investigation (if a fire occurred).
6. An incident report must be generated for ALL fire alarms, without exception.
7. Forward a copy of the report to the Office of Human Resources – Health & Safety.

Security Officers shall refer to a more detailed description of these procedures in the “Security Services Department Policy & Procedure Manual”.

5.5 Fire Wardens

As with all major buildings on campus the *Advanced Technology & Academic Centre* has designated Fire Wardens. Fire Wardens are individuals who volunteer or who are assigned to perform certain functions during fire emergency situations. Wardens can be identified during fire evacuations by their reflective vests

Fire Wardens will direct the evacuation of specific areas (zones) of their building during an emergency and assist with building security. Fire Wardens should be familiar with all potential exit routes, the fire protection measures and emergency procedures in the zone they are responsible for. Wardens will assist in identifying personnel in their zone who may require assistance to evacuate, and ensure that plans are in place to ensure their safety.

Keep the reflective vest in an easily accessible location and ensure that an alternate Warden is informed of your absence. Health & Safety will arrange for training, organize and determine the number of Fire Wardens required for each zone. Contact Lakehead University Office of Human Resources – Health & Safety (343-8806)for a current list of building Fire Wardens.

Fire Wardens will execute their duties with all due regard for their own personal safety

i. Emergency Procedures – Fire Wardens

On notification of a Fire Emergency, Fire Wardens will:

1. Identify yourself as a Fire Warden. Wear your vest.
2. Evacuate the area nearest the fire first, if known. Direct people to the nearest exit. If the exit is impassable, direct people to an alternate route.
3. Make a sweep of your assigned zone, checking all open rooms, including washrooms and storage rooms, to ensure everyone has left.
4. Close any open windows.
5. Close, but do not lock, doors in your zone
6. Note the name and/or location of any individuals who remain in the building to report to the Fire Department or Security Services staff.
7. Ensure persons who require assistance to evacuate or those who cannot evacuate are assisted down the exit stairs or to the nearest exit stair landing. See section 5.8 for more detail.
8. Once the zone has been evacuated, leave the building using the closest exit stair.
9. Once outside the building, direct evacuees to the designated meeting location (Parking lot 9 and in front of the Library) or in cases of inclement weather, to an adjacent building and ensure Security Services is notified of your alternate location.
10. Immediately notify the Fire Department personnel or Security Services staff of the location and/or name of any individuals who remained in the building and disclose any other information regarding the location or nature of the fire.
11. If Fire Department personnel are not on the scene, confirm with Security Services that the Fire Department has been notified.
12. Assist the Fire Department personnel and Security Services staff, as requested.

13. Stay at the front of your group and keep people well back from the building. Stay visible and do not mingle with the crowd.
14. Obtain information from evacuees in your area. If anyone has information for the Fire Department or Security Services staff, ensure that it is reported.
15. The end of the Fire Alarm signal DOES NOT indicate that it is safe to re-enter the building. Ensure that no one re-enters the building until the all clear signal has been given by Security Services staff or Fire Department personnel.
16. After the fire emergency or fire drill is over, report any problems encountered during the evacuation to the Office of Human Resources- Health & Safety at 343-8806.

5.6 Evacuation Meeting Locations

The designated evacuation meeting location for the *Advanced Technology & Academic Centre* is:

1. Parking lot 9
2. In front of the Library

All persons evacuating the *Advanced Technology & Academic Centre* must immediately report to the designated location and report to their zones Fire Warden or their Instructor.

5.7 Teachers and Instructors

Teachers and Instructors should act as Fire Wardens for their lecture halls.

To prepare for a fire emergency, be familiar with the floor area, location of exits and evacuations routes. Make note of any persons in your lecture hall who may require assistance to evacuate and be familiar with proper procedures for turning off equipment.

Ensure that any fire hazards in your lecture hall are identified, controlled, or reported to your Supervisor, Physical Plant (343-8273) or Health & Safety (343-8806). Ensure that you and your students participate in fire drills and follow the directions of Fire Wardens, Security Services and the Fire Department.

i. Emergency Procedures – Teachers and Instructors

1. Upon notification of a fire, instruct all students to calmly evacuate the building and announce the location of the nearest exit stair.
2. All equipment that cannot be left safely unattended should be turned off.
3. Close any open windows.
4. Conduct a systematic check of your immediate area for anyone who has not evacuated and look for fire or smoke.
5. Follow the last student from the room shutting all doors behind you. Do not lock.

6. Ensure persons who require assistance to evacuate or those who cannot evacuate are assisted down the exit stairs or to the nearest exit stair landing. See section 5.8 for more detail.
7. Leave the building using the closest exit stair, closing doors behind you. Do not use elevator.
8. Follow instructions provided by Fire Wardens, Security Services and the Fire Department.
9. Report to Security Services or the Fire Department if you know of anyone still in the building, or if you saw smoke or fire.
10. Move away from the building and congregate at the designated meeting location (Parking lot 9 and in front of the Library).
11. Obtain information from evacuees in your area. If anyone has information for the Fire Department or Security, ensure that it is reported.
12. Do not return to the building until authorized to do so by the Fire Department, Security or a Fire Warden.

5.8 Persons Requiring Assistance to Evacuate

Persons requiring assistance to evacuate are encouraged to identify themselves to their Supervisor or to their Instructors upon commencing employment or classes at Lakehead University. It is the responsibility of Lakehead University to ensure that persons requiring assistance to evacuate are provided with means to leave the premises safely. Faculty and Administration should be aware if there are individuals in their classes or department who require assistance in the event of a fire emergency.

Any special arrangements made for persons requiring assistance to evacuate should be reviewed in advance with the Supervisor or Instructor and the Fire Warden responsible for the zone(s).

For those persons who are unable to evacuate, Fire Wardens, Instructors and Supervisors must know:

- Where a person can be safely left in the eventuality that evacuation from the building is not possible.
- The procedure for reporting the location of persons left in the building to the Fire Department or Security Services.

Immediately inside the exit stair is the best location to await rescue, in the event that evacuation is not possible. Exit stairs are enclosed fire protected stairwells with fire resistant walls and doors designed to protect from smoke and fire. **Be familiar with the evacuation plan.**

i. Emergency Procedures- Persons Requiring Assistance to Evacuate

On notification of a Fire, a Supervisor, Instructor or Fire Warden who is aware that a person with requiring assistance to evacuate is present in their workplace or classroom will:

1. Ensure that the individual has been notified.
2. Carry out your regular duties: instruct all occupants to evacuate via the nearest exit, conduct a systematic check of the immediate area and turn off all equipment if safe to do so.

3. If the individual requiring assistance to evacuate has not made alternate plans for evacuation , the following procedure will be followed:
    a. The Supervisor, Instructor or Fire Warden will help any person requiring assistance in reaching a safe location outside the building using an exit stairwell, insofar as they are able to do so.
        i. Persons requiring assistance should be moved into the exit stair when there is a break in the flow of persons evacuating, or when the stair is clear.
        ii. If the person is unable to continue while descending, stop at the next door encountered on the way down. Do not obstruct others who are evacuating.
        iii. Station the person immediately inside the stairwell, if safe to do so, call Security (343-8911, extension 8911 or a blue emergency telephone) or exit the building and immediately inform Security Services or the Fire Department of the person's location.
    b. To assist individuals who are unable to evacuate using the stairs, the Supervisor, Instructor or Fire Warden will ensure the person requiring assistance is moved to the nearest exit stairwell landing.
        i. Persons who cannot use the stairs are to remain inside the exit stairs, ensuring that the exit stair door remains closed.
        ii. Any person who wishes to stay with the individual may do so.
        iii. Contact Security (343-8911, extension 8911 or a blue emergency telephone). If a phone is not available exit the building and immediately inform Security Services or the Fire Department of the person's location.

Those who have begun providing support must ensure the person requiring assistance has been safely evacuated before resuming their regular duties

5.9 All Occupants

All occupants must be familiar with Lakehead University Emergency Procedures to be followed upon discovery of smoke or fire and upon hearing the fire alarm. Occupants will also participate in all fire drills and other fire safety training prescribed by Lakehead University.

Notify your Supervisor, Fire Warden or Instructor if you have a condition that you feel may inhibit your ability to evacuate the building safety without assistance. If you are assigned to assist someone to evacuate, ensure that you know the procedures to be carried out. Make note and report any fire hazards or unsafe conditions observed in the building. Refer to Chapter 7 for more details.

i. Emergency Procedures- All Occupants

Upon Discovery of Fire or Smoke

1. Leave the fire area immediately. Remove any person in immediate danger. Ensure that all doors to the affected area are closed to confine the fire. Do not lock.
2. Warn people in the area to evacuate.
3. Activate the fire alarm using the nearest pull station.
4. Leave the building using the closest exit stair, closing doors and open windows behind you. Do not use the elevator.
5. Once at a safe location call 343-8911, extension 8911 from a campus phone or use the blue emergency telephone.
6. Follow instructions provided by Fire Wardens, Security staff and the Fire Department.
7. Report to Security staff or the Fire Department if you know of anyone still in the building.
8. Move away from the building and congregate in the designated meeting location (Parking lot 9 and in front of the Library).
9. Do not return to the building until authorized to do so by the Fire Department, Security, or a Fire Warden.

On Notification of a Fire

1. Evacuate the building immediately using the nearest exit stair.
2. Leave the building using the closest exit stair, closing doors and open windows behind you. Do not use the elevator.
3. Follow instructions provided by Fire Wardens, Security staff and the Fire Department.
4. Report to Security staff or the Fire Department if you know of anyone still in the building, or if you saw smoke or fire.
5. Move away from the building and congregate in the designated meeting location (Parking lot 9 and in front of the Library).
6. Do not return to the building until authorized to do so by the Fire Department, Security or a Fire Warden.

5.10 Extra Precautions While Exiting

1. Check all doors before opening them using the back of your hand.
    a. If the door is hot, do not open it. Use an alternate path to exit.
    b. If the door is not hot, brace yourself against it and open it slightly, standing to one side. If you detect fire or smoke, feel air pressure or a hot draft, close the door quickly, leaving it unlocked. Use an alternate path to exit.
2. If an exit route is not available or you are trapped:
    a. Return to a “safe room” (ie. an office) and close the door, leaving it unlocked.
    b. Seal off all openings which may admit smoke.
    c. Crouch low to the floor if smoke enters the room.

   d. Call Security at 343-8911 or extension 8911 and alert them to your location. Wait to be rescued.
   e. If a phone is not available get the attention of emergency personnel by any means available to you (shout, wave from a window, etc.).
   f. Listen for instructions given by authorized personnel.
3. If you encounter smoke while exiting and an alternate exit or a "safe room" is not available, drop to your knees and crawl towards the closest exit stair.

5.11 Special Evacuation Procedures

i. Fire Alarms During Examinations

1. Turn your examination over.
2. Evacuate the building using the nearest exit stair. Do not use the elevator.
3. Follow the directions of your Instructor, Fire Wardens, Security staff and the Fire Department.
4. Move away from the building and congregate in the designated meeting location (Parking lot 9 and in front of the Library).
5. Do not return to the building until authorized to do so by the Fire Department, Security or a Fire Warden.

ii. Contractors & Cleaning Staff

1. As long as it is safe to do so, turn off any equipment you are using and ensure that it is not left in such a way as to block exits.
2. Evacuate the building using the nearest exit stair. Do not use the elevator.
3. Follow the directions of Fire Wardens, Security staff and the Fire Department.
4. Ensure that the building staff are aware that you have evacuated
5. Move away from the building and congregate in the designated meeting location (Parking lot 9 and in front of the Library).
6. Do not return to the building until authorized to do so by the Fire Department, Security or a Fire Warden.

5.12 Technology Services Centre (TSC)

All staff and users must complete a safety induction with TSC supervisors prior to being sanctioned to work in their licensed areas. Only sanctioned users will be permitted entry. Users must abide by the security and safety measures established by TSC.

- All staff and client organizations are responsible for reporting any unacceptable conditions to the contact person.
- Do not store any paper, packaging products or other combustible materials of the kind in the licensed areas.

- Do not bring any food beverages, hazardous materials or other items prohibited by TSC into the licensed areas.

In the event of a confirmed fire in the *Advanced Technology & Academic Centre* TSC management will be informed of the event using the emergency contact form filed with Security Services.

5.13 Fuel Oil Spill Procedure

This procedure is to be utilized in the event of accidental fuel oil spill occurring within ATAC Building basement.

In the ATAC Building, there is a 750 litre fuel oil tank located in the basement emergency generator room as a fuel source for the emergency generator.

i. Emergency response priorities:

- Rescue & First Aid
- Contain and / or isolate the area
- Contact as noted below
- Cleanup and decontamination
- Disposal as per Hazardous Waste Disposal Procedure
- Post-incident review, analysis and documentation.

ii. In the event of a spill

The person shall forthwith notify the workplace supervisor and:

- Physical Plant Work Order 807 343-8273
- Human Resources Health & Safety, 807 343-8671
- Security, 807 343-8911
    - Security to be advised to standby to contact Thunder Bay Fire & Rescue if required.
- If the spill impacts the natural environment then contact:
    - 24 hour Ministry of Environment Spills Action Centre, 1-800-268-6060
    - The City of Thunder Bay, Environment Division at 807 684-2195

Upon discovering a spill, spread of the spill must be immediately mitigated. This may require the shut off of main valves located on top of each tank. Note that the automatic fill system in the Power House can be shut down by powering off the fuel pump controller located in the emergency generator transfer switch room.

The spill kit(s) are located next to each tank that are to be utilized to absorb the fuel oil spill.
Upon mitigation of spread of the spill, all of the fuel must be absorbed and placed in a steel drum that must have appropriate flammable material signage for disposal. Disposal shall be according to Lakehead University's Hazardous Waste Disposal Procedure.

These procedures are posted conspicuously in each room that stores diesel fuel.

Chapter 6: Fire Extinguishment, Control or Confinement

In the event of a small fire, first ensure that the Fire Alarm System has been activated and dial extension 8911(343-8911) to ensure that the Security Office have been notified prior to any attempt to extinguish a fire. Security officers will report to Emergency dispatch (911) any specifics details concerning the location and nature of the fire.

Fighting a fire is always a voluntary act

Only those persons who are trained and familiar with extinguisher operation may attempt to fight a fire. In the event a small fire cannot be extinguished with the use of a portable fire extinguisher or the smoke presents a hazard for the operator, the door to the area should be closed to confine and contain the fire. Leave the area.

6.1 Suggested Operation of Portable Fire Extinguishers

Remember the acronym **P.A.S.S.**

Pull the safety pin

Aim the nozzle

Squeeze the trigger handle

Sweep from side to side (watch for fire restarting)

Never re-hang extinguishers after use. Contact Security Services (343-8569) to ensure that they are properly recharged by qualified personnel. Security services will also ensure that a replacement extinguisher is provided.

Keep extinguishers in a visible area without obstructions around them.

6.2 Classification of Fires

Fires are classified according to the fuel type involved.

Class “A” fires are those fuelled by combustible solids, such as wood, paper, excelsior, rags and rubbish.

Class “B” fires occur in the vapour-air mixture over the surface of flammable liquids, such as gasoline, oil, grease, paints and thinners.

Class “C” fires occur in or near live electrical equipment.

Class “D” fires occur with pyrophoric (combustible) metals such as magnesium, titanium, lithium, sodium, potassium, etc.

Class “K” fires involve cooking oils or fats, such as those found in a deep fryer.

6.3 Classification of Fire Extinguishers

Portable fire extinguishers are classified according to their ability to handle specific classes of fires. Labels on the extinguisher indicate the class or classes of fire that they can be expected to extinguish.

Extinguishers suitable for class “A” fires are identified by a triangle containing the letter “A”

Extinguishers suitable for class “B” fires are identified by a square containing the letter “B”

Extinguishers suitable for class “C” fires are identified by a circle containing the letter “C”

Extinguishers suitable for class “D” fires are identified by a star containing the letter “D”

Extinguishers suitable for class “K” fires are identified by a hexagon containing the letter “K”. Class K extinguishers must ONLY be used on cooking fires (ie. The deep fryer)

In the *Advanced Technology & Academic Centre* only “ABC” extinguishers are provided.

Chapter 7: Fire Hazards and Fire Prevention

Fire Prevention is everyone's responsibility

If you notice a potential fire hazard report it to your supervisor or Health & Safety (343-8806) immediately. Every precaution shall be taken to minimize accidents and prevent injuries.

7.1 Housekeeping

- Maintain safe escape routes by keeping exits, stairwells, hallways, windows, aisles and corridors free from obstructions and combustible materials.
- Ensure both sides of a door are kept free and clear of debris. Be particularly aware when you share a door with another department.
- Tables, equipment and other materials and installations may be placed in corridors only with the approval of the Fire Department. For further information contact Health & Safety at 343-8806 or Physical Plant at 343-8273.
- Regularly clear out combustible materials, such as waste paper and cardboard boxes. Review dead files and dispose of waste material.
- Emergency exits are marked by the lighted "EXIT" signs. Report any burnt out exit lights to Physical Plant at 343-8273 or to Security 343-8569 after hours.

7.2 Fire Doors

- Keep fire doors closed. If you find a fire door propped open, discard the wedge so it cannot be reused.
- Some fire doors are held open using electromagnetic devices. All hold open devices in the building will be released on activation of the fire alarm system. If you notice any problems with the electromagnetic hold open devices contact Physical Plant at 343-8273 immediately.

7.3 General Hazards

- Do not use open candles or open flames.
- Smoking is prohibited on university property, except in designated smoking area.
- Place posters or decorations on bulletin boards. Never leave anything flammable in the corridors, stairwell or any means of egress.
- Do not hang decorating material from ceilings and keep streamers and banners to a minimum.
- Avoid placing combustible materials directly in contact with an electrical outlet.
- Ensure proper disposal of oily rags.

7.4 Electrical Hazards

- All electrical equipment, electrical lights used for decorations and extension cords must be CSA or ULC approved. Accepted certification marks can be review on Lakehead University's Health & Safety website. http://hr.lakeheadu.ca/wp/?pg=140

- Electrical wiring that is defective, frayed or cracked must be replaced. Discontinue use and contact physical plant (343-8273) immediately upon discovery of damaged electrical wiring.
- Outlets and electrical devices that show evidence of electrical arching will mean discontinuation of use until a qualified electrician from Physical Plant can assess the problem.
- If a circuit breaker consistently "trips", discontinue using the device that is causing the circuit to trip. Contact a licensed electrician from Physical Plant to assess the electrical system.
- **All electrical work must be done by a licensed electrician with Physical Plant (343-8273).**
- Circuit breaker panels shall not be covered or obstructed by stored material. 1 meter clearance is required.
- Electrical equipment located where flammable or combustible liquids are present shall conform to the Electrical Safety Code made under the Electricity Act, 1998.

In Ontario it is ILLEGAL to connect unapproved equipment to an electrical supply

7.5 Extension Cords

- Extension cords are designed for temporary use only. Never should they be used as permanent wiring.
- Protect extension cords from damage and do not run them under mats or carpets. For long term use, extension cords must be replaced with a power bar or installed permanent wiring.
- Assure that extension cords used are of the proper rating to accept the required electrical load.
- Power bars are acceptable for long term use, provided they are used safely. Review safe use of power bars on Lakehead University's Health & Safety website. http://hr.lakeheadu.ca/wp/?pg=140

7.6 Space Heaters and Appliances

- Space heaters are to be used with care, at least 1 meter away from combustible materials and must NEVER be left unattended.
- Seasonal trees must be flame retardant and ULC certified.
- Turn off or unplug any appliances or decorative lights before you leave.
- **All electrical appliances with heating elements (kettles, coffee makers, space heaters) must have an automatic shut-off function.**

7.7 Storage Areas

- Storage areas must be kept clean, organized and free of debris.
- Stacked material must be arranged so that the piles are stable and not at risk of tipping over.
- Light fixtures should be protected by wire guard or cage to prevent damage of light bulbs.
- Material should not be stored directly touching an electrical outlet.
- Electrical equipment and devices should not be operated, or connected to an electrical source in storage rooms.
- Doors to storage rooms shall be kept closed at all times.

- Service rooms should not be used for storage.
- Combustible material will be stored only in approved areas.
- Flammable and combustible liquids, hazardous, reactive, or unstable chemicals shall not be stored in rooms used for ordinary combustible materials (ie. Paper or cardboard boxes).

7.8 Hot Works

Hot works, such as welding, will be conducted by approved staff only following approved procedures. Contact Physical Plant at 343-8273 for more information or to request a permit for hot work.

7.9 Special Events

i. Portable Cooking Devices

Any portable cooking devices will comply with the Ontario Fire Code and meet the standards set by the Fire Department. Cooking must not release any grease laden vapours.

Any portable cooking device must meet the following requirements:

1. Be annually certified by a TSSA (Technical Standards & Safety Authority) technician.
2. Have an operable, up-to-date, portable fire extinguisher with a minimum rating of 2A-10Bc with the appliance and readily available for use at all times.
3. Have the Fire Department certification sticker conspicuously displayed on the appliance. This sticker will bear the current year to be valid.

Chapter 8: Fire Protection Measures

8.1 Fire Alarms & Pull Stations

The *Advanced Technology & Academic Centre* is equipped with fire alarm pull stations. Look for pull stations as you approach an exterior exit or a stairwell leading outside. The pull station will generally be located in the corridor adjacent to the exterior door leading to the vestibule or the stairwell, or located inside the vestibule itself. Refer to building drawings in Chapter 4.

8.2 Fire Extinguishers

The *Advanced Technology & Academic Centre* is equipped with fire extinguishers. The extinguishers are either wall mounted, or located in the fire hose cabinets in the hallways. Extinguishers are checked monthly. If you discharge an extinguisher, or find one that has been discharged, contact Security at 343-8569 and request a replacement.

8.3 Emergency Exits

Emergency Exits are marked by lighted signs with the word "EXIT". Exit signs are located high on the wall above ground level doors, or at stairwells leading to ground level exit doors. Lighted directional signage is also provided, where required. An outlined arrow appearing below the word "EXIT" indicates the direction to the closest emergency exit. Following these signs will provide an exit route during an emergency.

8.4 Emergency Lighting

The *Advanced Technology & Academic Centre* is equipped with emergency lighting. Emergency lighting provides illumination to exits, corridors and principle exit routes in the event of the loss of primary power.

8.5 Fire Routes

Fire routes are areas of access for responding Fire Professionals. Obey the signs posted and park only in designated parking spots.

Chapter 9: Alternative Measures for Fire Safety

In the event of any shut down of fire protection equipment systems (either entirely or partially), alternate measures for fire safety must be taken. For any shut down of fire protection equipment in excess of 24 hours, the Fire Department shall be notified in writing.

Occupants will be notified of the areas affected by the shutdown and instructions for alternate fire safety measures or actions will be posted as to alternative provisions or actions to be taken in case of emergency. These provisions and actions must be acceptable to the Chief Fire Official.

9.1 Fire Alarm Systems

- It is the responsibility of Physical Plant to notify Security Services when any or all of a fire alarm system is out of service.
- Security will notify the Fire Department with a description of the problem and the anticipated length of time needed to correct it.
- Security will notify the monitoring company that a portion of the fire alarm system is offline.
- The Office of Human Resources – Health & Safety will notify the building supervisory staff that the fire alarm system is temporarily shut down.
- While the fire alarm is out of service, Security Services will either lock out the building or initiate a fire watch. During a Fire Watch a walkthrough of the affected area will be completed regularly by Security Services until such a time that the fire alarm service is restored.
- Notices will be posted on all exits and the main entrance by Security, stating the problem and when it is expected to be corrected.

- Security will notify the Fire Department, the monitoring company and the building occupants when the fire alarm system is back in operation.

9.2 Sprinkler Systems

- It is the responsibility of Physical Plant to notify Security Services when all or part of the sprinkler system is out-of service.
- Security will notify the monitoring company that a portion of the fire protection system is shutdown.
- Security Service will notify the Fire Department that all or part of the sprinkler system in a particular building is out of service and that a Fire Watch is in place.
- During the fire watch, a walkthrough of the affected area will be completed regularly by security services until such a time that the fire alarm service is restored.
- Closed control valves shall be tagged or identified in an approved manner (Ontario Fire Code Subsection 6.5.2).
- Hot works (ie. Welding) should be discontinued in areas affected by the shutdown, or special precautions taken where this work will continue.
- Security will post notices at building entrances and in areas affected by the shutdown, informing building occupants of the circumstances and alternate measures in place.
- Security will notify the Fire Department /the monitoring company and the building occupants when the fire alarm system is back in operation.

9.3 Water System Shutdown

- It is the responsibility of Physical Plant to notify Security Services when all or part of the water system is out-of-service.
- Security Services will notify the Fire Department that all or part of the water system on campus is out-of-service, as well as the location of any fire hydrants taken out-of-service.
- Physical Plant will bag and lock out any fire hydrants that have been taken out of service.

9.4 Emergency Power Shutdown

- It is the responsibility of Physical Plant to notify Security Services when all or part of the emergency power system is out-of-service.
- Security Services will notify the Office of Media Relations to send out a general notice to the University Community and will notify the Fire Department that all or part of the emergency power system is out-of-service.

9.5 Fire Watch

A fire watch is implemented to ensure the fire safety of a building or area of a building and to minimize the impact of malfunctioning equipment. Security officers dedicated to a fire watch are responsible for patrolling the affected area(s) at least once every hour.

A fire watch is required when:

1. Failure of the fire alarm system occurs.
2. Failure of fire safety equipment occurs.
3. Any act which causes an increased risk to persons or property, such as hot works.
4. The Fire Department requests a fire watch be initiated.

9.6 Exits

Exits shall not be obstructed. In the event that planned construction or maintenance will cause an exit to become unusable, the following emergency procedures will be employed:

- Ensure the planned construction or maintenance is in compliance with municipal building permits.
- Ensure alternative measures are developed to compensate for the blocked exits.
- Post temporary exit signs to clearly identify the alternate exits.
- If necessary, create emergency evacuation procedures.

Physical Plant will alert the building occupants to obstructed exits via a communication bulletin.

9.7 Fire Extinguishers

It is the responsibility of Security Services to provide a temporary fire extinguisher (of equal type and rating) when a fire extinguisher has been removed for servicing.

Chapter 10: Fire Drills

Fire drills are regularly conducted to ensure that all building occupants are familiar with fire evacuation procedures. Fire drills assist Security Services and Human Resources staff in revising and refining fire emergency procedures.

The *Advanced Technology & Academic Centre* will have scheduled fire drills once a year and fire drill records are required to be retained for a period of one year. Every attempt will be made to schedule fire drills so that they do not conflict with tests. Drills will not occur during scheduled examination periods.

All occupants of a building must evacuate immediately during a fire drill

Building occupants should report any observations made during the evacuation to a Fire Warden.Fire Wardens should report any problems encountered during the evacuation drill to Health & Safety by calling 343-8806.

Chapter 11: Maintenance Schedule as Required by the Ontario Fire Code

The following is a list of the portions of the Fire Code that require checks, inspections, and/or tests to be conducted of the facilities. Permanent records of all tests and corrective measurestaken are required to be retained for a period of two years after they are made. If the time interval between tests exceeds two years, then the records shall be retained for the period of the test interval plus one year.

Records are to be made available upon the request of the Chief Fire Official or Fire Prevention Officers.

This list has been prepared for convenience only. For accurate reference, the fire code and referenced standards should be consulted.

Definitions of key terms include:

Check: means visual observation to ensure the device or system is in place and is not obviously damaged or obstructed.

Test: means the operation of a device or system to ensure that it will perform in accordance with its intended operation or function.

Inspect: means physical examination to determine that the device or system will apparently perform in accordance with its intended function.

11.1 Daily Tasks

Responsibility	Task	Description	Fire Code Reference
Security	Inspect	Fire alarm system for status of primary and remote trouble indicators and primary power “on” indicator.	6.3.2.2. CAN/ULC-S536
Maintenance	Check	Pump Rooms temperature during freezing weather.	6.6.3.2.

11.2 Weekly

Responsibility	Task	Description	Fire Code Reference
Contractor	Check	Sprinkler water supply pressure and system air or water pressure for required operation pressure.	6.5.3.3.
Contractor	Check	The water level in the fire pump reservoir.	6.6.3.1.
Contractor	Operate	Fire pumps at rated speed.	6.6.3.3.(1)
Contractor	Check	The fire pump discharge pressure, suction pressure, lubricating oil level, relief valves,	6.6.3.3.(2)

		priming water level and general operation conditions during the operation of fire pumps.	
Maintenance	Inspect, Test and Maintain	Emergency generator system and specified components.	6.7.1.1.(1) CSA C282

11.3 Monthly Tasks

Responsibility	Task	Description	Fire Code Reference
Maintenance	Inspect	Doors in fire separations.	2.2.3.4.
Contractor	Check	Pilot lights on emergency lighting unit equipment for operation.	2.7.3.3.(1)
Contractor	Inspect	Emergency lighting unit equipment.	2.7.3.3.(2)
Contractor	Test	Emergency lighting unit equipment for function upon failure of the primary power supply.	2.7.3.3.(3)(a)
Contractor	Inspect and Test	Batteries that provide emergency power for lights referred to in 2.7.3.3. (5)	2.7.3.3. (6)
Security	Inspect	Portable fire extinguishers and record electronically or on the attached tag.	6.2.7.2.
Security	Inspect	Hose stations to ensure that the hose is in the proper position and that all of the equipment is in place and operable.	6.4.2.1.
Contractor	Inspect and Test	Fire alarm system for operability: initiating device, alert/alarm/trouble signals, annunciator, battery, voice paging and emergency telephones.	6.3.2.2. CAN/ULC-S536
Contractor	Test	The alarm on sprinkler systems at the sprinkler valve test connection.	6.5.5.2.(1)
Maintenance	Inspect, Test and Maintain	Emergency generator system (under partial load) and specified components.	6.7.1.1.(1) CSA C282
Contractor	Inspect, Test and Maintain	Special extinguishing systems and components.	6.8.1.1.(1) NFPA 11-17A

11.4 Tasks Every Two (2) Months

Responsibility	Task	Description	Fire Code Reference
Contractor	Test	Transmitters and water flow actuated devices where an electrical supervisory signal service is provided for a sprinkler system.	6.5.5.7.(2)

11.5 Semi-annual Tasks

Responsibility	Task	Description	Fire Code Reference
Contractor	Test	Valve supervisory switches, building and tank water temperature and water level supervisory devices and other sprinkler system supervisory devices where and electrical supervisory signal service is provided for a sprinkler system.	6.5.5.7.(3)
Contractor	Inspect, Test and Maintain	Emergency generator system and specified components.	6.7.1.1.(1) CSA C282
Contractor	Inspect, Test and Maintain	Special extinguishing systems and components.	6.8.1.1.(1) NFPA 11-17A

11.6 Annual Tasks

Responsibility	Task	Description	Fire Code Reference
Maintenance	Operate	Disconnect switch for mechanical air-condition and ventilation systems.	2.6.1.8.
Contractor	Test	Emergency lighting unit equipment for design duration.	2.7.3.3.(3)(b)
Contractor	Inspect and maintain	Electrical equipment, mechanical systems, piping, valves, and automatic and manual control and safety devices	4.12.7.1.(1)
Health & Safety	Review	Fire safety plan as often as necessary but at intervals not greater than 12 months.	2.8.2.1.(4)
Contractor	Test and Inspect	Emergency lighting equipment charging conditions for voltage, current and recovery period to ensure manufacturer's specifications are met.	2.7.3.3.(4)
Security & Health and Safety	Conduct	Annual Fire drill (all buildings).	2.8.3.2.(1)
Contractor	Maintain	Fire extinguishers (mechanical parts, extinguishing agent, and expelling means will be thoroughly examined)	6.2.7.1. NFPA 10
Contractor	Inspect and Test	Fire alarm system operability and all components and devices	6.3.2.2. CAN/ULC-S536
Maintenance	Inspect	Private hydrants annually and after each use.	6.6.5.1. to 6.6.5.5.
Maintenance	Inspect and check	Private hydrants water flow.	6.6.5.6.

Contractor	Inspect	Fire department standpipe and hose system connections (plugs or caps removed) for wear, rust or obstruction.	6.4.1.3.(2)
Contractor	Inspect	Hose valves to ensure that they are tight so that there is no water leakage into the hose.	6.4.2.4.
Contractor	Inspect / Re-rack	Standpipe hose and replace worn hose or gaskets.	6.4.2.5.(1)
Contractor	Check	Exposed sprinkler piping hangers to ensure that they are kept in good repair.	6.5.3.2.
Contractor	Check	Sprinkler heads to ensure that they are free from damage, corrosion, grease, dust, paint or whitewash.	6.5.3.5.
Contractor	Inspect	Fire department sprinkler system connections (plugs or caps removed) for wear, rust or obstruction.	6.5.4.4.(1).
Contractor	Test	Water flow alarm on wet sprinkler systems, using the hydraulically remote test connection.	6.5.5.3.
Contractor	Test	Sprinkler system water supply pressure with the main drain valve fully open for obstructions or deterioration of the main water supply.	6.5.5.5.
Contractor	Test	Fire pumps at full rated capacity to ensure that they are capable of delivering the rated flow.	6.6.3.5.
Contractor	Inspect, Test and Maintain	Emergency generator system (under full load) and specified components.	6.7.1.1.(1) CSA C282
Contractor	Drain	Liquid fuel tanks and refill with a fresh supply (unless achieved by normal replenishment from test program).	6.7.1.5.(1)-6.7.1.5.(2)
Contractor	Inspect, Test and Maintain	Special extinguishing systems and components.	6.8.1.1.(1) NFPA 11-17A

11.7 Tasks Every Five (5) Years

Responsibility	Task	Description	Fire Code Reference
Contractor	Test	H2O, CO2 and dry chemical (stainless steel shell) extinguishers, hydrostatically tested.	6.2.7.1. NFPA 10

11.8 Tasks Every Six (6) Years

Responsibility	Task	Description	Fire Code Reference

Contractor	Maintain	Stored-pressure fire extinguishers that require a 12-year hydrostatic test by emptying and subjecting to the applicable maintenance procedures.	6.2.7.1. NFPA 10

11.9 Tasks Every Twelve (12) Years

Responsibility	Task	Description	Fire Code Reference
Contractor	Test	Extinguishers with milled steel shells hydrostatically tested.	6.2.7.1. NFPA 10

11.9 Tasks, As Required

Responsibility	Task	Description	Fire Code Reference
Security	Check	Doors in fire separations in occupied buildings as frequently as necessary to ensure that they remain closed.	2.2.3.5.(1)
Maintenance	Inspect	Fire dampers, as required.	2.2.3.7.
Security	Maintain	Access for firefighting free of obstructions.	2.5.1.2.(1)
Security	Maintain	Fire access routes to be immediately ready for fire department vehicles.	2.5.1.3.
Health & Safety	Review	Fire safety plan as often as necessary but at intervals not greater than 12 months.	2.8.2.1.(4)
Contractor	Test	Standpipe systems that have been modified extended or are being restored to service after a period of disuse exceeding one (1) year, hydrostatically and for flow and pressure.	6.4.3.1.(1)
Maintenance	Maintain	Fire department sprinkler and standpipe connections free of obstructions.	2.5.1.2.(3)
Contractor	Inspect	After any alterations or repairs, an inspection shall be made to ensure valves are returned to the fully open position and are sealed, locked or electrically supervised.	6.6.1.2.(3)
Security	Maintain	When an emergency power system or any part thereof is shut down, the supervisory staff shall be notified.	6.7.1.1.(3)
Security	Maintain	Required exit signs in a clean and legible condition and clearly visible.	2.7.3.1.
Security	Illuminate	Exit signs while the building is occupied.	2.7.3.2.
Contractor	Inspect, Test and Maintain	Special extinguishing systems and components.	6.8.1.1.(1) NFPA 11-17A

Fire Drill Report

Building:	
Date:	Time:
In attendance:	
Comments and/or Deficiencies Noted:	

Signature: _____

SDS – FM-200

Material Safety Data Sheet

FM-200®

Version 2.1

Revision Date 07/11/2011 Ref. 130000036866

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	FM-200®
Tradename/Synonym	:	FE-227 2-Hydroperfluoropropane Propane, 1,1,1,2,3,3,3-Heptafluoro- HFC-227eaHP 2-Hydroheptafluoropropane Heptafluoropropane 2-H-heptafluoropropane 1,1,1,2,3,3,3-Heptafluoropropane R-227 R227 HFC-227ea
MSDS Number	:	130000036866
Product Use	:	Fire extinguishing agent
Manufacturer	:	DuPont 1007 Market Street Wilmington, DE 19898
Product Information	:	1-800-441-7515 (outside the U.S. 1-302-774-1000)
Medical Emergency	:	1-800-441-3637 (outside the U.S. 1-302-774-1139)
Transport Emergency	:	CHEMTREC: 1-800-424-9300 (outside the U.S. 1-703-527-3887)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Misuse or intentional inhalation abuse may lead to death without warning.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
Rapid evaporation of the liquid may cause frostbite.

Potential Health Effects

Skin : Contact with liquid or refrigerated gas can cause cold burns and frostbite.

1 / 9

Material Safety Data Sheet

DUPONT

FM-200®

Version 2.1

Revision Date 07/11/2011 Ref. 130000036866

Eyes	:	Contact with liquid or refrigerated gas can cause cold burns and frostbite.
Inhalation	:	Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects. Other symptoms potentially related to misuse or inhalation abuse are: Anaesthetic effects, Light-headedness, dizziness, confusion, incoordination, drowsiness, or unconsciousness, irregular heartbeat with a strange sensation in the chest, heart thumping, apprehension, feeling of fainting, dizziness or weakness. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Carcinogenicity

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
1,1,1,2,3,3,3-Heptafluoropropane	431-89-0	100 %

SECTION 4. FIRST AID MEASURES

Skin contact	:	In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Take off all contaminated clothing immediately. Consult a physician. Wash contaminated clothing before re-use. Treat for frostbite if necessary by gently warming affected area.
Eye contact	:	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Consult a physician if necessary.
Inhalation	:	Remove from exposure, lie down. Move to fresh air. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary. Consult a physician.

Material Safety Data Sheet

DUPONT

FM-200®

Version 2.1

Revision Date 07/11/2011 Ref. 130000036866

Ingestion	:	Is not considered a potential route of exposure.
General advice	:	Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice.
Notes to physician	:	Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

SECTION 5. FIREFIGHTING MEASURES

Fire and Explosion Hazard	:	The product is not flammable. Hazardous decomposition products : Hydrogen fluoride, Carbonyl fluoride
Suitable extinguishing media	:	This material is a fire extinguishing agent.

SECTION 6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel)	:	Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus. Keep upwind of leak - evacuate until gas has dispersed.
Spill Cleanup	:	Ventilate area using forced ventilation, especially low or enclosed places where heavy vapors might collect.

SECTION 7. HANDLING AND STORAGE

Handling (Personnel)	:	Do not breathe gas. Avoid contact with skin, eyes and clothing. Provide sufficient air exchange and/or exhaust in work rooms. For personal protection see section 8. Wash hands thoroughly after handling. Wash clothing after use. Decomposition will occur when product comes in contact with open flame or electrical heating elements. Handle in accordance with good industrial hygiene and safety practice.

Material Safety Data Sheet

DUPONT

FM-200®

Version 2.1

Revision Date 07/11/2011 Ref. 130000036866

Storage	:	Valve protection caps and valve cutlet threaded plugs must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Never attempt to lift cylinder by its cap. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Separate full containers from empty containers. Keep at temperature not exceeding 52 °C. Do not store near combustible materials. Keep container tightly closed in a dry and well-ventilated place. Store in original container. Protect from contamination. Avoid area where salt or other corrosive materials are present.
Storage temperature	:	< 52 °C (< 126 °F)

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls	:	Use only with adequate ventilation. Keep container tightly closed.
Personal protective equipment		
Respiratory protection	:	Wear NIOSH approved respiratory protection as appropriate.
Hand protection	:	Additional protection: Impervious gloves
Eye protection	:	Safety glasses with side-shields Additionally wear a face shield where the possibility exists for face contact due to splashing, spraying or airborne contact with this material.
Skin and body protection	:	Where there is potential for skin contact, have available and wear as appropriate, impervious gloves, apron, pants, jacket, hood and boots.
Protective measures	:	Self-contained breathing apparatus (SCBA) is required if a large release occurs.

Exposure Guidelines

Exposure Limit Values

1,1,1,2,3,3,3-Heptafluoropropane

AEL *	(DUPONT)	1,000 ppm	8 & 12 hr. TWA

Material Safety Data Sheet

DUPONT

FM-200®

Version 2.1

Revision Date 07/11/2011 Ref. 130000036866

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Liquefied gas
Odor	:	none
Melting point/range	:	-131 °C (-204 °F)
Boiling point	:	-16.3 °C (2.7 °F)
Vapour Pressure	:	4,547 hPa at 25 °C (77 °F)
Density	:	1.388 g/cm3 at 25 °C (77 °F) (as liquid)

SECTION 10. STABILITY AND REACTIVITY

Stability	:	Stable at normal temperatures and storage conditions.
Incompatibility	:	Alkali metals Alkaline earth metals, Powdered metals, Powdered metal salts
Hazardous decomposition products	:	Hazardous decomposition products , Hydrogen fluoride , Carbonyl fluoride, Carbon monoxide, Carbon dioxide
Hazardous reactions	:	Polymerization will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

FM-200®

Inhalation 4 h LC50	:	> 788698 ppm , rat
Inhalation	:	dog Cardiac sensitization
Dermal	:	not applicable
Oral	:	not applicable
Skin irritation	:	No skin irritation, Not tested on animals

Material Safety Data Sheet

FM-200®

Version 2.1

Revision Date 07/11/2011 Ref. 130000036866

		Not expected to cause skin irritation based on expert review of the properties of the substance.
Eye irritation	:	No eye irritation, Not tested on animals Not expected to cause eye irritation based on expert review of the properties of the substance.
Sensitisation	:	Does not cause skin sensitization., Not tested on animals Not expected to cause sensitization based on expert review of the properties of the substance.
		Did not cause sensitization on laboratory animals. There are no reports of human respiratory sensitization.
Repeated dose toxicity	:	Inhalation rat No toxicologically significant effects were found.
Carcinogenicity	:	Overall weight of evidence indicates that the substance is not carcinogenic.
Mutagenicity	:	Did not cause genetic damage in animals. Did not cause genetic damage in cultured mammalian cells. Did not cause genetic damage in cultured bacterial cells.
Reproductive toxicity	:	Animal testing showed no reproductive toxicity. Information given is based on data obtained from similar substances.
Teratogenicity	:	Animal testing showed no developmental toxicity.
Further information	:	Cardiac sensitisation threshold limit : 730190 mg/m3

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity
FM-200®

96 h LC50	:	Danio rerio (zebra fish) > 200 mg/l Information given is based on data obtained from similar substances.
96 h LC50	:	Oncorhynchus mykiss (rainbow trout) > 81.8 mg/l

Material Safety Data Sheet

FM-200®

Version 2.1

Revision Date 07/11/2011 Ref. 130000036866

Information given is based on data obtained from similar substances.

72 h EC50 : Pseudokirchneriella subcapitata > 114 mg/l
Information given is based on data obtained from similar substances.

72 h EC50 : Pseudokirchneriella subcapitata > 118 mg/l
Information given is based on data obtained from similar substances.

48 h EC50 : Daphnia magna (Water flea) > 200 mg/l
Information given is based on data obtained from similar substances.

48 h EC50 : Daphnia magna (Water flea) > 97.9 mg/l
Information given is based on data obtained from similar substances.

Environmental Fate
FM-200®

Biodegradability aerobic : 1 % OECD Test Guideline 301
Not readily biodegradable.

Biodegradability aerobic : 5 % OECD Test Guideline 301
Not readily biodegradable.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal : Can be used after re-conditioning. Recover by distillation or remove to a permitted waste disposal facility. Comply with applicable Federal, State/Provincial and Local Regulations.

Environmental Hazards : Empty pressure vessels should be returned to the supplier.

SECTION 14. TRANSPORT INFORMATION

DOT	UN number	: 3296
	Proper shipping name	: Heptafluoropropane
	Class	: 2.2
	Labelling No.	: 2.2
IATA_C	UN number	: 3296

7 / 9

Material Safety Data Sheet

FM-200®

Version 2.1

Revision Date 07/11/2011 Ref. 130000036866

	Proper shipping name	: Heptafluoropropane
	Class	: 2.2
	Labelling No.	: 2.2
IMDG	UN number	: 3296
	Proper shipping name	: Heptafluoropropane
	Class	: 2.2
	Labelling No.	: 2.2

SECTION 15. REGULATORY INFORMATION

SARA 313 Regulated Chemical(s)	:	SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
California Prop. 65	:	Chemicals known to the State of California to cause cancer, birth defects or any other harm: none known

SECTION 16. OTHER INFORMATION

		HMIS
Health	:	1
Flammability	:	0
Reactivity/Physical hazard	:	0
PPE	:	Personal Protection rating to be supplied by user depending on use conditions.

FM-200 is a registered trademark of E. I. du Pont de Nemours and Company
Before use read DuPont's safety information.
For further information contact the local DuPont office or DuPont's nominated distributors.
® DuPont's registered trademark

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing,

Material Safety Data Sheet

FM-200®

Version 2.1

Revision Date 07/11/2011 Ref. 130000036866

storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Significant change from previous version is denoted with a double bar.

9 / 9