EOAS
EMERGENCY RESPONSE PLAN

2014

v 1.0

February 20, 2014

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OBJECTIVES OF THE EMERGENCY RESPONSE PLAN

The objectives of the Emergency Response Plan are:

1. **To ensure the safety of the building occupants through:**

   Fire Prevention – To reduce and prevent the incidence of fire by controlling fire hazards in the building and by maintaining the building facilities;

   And,

   Emergency Evacuation – To establish a systematic method of safe and orderly evacuation of an area or building, in case of fire or other emergency.

2. **To provide a checklist of procedures for responding to, and reporting, an emergency.**

Hard copies of The Emergency Response Plan are available through the Fire Building Wardens, and the Department Administrator.
The Plan is posted also online as part of the EOAS Department Safety Manual

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A priority in <u>any</u> emergency situation is to
save lives, minimize injuries, and **reduce damage to property**.

BUILDING LIFE SAFETY SYSTEMS AND FEATURES

The Department of Earth, Ocean and Atmospheric Sciences (EOAS) is located in 3 adjoining buildings at the Point Grey Campus of UBC.

Building Name: Earth Sciences Building
Building Purpose: TEACHING/RESEARCH/OFFICE

The Earth Sciences Building (ESB) 2207 Main Mall Vancouver, BC V6T 1Z4	The ESB building is approximately 191,115 sq ft and was constructed in 2012. It is a mixed use building comprising 5 floors and 2 basement levels. The North Wing is occupied by general offices, the ESB Conference Centre and 3 lecture theatres. The South Wing is occupied by wet labs, and EOAS Departmental & Research Offices. B1 includes the Main Mechanical Room and the Geophysical Fluid Dynamics Laboratory (GFD). B2 includes various wet and dry lab spaces, the loading dock, storage facilities, mechanical spaces and the main electrical vault. Level 1 includes 2 Lecture Theatres, Statistics Computer Laboratories, affiliated support space and the Magma Café. Levels 2 through 4 includes wet labs, office spaces, meeting rooms and 1 Lecture Theatre on the 2nd floor. Level 5 includes Computer Laboratories, the ESB Conference Centre, and offices. The roof includes various mechanical systems and a number of EOAS weather stations.

Building Name: EOS Main
Building Purpose: TEACHING/RESEARCH/OFFICE

EOS Main (EOSM) 6339 Stores Road Vancouver, BC V6T 1Z4 The building is joined to EOS South through a three story shared breezeway.	EOS Main building is approximately 98,000 sq ft and was constructed in 1970. It is a mixed use building comprising 3 floors and a basement. The basement comprises various workshops, the loading dock, EOAS Stores, various specialty laboratories and storage facilities. Level 1 includes classrooms, a Clean Room suite, office and the Pacific Museum of the Earth. Level 2 and 3 includes a number of wet laboratories, offices, and computer laboratories. The roof includes various mechanical systems and an EOAS weather station.

Building Name: EOS South
Building Purpose: OFFICES

EOS South (EOSS) 6339 Stores Road Vancouver, BC V6T 1Z4 The building is joined to EOS Main through a three story shared breezeway.	EOS South building is approximately 18,000 sq ft and was constructed in 1972. It is a mixed use building comprising 3 floors and a basement. All Levels are comprised of offices for faculty, graduate students and post-docs.

Life Safety Systems in these buildings consist of the following:

- Emergency exits
- Emergency lighting
- Smoke Detectors
- Fire alarm system connected to Fire Department
- Fire extinguisher(s)
- Fire hose cabinets & standpipes
- Fire hydrant(s)
- Heat Detectors
- Sprinkler systems
- Pull stations

Fire Alarm System
The EOAS Department is divided into three distinct areas in terms of alarm annunciation, with annunciation panel in the main entrance to ESB, EOSM and EOSS. There is a control annunciation panel for ESB in room B1116.

There are manual pull stations and smoke detectors throughout the buildings. The fire alarm is connected to the Fire Department and is supervised by UBC Department of Fire Life Safety.

Emergency Exits
Emergency exits are located at strategic places throughout the building. Please refer to the Emergency Fire Plans located on each floor of ESB, EOSM and EOSS.

Communications
There is no public address system in ESB, EOSM or EOSS. The Fire Safety Director, Deputy Fire Safety Director and Building Wardens have system to facilitate communication during a safety incident.

Emergency Lighting
In the event of a power failure, emergency lighting has been provided to cover all common corridors, stairwells and exit signage. Maintenance of the emergency lights is handled by UBC Building Operations.

Please note that in EOSM and EOSS, emergency lighting is provided by battery operated lights. These batteries will drain in approximately 30 minutes. The purpose of these lights is to facilitate leaving the buildings in a power outage. Please do not re-enter either EOSM or EOSS until power is restored.

The Emergency Lighting in ESB is connected to the building's Emergency Generator. Emergency lights will be maintained through-out a power outage.

Emergency Power System
In the event of a power failure, a generator is provided and is located at the rear of EOSM/EOSS. This unit provides power to emergency lighting, exit signage, elevators and all related emergency equipment for ESB only. There is no emergency power provided to EOSM or EOSS.

Fire Extinguisher(s)
There are many portable fire extinguishers placed strategically (i.e. visible and accessible) throughout the buildings. They are maintained and inspected annually by Acme Fire and Safety under contract to UBC Building Operations.

Fire Hydrant(s)
There are numerous fire hydrants located near the buildings.

Smoke/Heat Detectors & Sprinkler System
Sprinklers and smoke detectors are located through-out all three buildings and activate the Fire Alarm system (independent of each other). Activation of either system will initiate a response from the Fire Department.

Throughout the buildings there are heat detectors however, depending on their location these may or may not be connected to the sprinklers as appropriate for the area. They do activate the Fire Alarm system which is connected with the Fire Department.

The main control valves are located in the sprinkler rooms of each building.

UBC Personnel Response
In the event of any incident, UBC Fire Life Safety are called out at the same time that the Fire Department is notified and will be available at the designated areas to assist with utilities such as gas, water, steam, electrical etc. UBC Security will also respond to provide access as needed.

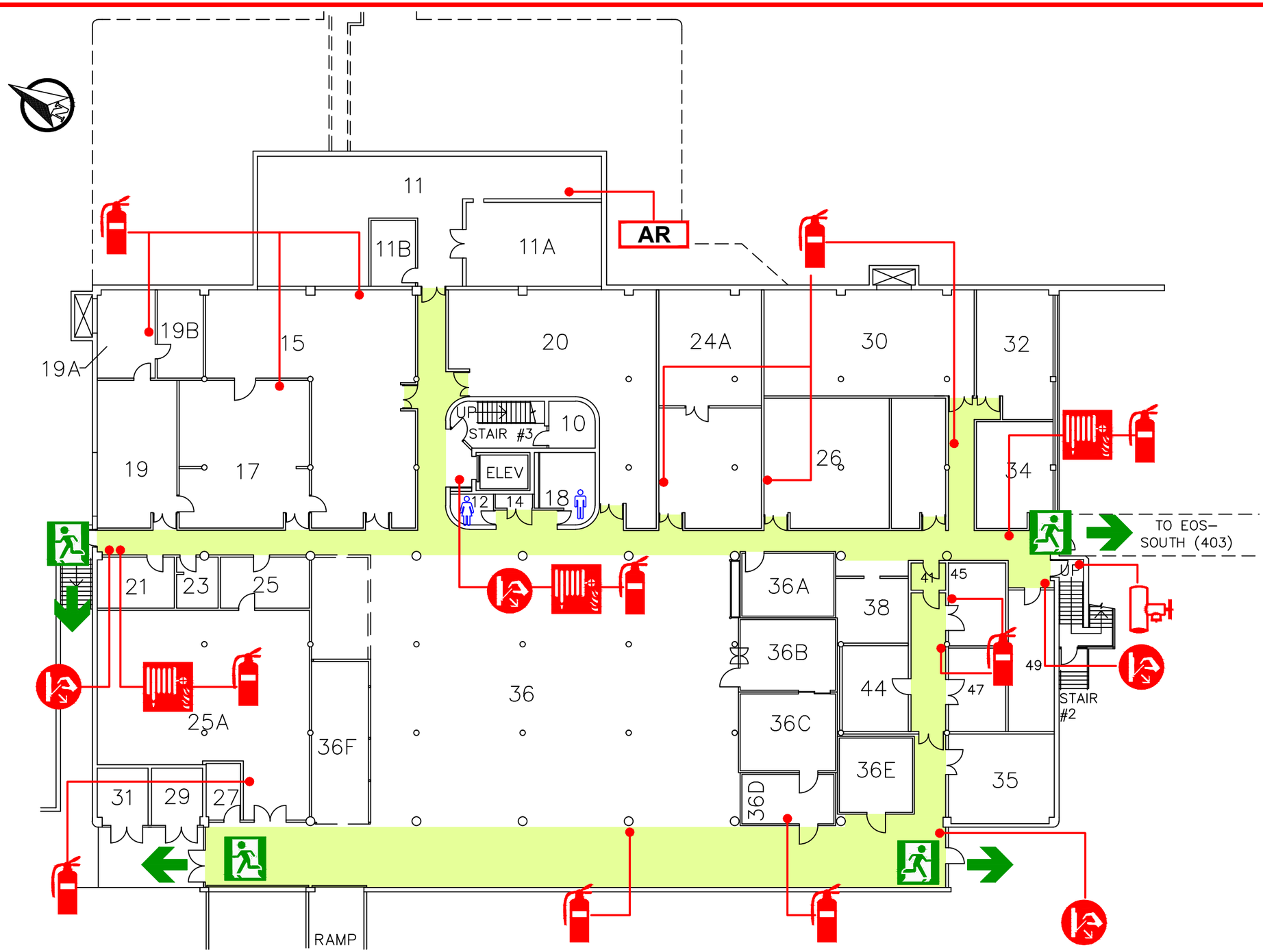
Fire Alarm Pull Stations
In the event that a fire is discovered, there are fire alarm pull stations through-out all three buildings. Please refer to the Emergency Fire Plans on each floor for their locations.

FLOOR PLANS

Floor Plans include the location of the following (if applicable):

- Fire extinguishers
- Emergency exits
- Fire alarm manual pull stations
- Hose cabinets and/or standpipes
- Sprinkler room
- Outdoor assembly area
- Emergency supply containers
- Additional fire-fighting or emergency response equipment (e.g. generators)
- Area(s) of refuge

***Note*:** Floor Plans are posted in a visible location on each floor of the three buildings (e.g. main entrance or elevator lobby).



BASEMENT FLOOR PLAN
N.T.S.

EMERGENCY INSTRUCTIONS

If you discover a fire or explosion in the building:

1 Immediately activate the closest fire alarm/pull station.
2 Call 911.
3 Give the address and the nearest intersection (6339 STORES ROAD at the intersection of West Mall & Stores Road)
4 Provide information about the emergency: Where is the fire? (Basement floor, room #____), How fast the fire is spreading? Are there people trapped?
5 If it is safe, control the fire.
6 Isolate the fire by closing doors behind you. Do not lock the doors.
7 Leave by the nearest safe exit.
8 Walk. Do not run. Shut doors behind you. On leaving the building move well away. Do not block road access.
9 Do not go back in the building for any reason until the all-clear has been announced by emergency personnel.
10 If you hear the fire alarm ringing - Follow steps 6 through 8 above.

In the event of a fire DO NOT USE ELEVATOR(s).

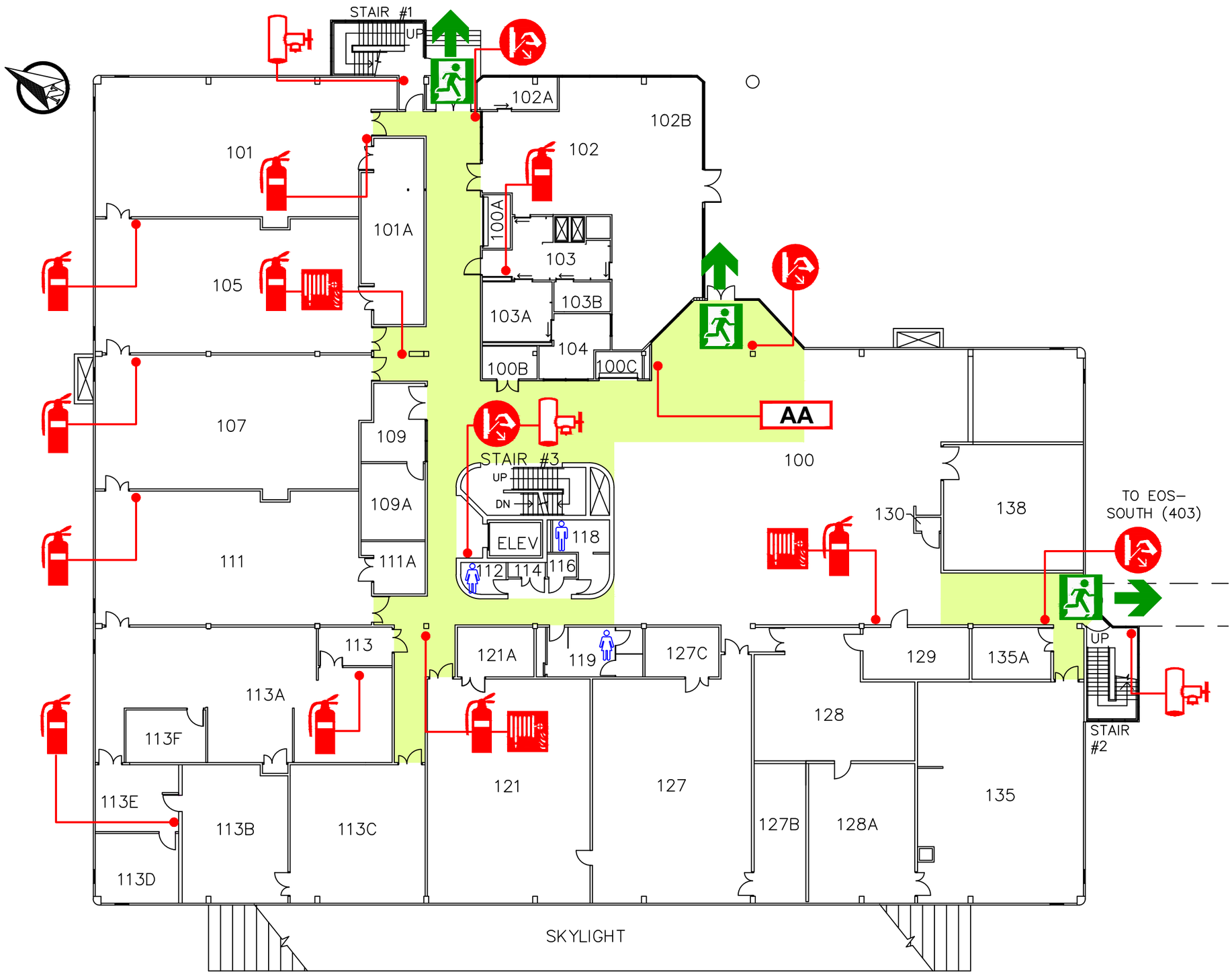
(See the map to your left for the location of all fire extinguishers, fire alarm/pull stations, safe exits and areas of refuge)

FOR EMERGENCIES CALL 911

– LEGEND –

EXIT | PULL STATION/ FIRE ALARM | FIRE EXTINGUISHER | FIRE HOSE CABINET | STANDPIPE CONNECTION

LAYOUT: BERP 18–Feb–14



GROUND FLOOR PLAN
N.T.S.

EMERGENCY INSTRUCTIONS

If you discover a fire or explosion in the building:

1. Immediately activate the closest fire alarm/pull station.
2. Call 911.
3. Give the address and the nearest intersection (6339 STORES ROAD at the intersection of West Mall & Stores Road)
4. Provide information about the emergency: Where is the fire? (Ground floor, room #____), How fast the fire is spreading? Are there people trapped?
5. If it is safe, control the fire.
6. Isolate the fire by closing doors behind you. Do not lock the doors.
7. Leave by the nearest safe exit.
8. Walk. Do not run. Shut doors behind you. On leaving the building move well away. Do not block road access.
9. Do not go back in the building for any reason until the all-clear has been announced by emergency personnel.
10. If you hear the fire alarm ringing - Follow steps 6 through 8 above.

In the event of a fire DO NOT USE ELEVATOR(s).

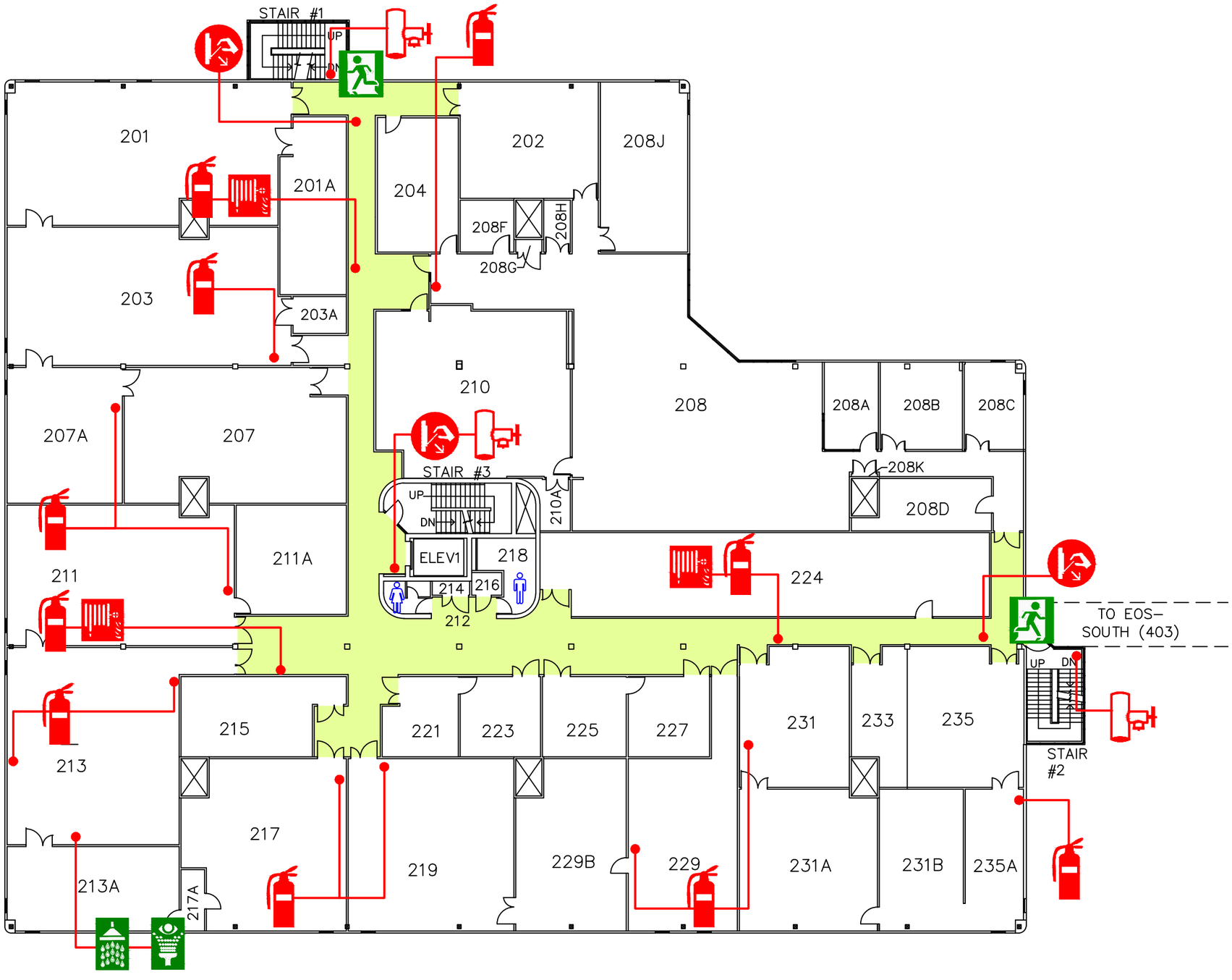
(See the map to your left for the location of all fire extinguishers, fire alarm/pull stations, safe exits and areas of refuge)

FOR EMERGENCIES CALL 911

– LEGEND –

EXIT | PULL STATION/ FIRE ALARM | FIRE EXTINGUISHER | FIRE HOSE CABINET | STANDPIPE CONNECTION

LAYOUT: BERP 18-Feb-14



SECOND FLOOR PLAN
N.T.S.

EMERGENCY INSTRUCTIONS

If you discover a fire or explosion in the building:

1. Immediately activate the closest fire alarm/pull station.
2. Call 911.
3. Give the address and the nearest intersection (6339 STORES ROAD at the intersection of West Mall & Stores Road)
4. Provide information about the emergency: Where is the fire? (Second floor, room #____), How fast the fire is spreading? Are there people trapped?
5. If it is safe, control the fire.
6. Isolate the fire by closing doors behind you. Do not lock the doors.
7. Leave by the nearest safe exit.
8. Walk. Do not run. Shut doors behind you. On leaving the building move well away. Do not block road access.
9. Do not go back in the building for any reason until the all-clear has been announced by emergency personnel.
10. If you hear the fire alarm ringing - Follow steps 6 through 8 above.

In the event of a fire DO NOT USE ELEVATOR(s).

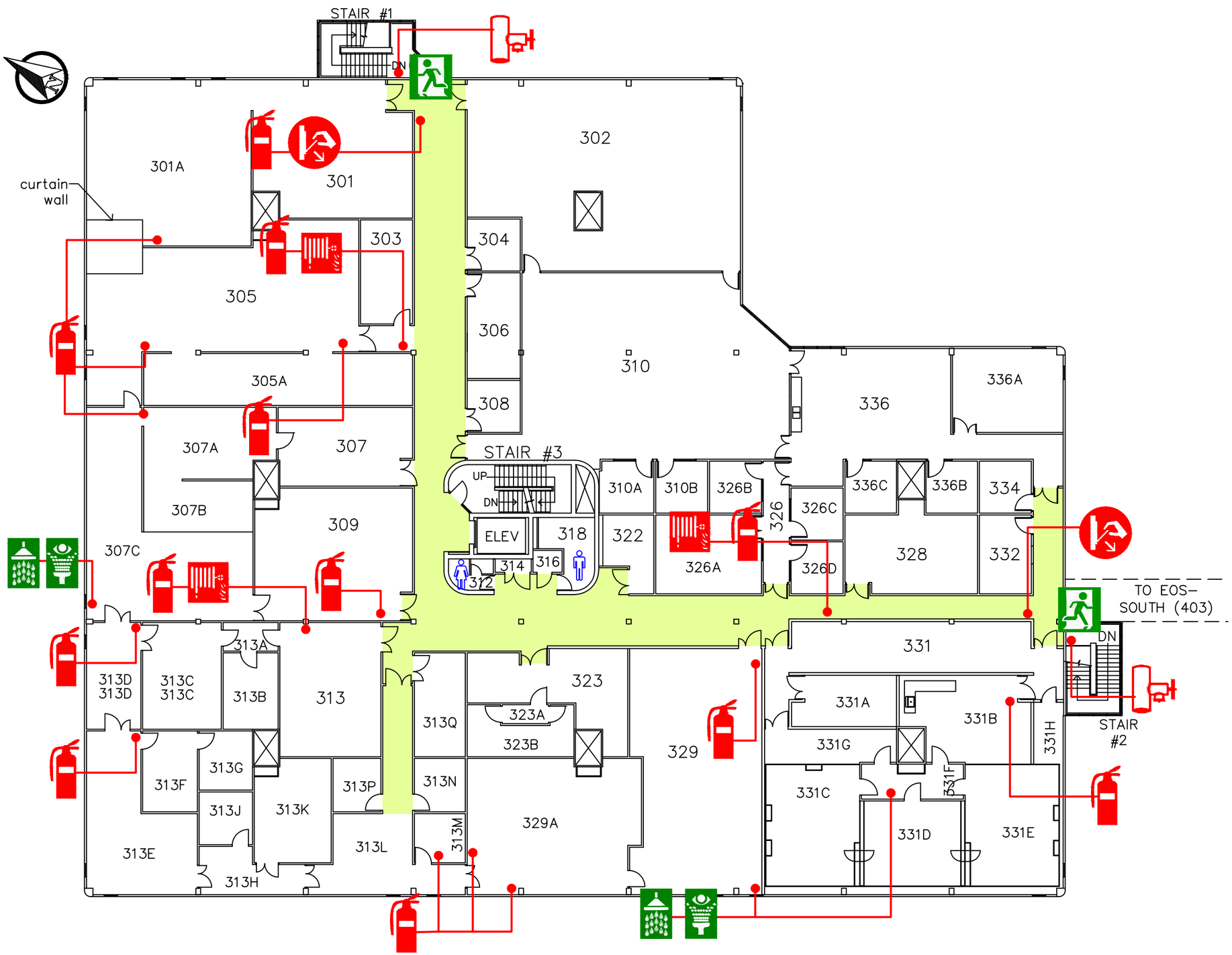
(See the map to your left for the location of all fire extinguishers, fire alarm/pull stations, safe exits and areas of refuge)

FOR EMERGENCIES CALL 911

– LEGEND –

EXIT
PULL STATION/ FIRE ALARM
FIRE EXTINGUISHER
FIRE HOSE CABINET
STANDPIPE CONNECTION
EMERGENCY EYE WASH
EMERGENCY SHOWER

LAYOUT: BERP 18–Feb–14



THIRD FLOOR PLAN
N.T.S.

WEST MALL

EMERGENCY INSTRUCTIONS

If you discover a fire or explosion in the building:

1. Immediately activate the closest fire alarm/pull station.
2. Call 911.
3. Give the address and the nearest intersection (6339 STORES ROAD at the intersection of West Mall & Stores Road)
4. Provide information about the emergency: Where is the fire? (Third floor, room #____), How fast the fire is spreading? Are there people trapped?
5. If it is safe, control the fire.
6. Isolate the fire by closing doors behind you. Do not lock the doors.
7. Leave by the nearest safe exit.
8. Walk. Do not run. Shut doors behind you. On leaving the building move well away. Do not block road access.
9. Do not go back in the building for any reason until the all-clear has been announced by emergency personnel.
10. If you hear the fire alarm ringing - Follow steps 6 through 8 above.

In the event of a fire DO NOT USE ELEVATOR(s).

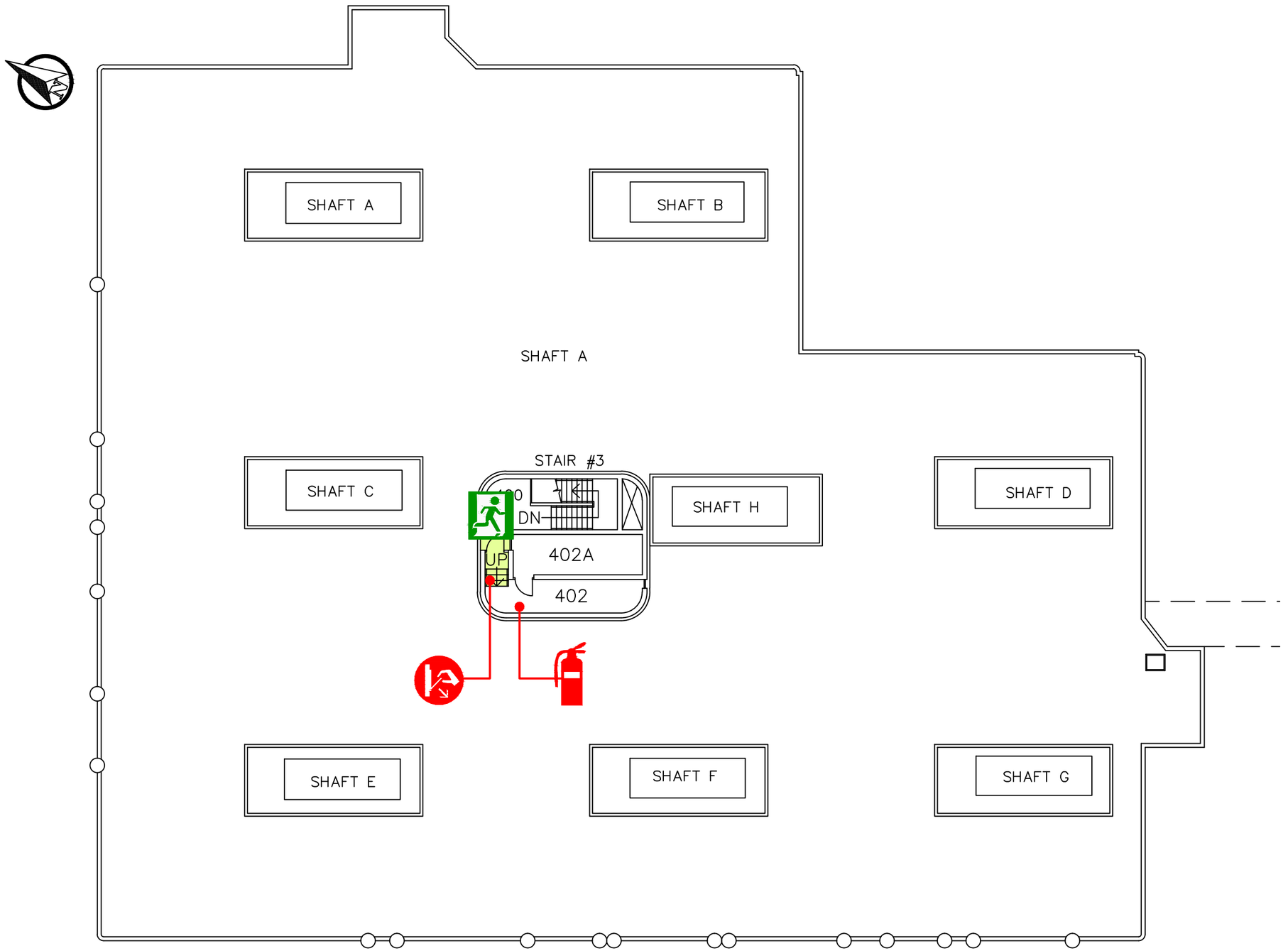
(See the map to your left for the location of all fire extinguishers, fire alarm/pull stations, safe exits and areas of refuge)

FOR EMERGENCIES CALL 911

– LEGEND –

EXIT · PULL STATION/ FIRE ALARM · FIRE EXTINGUISHER · FIRE HOSE CABINET · STANDPIPE CONNECTION · EMERGENCY EYE WASH · EMERGENCY SHOWER

LAYOUT: BERP 18-Feb-14



ROOF FLOOR PLAN
N.T.S.

EMERGENCY INSTRUCTIONS

If you discover a fire or explosion in the building:

1. Immediately activate the closest fire alarm/pull station.
2. Call 911.
3. Give the address and the nearest intersection (6339 STORES ROAD at the intersection of West Mall & Stores Road)
4. Provide information about the emergency: Where is the fire? (Roof floor, room #____), How fast the fire is spreading? Are there people trapped?
5. If it is safe, control the fire.
6. Isolate the fire by closing doors behind you. Do not lock the doors.
7. Leave by the nearest safe exit.
8. Walk. Do not run. Shut doors behind you. On leaving the building move well away. Do not block road access.
9. Do not go back in the building for any reason until the all-clear has been announced by emergency personnel.
10. If you hear the fire alarm ringing - Follow steps 6 through 8 above.

In the event of a fire DO NOT USE ELEVATOR(s).

(See the map to your left for the location of all fire extinguishers, fire alarm/pull stations, safe exits and areas of refuge)

FOR EMERGENCIES CALL 911

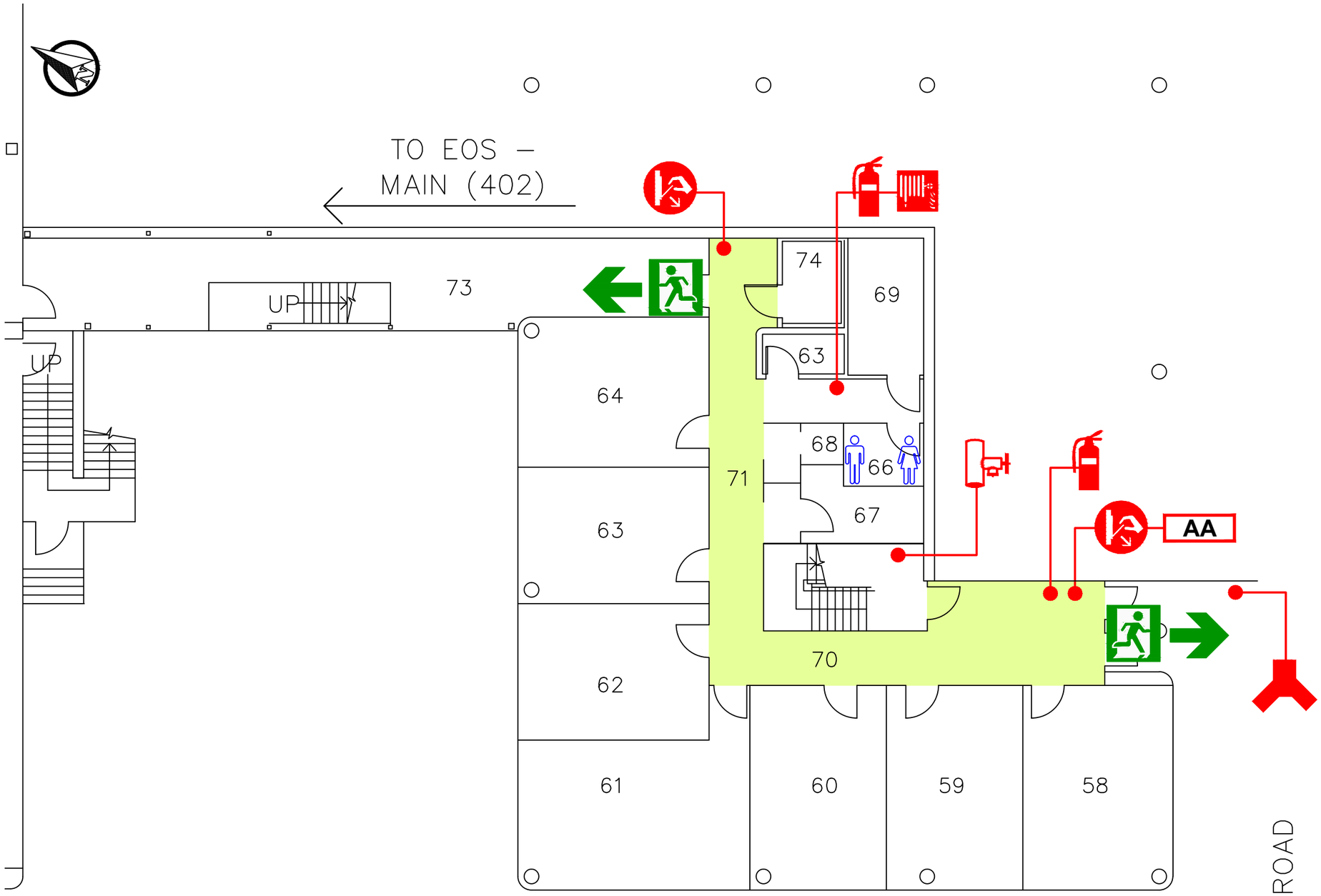
— LEGEND —

EXIT

PULL STATION/ FIRE ALARM

FIRE EXTINGUISHER

LAYOUT: BERP 18-Feb-14



BASEMENT FLOOR PLAN
N.T.S.

WEST MALL

EMERGENCY INSTRUCTIONS

If you discover a fire or explosion in the building:

1. Immediately activate the closest fire alarm/pull station.
2. Call 911.
3. Give the address and the nearest intersection (6339 STORES ROAD at the intersection of West Mall & Stores Road)
4. Provide information about the emergency: Where is the fire? (Basement floor, room #____), How fast the fire is spreading? Are there people trapped?
5. If it is safe, control the fire.
6. Isolate the fire by closing doors behind you. Do not lock the doors.
7. Leave by the nearest safe exit.
8. Walk. Do not run. Shut doors behind you. On leaving the building move well away. Do not block road access.
9. Do not go back in the building for any reason until the all-clear has been announced by emergency personnel.
10. If you hear the fire alarm ringing - Follow steps 6 through 8 above.

In the event of a fire DO NOT USE ELEVATOR(s).

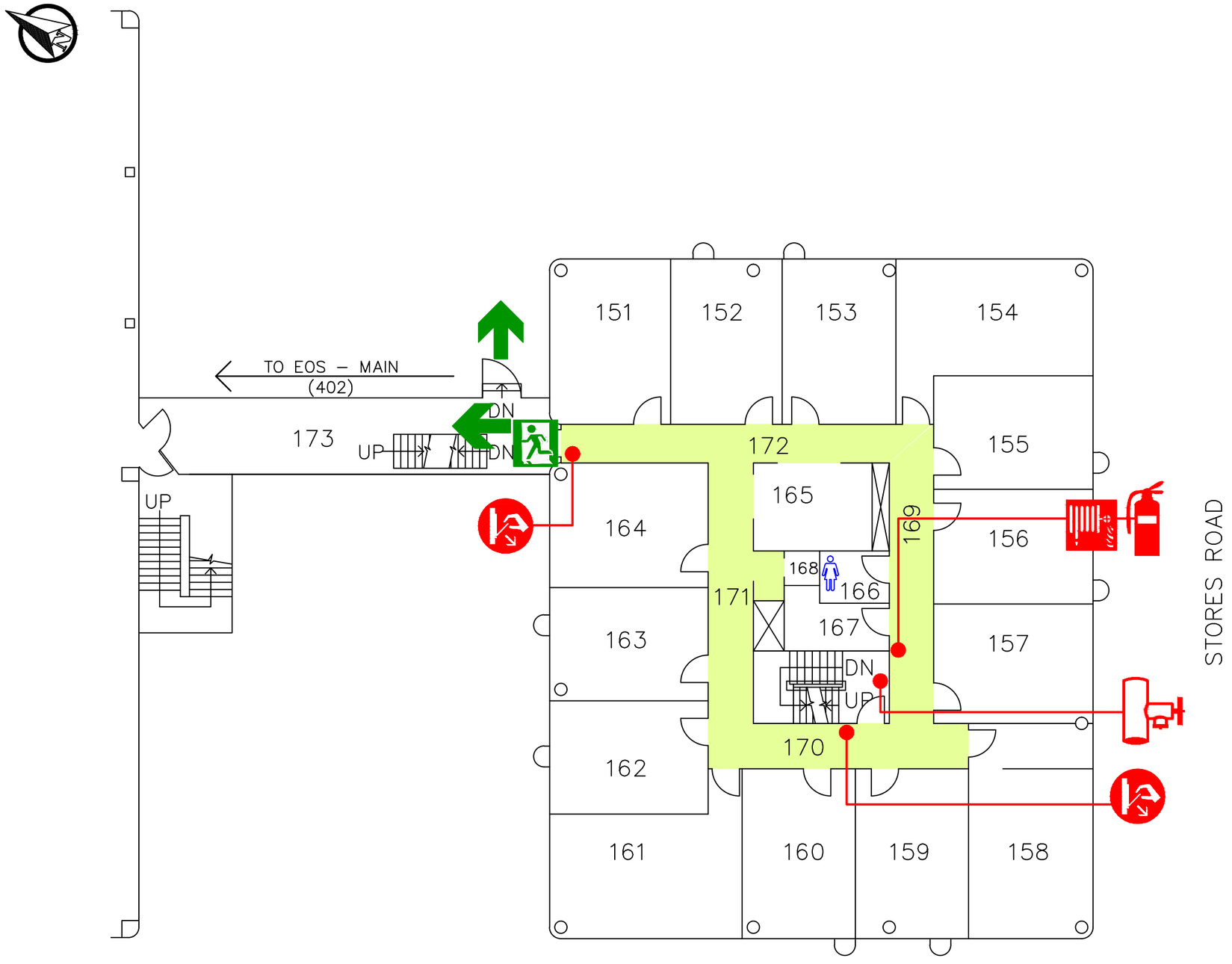
(See the map to your left for the location of all fire extinguishers, fire alarm/pull stations, safe exits and areas of refuge)

FOR EMERGENCIES CALL 911

– LEGEND –

- FIRE HOSE CABINET
- EXIT
- AA — FIRE ALARM ANNUNCIATOR
- FIRE DEPT. CONNECTION
- PULL STATION/ FIRE ALARM
- FIRE EXTINGUISHER
- STANDPIPE CONNECTION

LAYOUT: OLD 18-Feb-14



GROUND FLOOR PLAN
N.T.S.

EMERGENCY INSTRUCTIONS

If you discover a fire or explosion in the building:

1. Immediately activate the closest fire alarm/pull station.
2. Call 911.
3. Give the address and the nearest intersection (6339 STORES ROAD at the intersection of West Mall & Stores Road)
4. Provide information about the emergency: Where is the fire? (Ground floor, room #____), How fast the fire is spreading? Are there people trapped?
5. If it is safe, control the fire.
6. Isolate the fire by closing doors behind you. Do not lock the doors.
7. Leave by the nearest safe exit.
8. Walk. Do not run. Shut doors behind you. On leaving the building move well away. Do not block road access.
9. Do not go back in the building for any reason until the all-clear has been announced by emergency personnel.
10. If you hear the fire alarm ringing - Follow steps 6 through 8 above.

In the event of a fire DO NOT USE ELEVATOR(s).

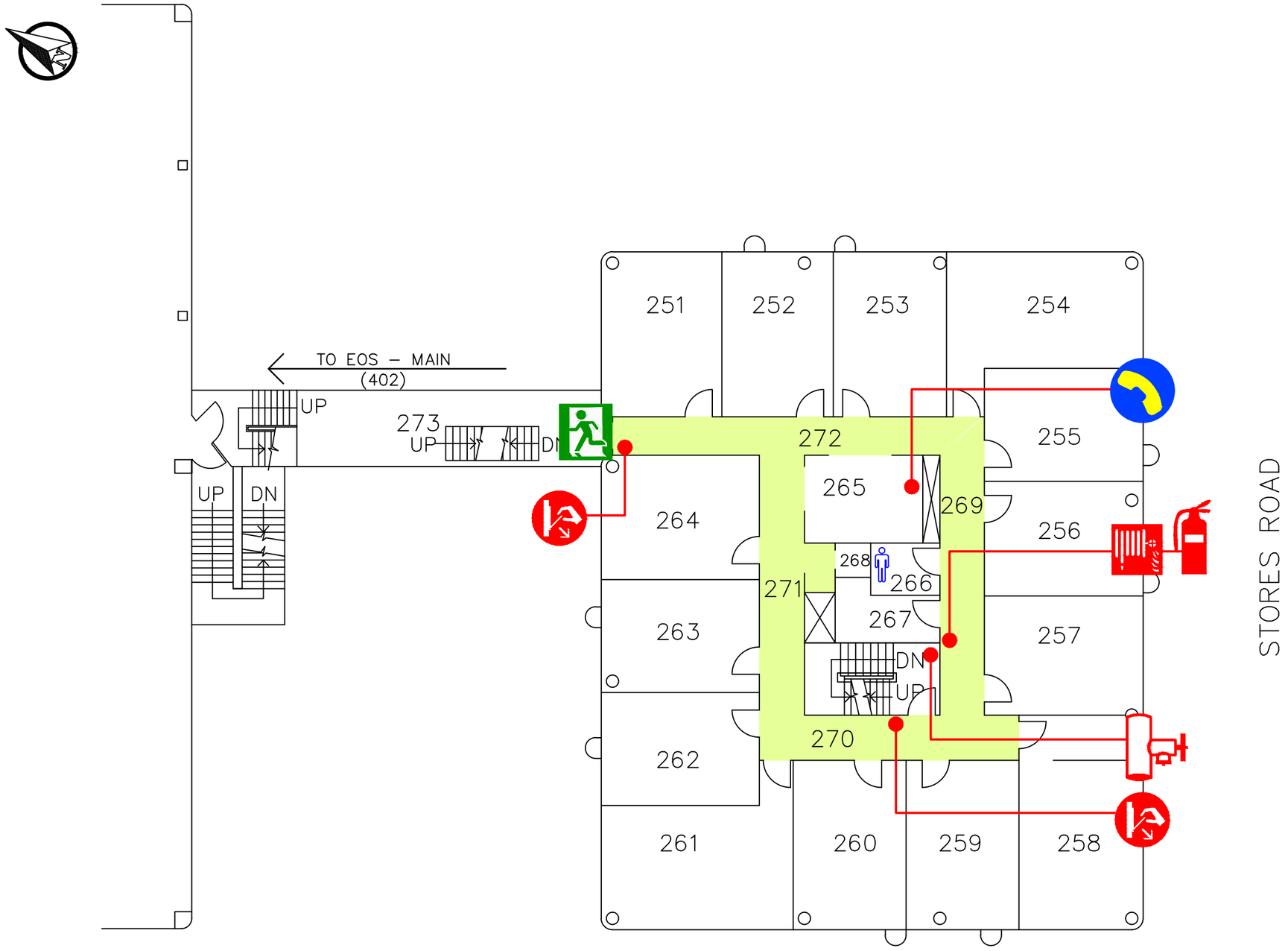
(See the map to your left for the location of all fire extinguishers, fire alarm/pull stations, safe exits and areas of refuge)

FOR EMERGENCIES CALL 911

– LEGEND –

EXIT | PULL STATION/ FIRE ALARM | FIRE EXTINGUISHER | FIRE HOSE CABINET | STANDPIPE CONNECTION

LAYOUT: BERP 18-Feb-14



SECOND FLOOR PLAN
N.T.S.

EMERGENCY INSTRUCTIONS

If you discover a fire or explosion in the building:

1. Immediately activate the closest fire alarm/pull station.
2. Call 911.
3. Give the address and the nearest intersection (6339 STORES ROAD at the intersection of West Mall & Stores Road)
4. Provide information about the emergency: Where is the fire? (Second floor, room #____), How fast the fire is spreading? Are there people trapped?
5. If it is safe, control the fire.
6. Isolate the fire by closing doors behind you. Do not lock the doors.
7. Leave by the nearest safe exit.
8. Walk. Do not run. Shut doors behind you. On leaving the building move well away. Do not block road access.
9. Do not go back in the building for any reason until the all-clear has been announced by emergency personnel.
10. If you hear the fire alarm ringing - Follow steps 6 through 8 above.

In the event of a fire
DO NOT USE ELEVATOR(s).

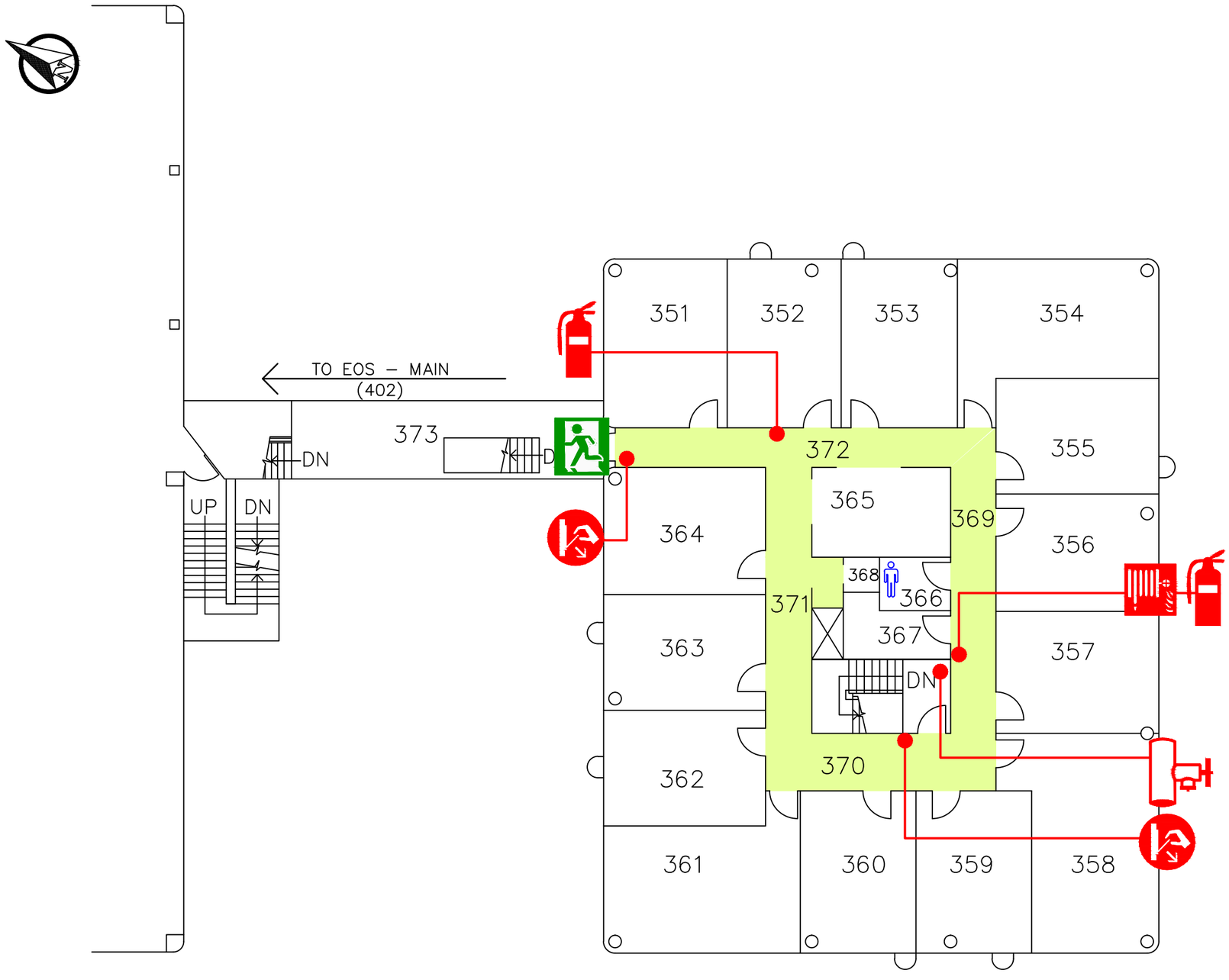
(See the map to your left for the location of all fire extinguishers, fire alarm/pull stations, safe exits and areas of refuge)

FOR EMERGENCIES CALL 911

– LEGEND –

EXIT | PULL STATION/ FIRE ALARM | FIRE EXTINGUISHER | FIRE HOSE CABINET | EMERGENCY PHONE | STANDPIPE CONNECTION

LAYOUT: BERP 18-Feb-14



WEST MALL

THIRD FLOOR PLAN
N.T.S.

EMERGENCY INSTRUCTIONS

If you discover a fire or explosion in the building:

1. Immediately activate the closest fire alarm/pull station.
2. Call 911.
3. Give the address and the nearest intersection (6339 WEST MALL at the intersection of West Mall & Stores Road)
4. Provide information about the emergency: Where is the fire? (Third floor, room #____), How fast the fire is spreading? Are there people trapped?
5. If it is safe, control the fire.
6. Isolate the fire by closing doors behind you. Do not lock the doors.
7. Leave by the nearest safe exit.
8. Walk. Do not run. Shut doors behind you. On leaving the building move well away. Do not block road access.
9. Do not go back in the building for any reason until the all-clear has been announced by emergency personnel.
10. If you hear the fire alarm ringing - Follow steps 6 through 8 above.

In the event of a fire DO NOT USE ELEVATOR(s).

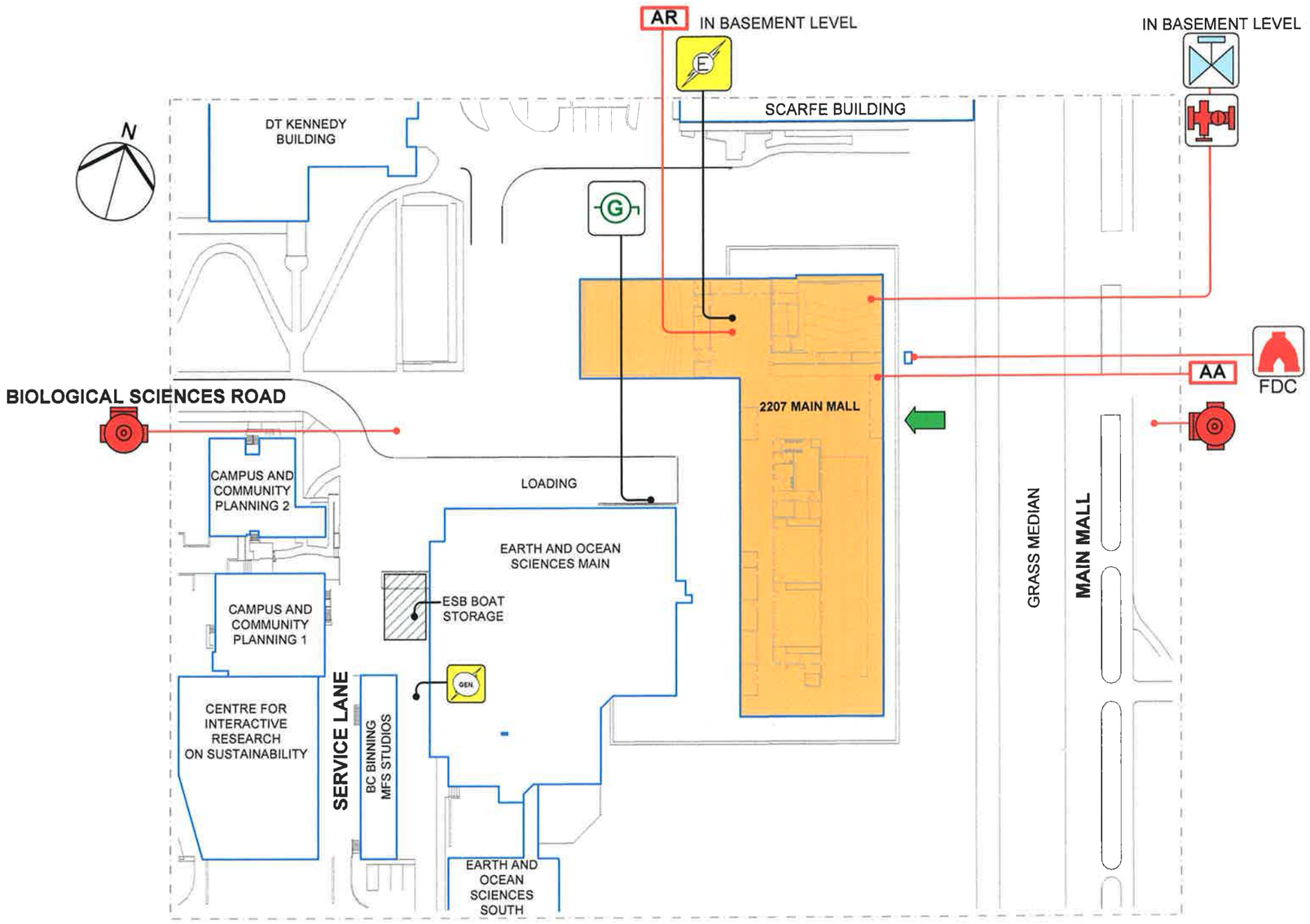
(See the map to your left for the location of all fire extinguishers, fire alarm/pull stations, safe exits and areas of refuge)

FOR EMERGENCIES CALL 911

– LEGEND –

EXIT | PULL STATION/ FIRE ALARM | FIRE EXTINGUISHER | FIRE HOSE CABINET | STANDPIPE CONNECTION

LAYOUT: BERP 18-Feb-14



ORSO LOSS CONTROL CONSULTING Inc.

Tel: 604-761-6381
Fax: 604-590-0704
orsolosscontrol.com

PROJECT/CLIENT:

UBC Earth Science Building
2207 Main Mall, Vancouver, BC

SYMBOL LEGEND

	Fire Extinguisher		Floor Isolation Valve
	Manual Pull Station		Elevator
EXIT	Exit Route		Domestic Water Valve
AR	Fire Alarm Control Panel	GEN	Generator
AA	Fire Alarm Annunciator	FDC	Fire Department Connection
	Sprinkler Valves	E	Electrical
G	Gas Valves		Sliding/Overhead Door
	Primary Entry Point	KEY	Fire Fighters Keys
	Fire Hose	SP	Standpipe Connection

No.	DESCRIPTION	DATE	BY
1	MANUAL DWG	8/3/12	AF

REVISIONS

DRW. TITLE: UBC ESB- Siteplan

DATE: 8/3/12

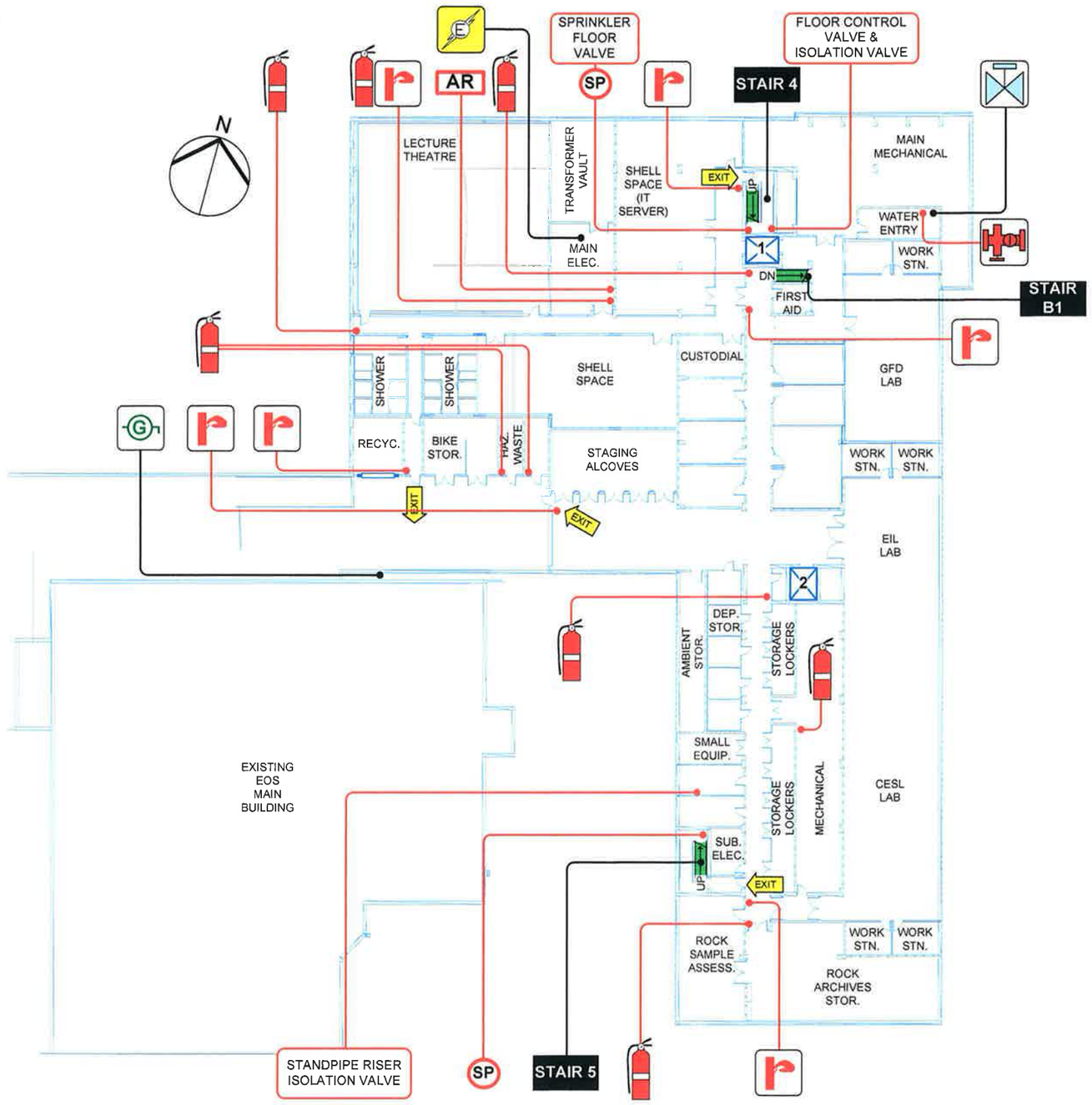
PROJECT NO. 100111-188

NOT TO SCALE

DRAWING NO. 1

DWG. BY: AF

SHEET: 8



ORSO LOSS CONTROL CONSULTING Inc.

Tel: 604-761-6381
Fax: 604-590-0704
orsolosscontrol.com

PROJECT/CLIENT:

UBC Earth Science Building
2207 Main Mall, Vancouver, BC

SYMBOL LEGEND

	Fire Extinguisher		Floor Isolation Valve
	Manual Pull Station		Elevator
EXIT	Exit Route		Domestic Water Valve
AR	Fire Alarm Control Panel	GEN	Generator
AA	Fire Alarm Annunciator	FDC	Fire Department Connection
	Sprinkler Valves		Electrical
	Gas Valves		Sliding/Overhead Door
	Primary Entry Point	KEY	Fire Fighters Keys
	Fire Hose	SP	Standpipe Connection

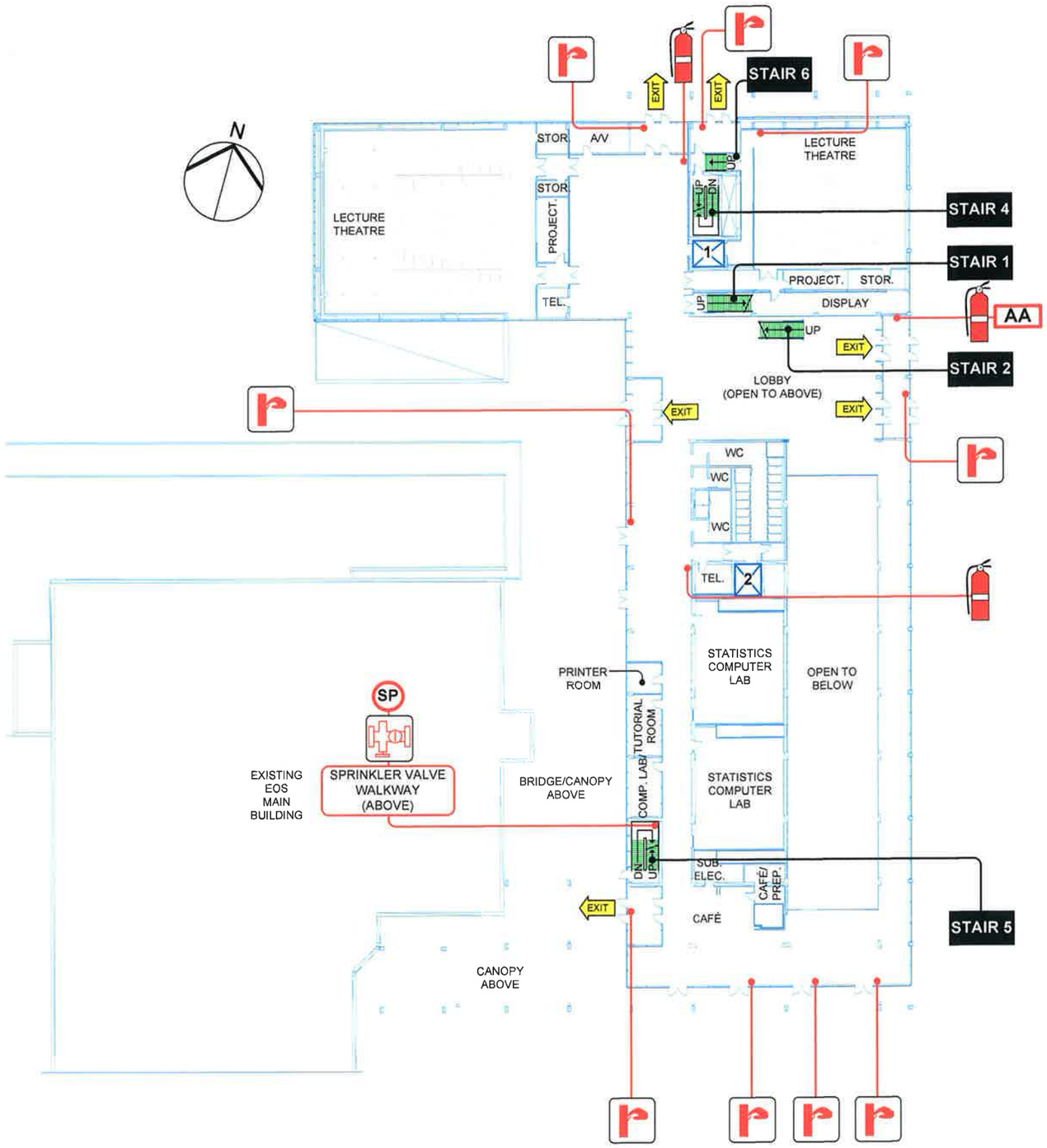
No.	DESCRIPTION	DATE	BY
1	MANUAL DWG	8/3/12	AF

REVISIONS

DRW. TITLE: UBC ESB – Basement Level

DATE: 8/3/12	PROJECT NO. 100111-188
NOT TO SCALE	DRAWING NO. 1
DWG. BY: AF	

SHEET: 1



ORSO LOSS CONTROL CONSULTING Inc.

Tel: 604-761-6381
Fax: 604-590-0704
orsolosscontrol.com

PROJECT/CLIENT:

UBC Earth Science Building
2207 Main Mall, Vancouver, BC

SYMBOL LEGEND

	Fire Extinguisher		Floor Isolation Valve
	Manual Pull Station		Elevator
EXIT	Exit Route		Domestic Water Valve
AR	Fire Alarm Control Panel	GEN	Generator
AA	Fire Alarm Annunciator	FDC	Fire Department Connection
	Sprinkler Valves		Electrical
	Gas Valves		Sliding/Overhead Door
	Primary Entry Point	KEY	Fire Fighters Keys
	Fire Hose	SP	Standpipe Connection

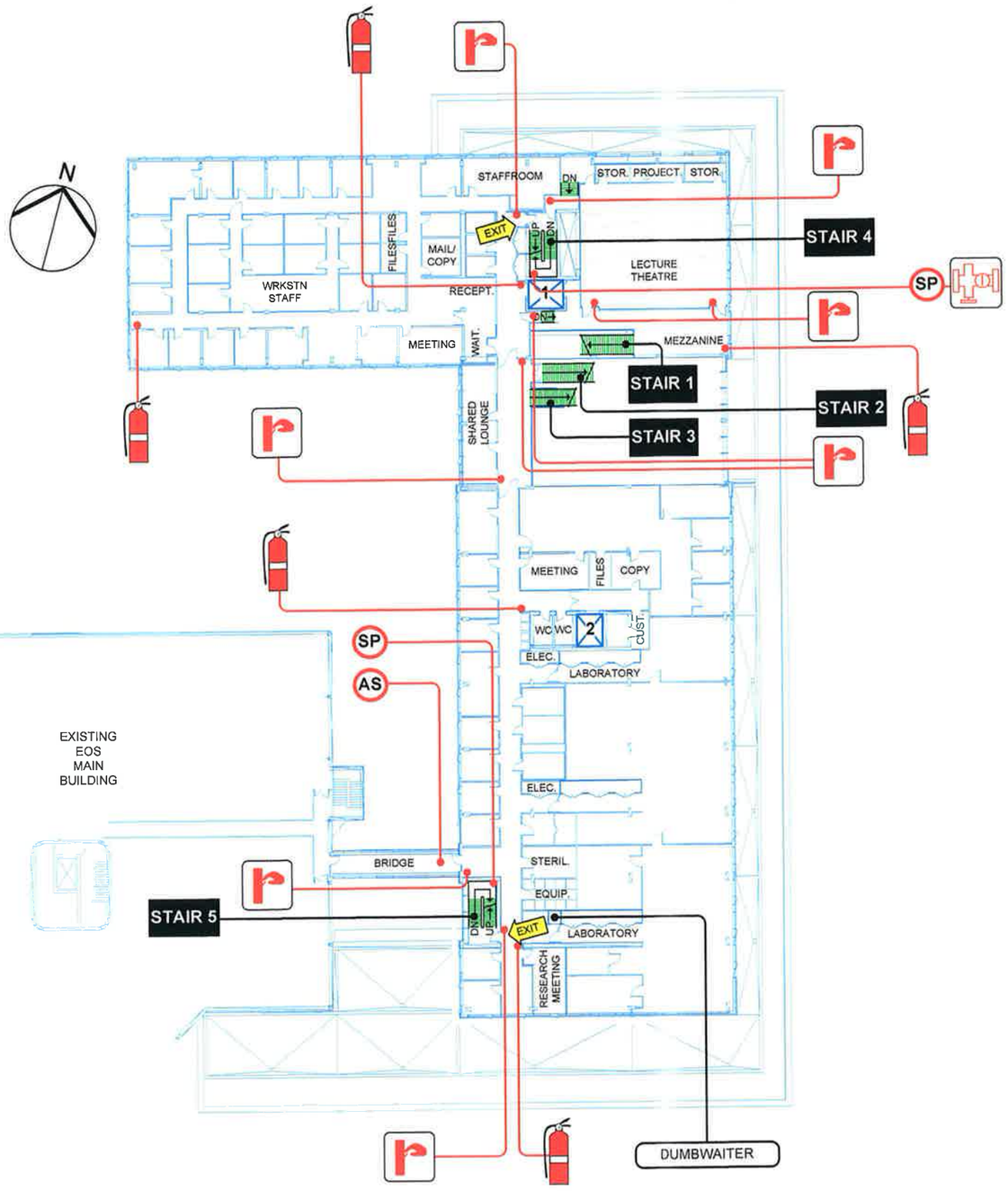
No.	DESCRIPTION	DATE	BY
1	MANUAL DWG	8/3/12	AF

REVISIONS

DRW. TITLE: UBC ESB – Level 1

DATE: 8/3/12	PROJECT NO. 100111-188
NOT TO SCALE	DRAWING NO. 1
DWG. BY: AF	

SHEET: 2



ORSO LOSS CONTROL CONSULTING Inc.

Tel: 604-761-6381
Fax: 604-590-0704
orsolosscontrol.com

PROJECT/CLIENT:

UBC Earth Science Building
2207 Main Mall, Vancouver, BC

SYMBOL LEGEND

	Fire Extinguisher		Floor Isolation Valve
	Manual Pull Station		Elevator
EXIT	Exit Route		Domestic Water Valve
AR	Fire Alarm Control Panel	GEN	Generator
AA	Fire Alarm Annunciator	FDC	Fire Department Connection
	Sprinkler Valves	E	Electrical
	Gas Valves		Sliding/Overhead Door
	Primary Entry Point	AS	Area Sprinklered
	Fire Hose	SP	Standpipe Connection

No.	DESCRIPTION	DATE	BY
1	MANUAL DWG	8/3/12	AF

REVISIONS

DRW. TITLE: UBC ESB – Level 2

DATE: 8/3/12

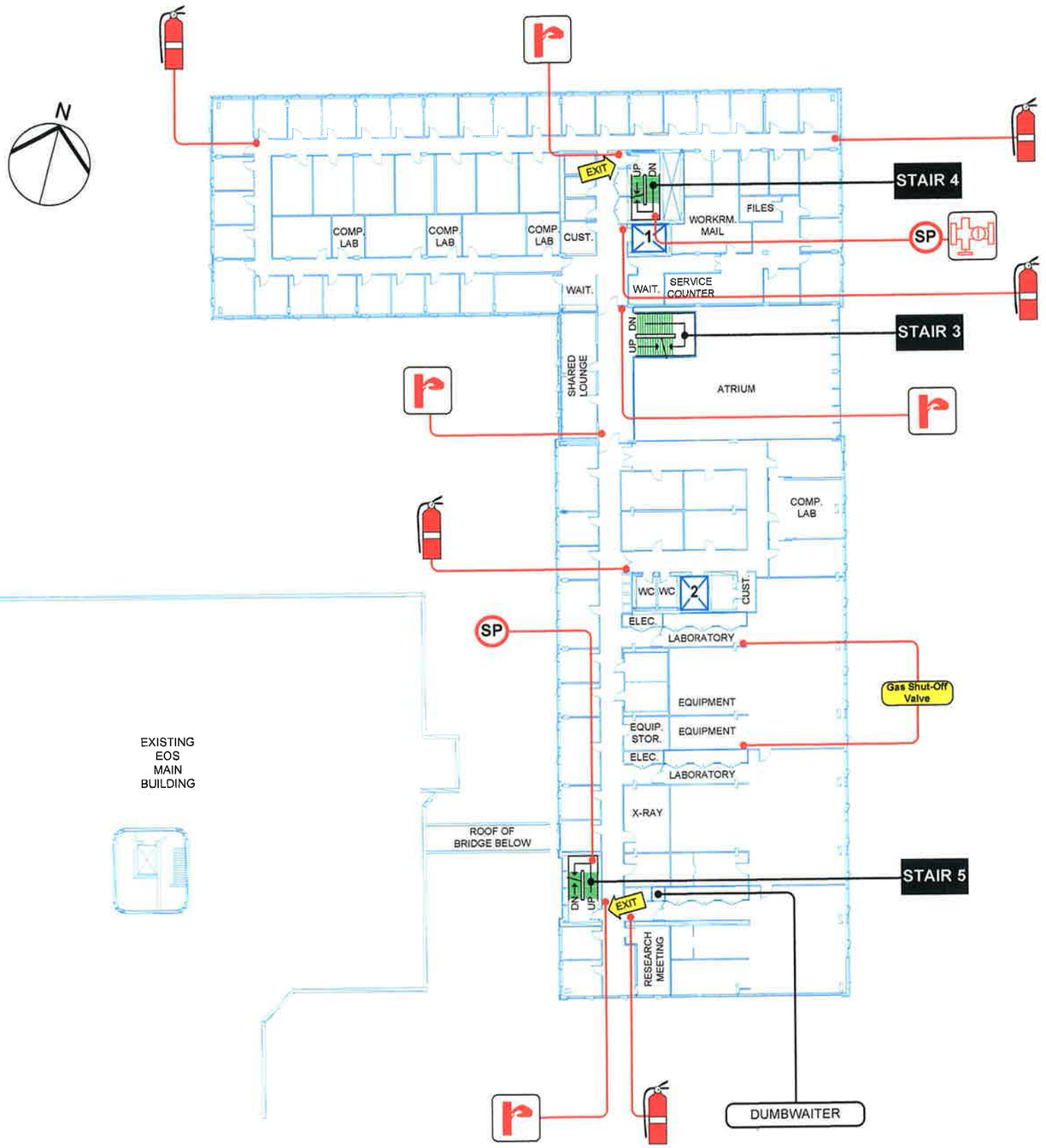
PROJECT NO. 100111-188

NOT TO SCALE

DRAWING NO. 1

DWG. BY: AF

SHEET: 3



ORSO LOSS CONTROL CONSULTING Inc.

Tel: 604-761-6381
Fax: 604-590-0704
orsolosscontrol.com

PROJECT/CLIENT:

UBC Earth Science Building
2207 Main Mall, Vancouver, BC

SYMBOL LEGEND

	Fire Extinguisher		Floor Isolation Valve
	Manual Pull Station		Elevator
EXIT	Exit Route		Domestic Water Valve
AR	Fire Alarm Control Panel	GEN	Generator
AA	Fire Alarm Annunciator	FDC	Fire Department Connection
	Sprinkler Valves	E	Electrical
G	Gas Valves		Sliding/Overhead Door
	Primary Entry Point	KEY	Fire Fighters Keys
	Fire Hose	SP	Standpipe Connection

No.	DESCRIPTION	DATE	BY
1	MANUAL DWG	8/3/12	AF

REVISIONS

DRW. TITLE: UBC ESB – Level 3

DATE: 8/3/12

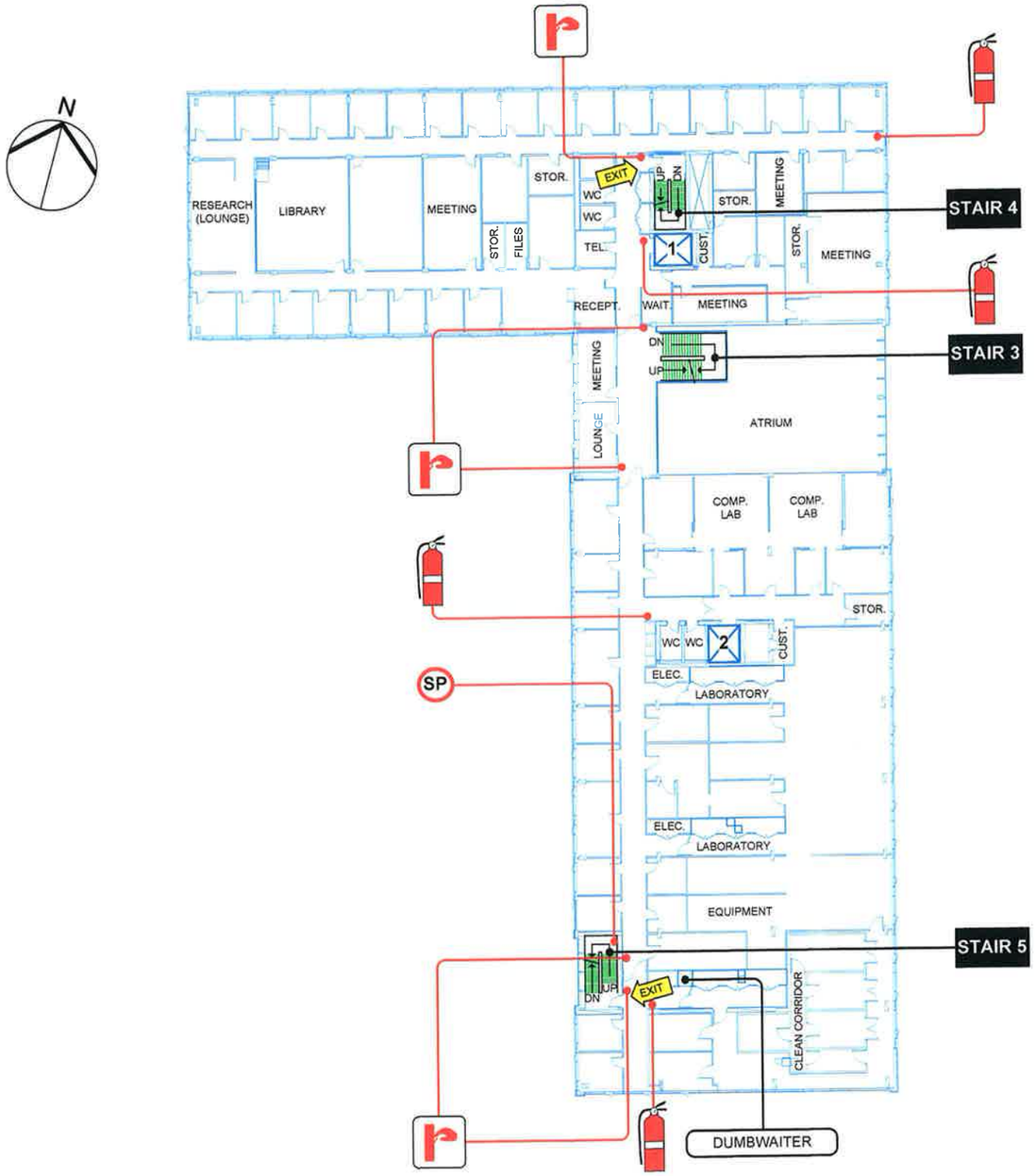
PROJECT NO. 100111-188

NOT TO SCALE

DRAWING NO. 1

DWG. BY: AF

SHEET: 4



ORSO LOSS CONTROL CONSULTING Inc.

Tel: 604-761-6381
Fax: 604-590-0704
orsolosscontrol.com

PROJECT/CLIENT:

UBC Earth Science Building
2207 Main Mall, Vancouver, BC

SYMBOL LEGEND

	Fire Extinguisher		Floor Isolation Valve
	Manual Pull Station		Elevator
EXIT	Exit Route		Domestic Water Valve
AR	Fire Alarm Control Panel	GEN	Generator
AA	Fire Alarm Annunciator	FDC	Fire Department Connection
	Sprinkler Valves		Electrical
G	Gas Valves		Sliding/Overhead Door
	Primary Entry Point	KEY	Fire Fighters Keys
	Fire Hose	SP	Standpipe Connection

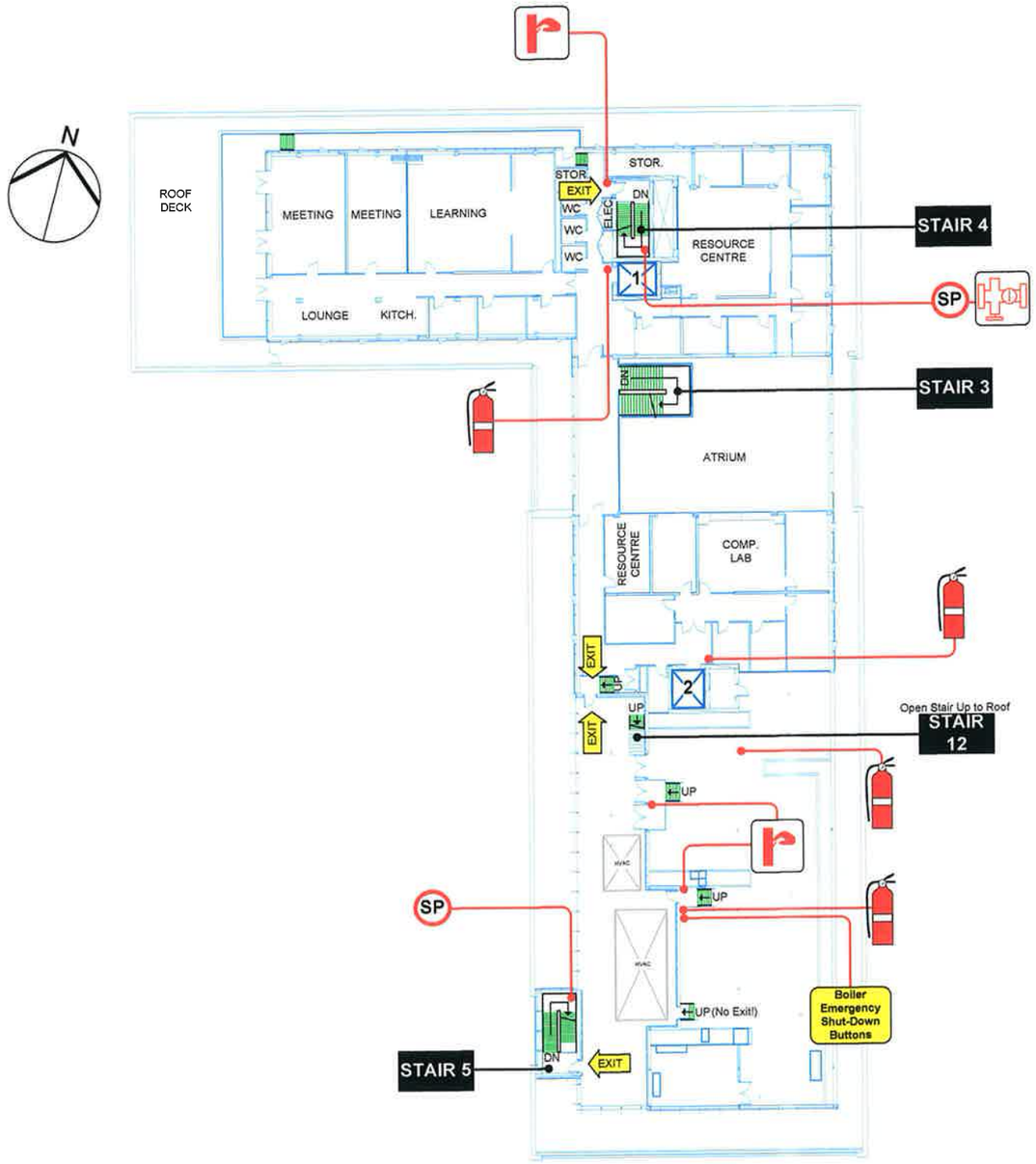
No.	DESCRIPTION	DATE	BY
1	MANUAL DWG	8/3/12	AF

REVISIONS

DRW. TITLE: UBC ESB – Level 4

DATE: 8/3/12	PROJECT NO. 100111-188
NOT TO SCALE	DRAWING NO. 1
DWG. BY: AF	

SHEET: 5



ORSO LOSS CONTROL CONSULTING Inc.

Tel: 604-761-6381
Fax: 604-590-0704
orsolosscontrol.com

PROJECT/CLIENT:

UBC Earth Science Building
2207 Main Mall, Vancouver, BC

SYMBOL LEGEND

	Fire Extinguisher		Floor Isolation Valve
	Manual Pull Station		Elevator
EXIT	Exit Route		Domestic Water Valve
AR	Fire Alarm Control Panel	GEN	Generator
AA	Fire Alarm Annunciator	FDC	Fire Department Connection
	Sprinkler Valves		Electrical
	Gas Valves		Sliding/Overhead Door
	Primary Entry Point	KEY	Fire Fighters Keys
	Fire Hose	SP	Standpipe Connection

No.	DESCRIPTION	DATE	BY
1	MANUAL DWG	8/3/12	AF

REVISIONS

DRW. TITLE: UBC ESB – Level 5

DATE: 8/3/12

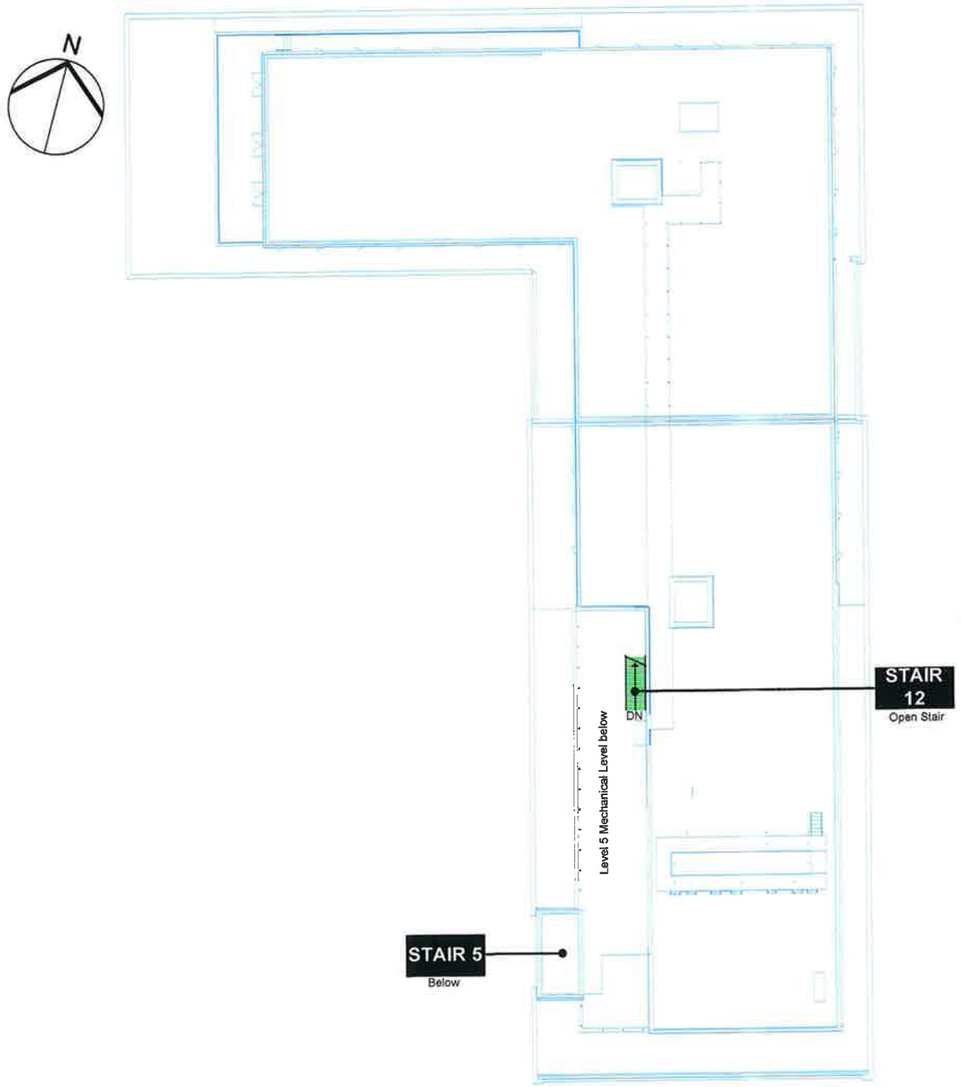
PROJECT NO. 100111-188

NOT TO SCALE

DRAWING NO. 1

DWG. BY: AF

SHEET: 6



ORSO LOSS CONTROL CONSULTING Inc.

Tel: 604-761-6381
Fax: 604-590-0704
orsolosscontrol.com

PROJECT/CLIENT:

UBC Earth Science Building
2207 Main Mall, Vancouver, BC

SYMBOL LEGEND

	Fire Extinguisher		Floor Isolation Valve
	Manual Pull Station		Elevator
EXIT	Exit Route		Domestic Water Valve
AR	Fire Alarm Control Panel	GEN	Generator
AA	Fire Alarm Annunciator	FDC	Fire Department Connection
	Sprinkler Valves	E	Electrical
	Gas Valves		Sliding/Overhead Door
	Primary Entry Point	KEY	Fire Fighters Keys
	Fire Hose	SP	Standpipe Connection

No.	DESCRIPTION	DATE	BY
1	MANUAL DWG	8/3/12	AF

REVISIONS

DRW. TITLE: UBC ESB – Roof Level

DATE: 8/3/12

PROJECT NO. 100111-188

NOT TO SCALE

DRAWING NO. 1

DWG. BY: AF

SHEET: 7

FIRE PREVENTION EFFORTS

During the facility regular inspections by Safety Committee members and by the Laboratories Safety Representatives the following items are checked in order to ensure safe working environment:

a) Accumulation of combustible material, rubbish, or flammable liquids in excess of quantities allowed by permit;
b) Dangerous ignition sources (e.g. worn extension cords, oily rags, overheating equipment);
c) Exit signs in good order and adequate lighting in public corridors and stairwells;
d) Fire and exit doors and their self-closing hardware in good operating condition (**Doors should not be wedged open under any conditions**.); and
e) Exit routes unobstructed.

Any and all fire hazards that are discovered must be reported to the Chair of the Safety Committee and to area supervisors to ensure timely corrective action.

For more information regarding laboratory fire preventive measures refer to Annex 3, page 11.5.

Emergency Wardens – ESB Building

Fire Safety Director, ESB		**Tim Morgan**		604-362-7988
Deputy Fire Safety Director		Renee Haggart		604-822-2789
Building Warden, ESB				
Floor Wardens	Effective: 2 May, 2014			
Location	**Name**	**Phone**	**Alternate**	**Phone**
5th Floor				
	Arne Toma	2-3756		
4th Floor				
	Ian Hanlon	7-1415		
3rd Floor				
South Wing	Mike LeBlanc	2-4678	David Williams	
North Wing	Rick White	2-2479		
2nd Floor				
South Wing	Teresa Woodley	2-3146	Renee Haggart	2-2789
North Wing	Michelle Jayasinha	2-9971	Carine Vindeirinho	2-3444
Lecture Theatre 2012	Kate Blackburn	2-3336		
1st Floor				
	Kate Blackburn	2-3336		
Basement				

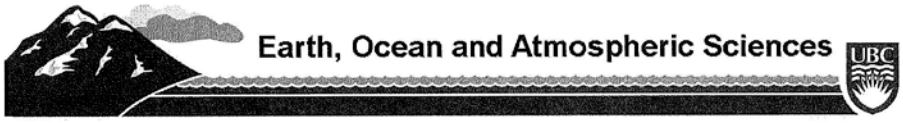
Emergency Wardens – EOSM Building

Fire Safety Director, EOSM		**Tim Morgan**		604-362-7988
Deputy Fire Safety Director		Renee Haggart		604-822-2789
Building Warden, EOSM				
Floor Wardens	Effective: 2 May, 2014			
Location	**Name**	**Phone**	**Alternate**	**Phone**
3rd Floor				
	Janet Gabites	2-6654	Richard Friedman	2-6654
2nd Floor				
1st Floor				
PCIGR	Kathy Gordon	2-5525		
	John Amor	2-6933	Kirsten Hodge	2-6992
Basement				
	Pablo Stolowicz	2-4844	Jorn Unger	2-4832

Emergency Wardens – EOSS Building

Fire Safety Director, EOSS		**Tim Morgan**		604-362-7988
Deputy Fire Safety Director		Renee Haggart		604-822-2789
Building Warden, EOSS				
Floor Wardens	Effective: 2 May, 2014			
Location	**Name**	**Phone**	**Alternate**	**Phone**
3rd Floor				
	Brett Gilley	2-2138		
2nd Floor				
	Kurt Grimm	2-9258		
1st Floor				
	Tara Ivanochko	7-3179	Stuart Sutherland	604-328-0426
Basement				
	Elisabetta Pani	2-5065		

LETTER OF APPOINTMENT FOR FIRE SAFETY DIRECTOR



THE UNIVERSITY OF BRITISH COLUMBIA

2207 Main Mall
Vancouver BC Canada
V6T 1Z4

Tel: 604-822-2034
Fax: 604-822-6088
Email: head@eos.ubc.ca

February 28, 2014

To Whom It May Concern:

Re: Appointment of the Fire Safety Director

The Department of Earth, Ocean and Atmospheric Sciences at the University of British Columbia appoints and gives authority to Mr. Tim Morgan, EOAS Facilities Manager, in the Department of Earth, Ocean and Atmospheric Sciences, the responsibility and necessary authority to supervise and maintain the Emergency Response Plan for the Department of Earth, Ocean and Atmospheric Sciences.

Sincerely,

Dr. Greg M. Dipple
Head

FIRE SAFETY DIRECTOR

RESPONSIBILITIES

- Supervise and maintain the Emergency Response Plan for the building to ensure that it meets all measures contained in Section 2.8 of the current National Fire Code of Canada (see Annex 3).
- Recruit a team of Building and Floor Wardens and assign them their areas of responsibility.
- Ensure that Floor Wardens are trained to perform their duties in fire prevention and emergency evacuation of the building.
- Maintain proper records of current Fire Wardens, the number and quality of fire drills, fire and emergency incidents in the building, fire prevention activities and a list of mobility impaired regular occupants of the building.
- Since the Department of Earth, Ocean and Atmospheric Sciences consists of 3 distinct areas in terms of alarm annunciation and evacuation, Building Wardens for the ESB, EOSM and EOSS Buildings will serve as Fires Safety Directors for their building during an evacuation.
- Collect Evacuation Incident Form, from building wardens for each evacuation incident

PROCEDURES

In case of fire alarm:

1. Notify the Fire Department by dialing 911;
2. Turn on the emergency radio and contact the Building Wardens;
3. Collect as much information as you can regarding the location, cause and severity of the fire;
4. Instruct all Fire Wardens of the building involved to proceed with evacuation plan;
5. Report in person to the building assembly area;
6. Ensure that a status of evacuation is maintained;
7. Confirm with Fire Wardens that evacuation has been completed;
8. Await instructions from the Officer in Charge of the Fire Department Response Team before permitting re-entry to the building;
9. After obtaining permission to re-enter the building make an announcement to all Fire Wardens on the emergency radio saying “All Clear”; and
10. Keep record of the event.

Note: Deputy Fire Safety Director will assist to the Fire Safety Director in carrying out his/her duties or act as the Fire Safety Director in his/her absence.

INSTRUCTIONS TO FIRE SAFETY DIRECTOR IN CASE OF EMERGENCY

Fire Safety Director: **Tim Morgan**

Policy
In the event of a fire, explosion, or any situation threatening human safety, the Fire Safety Director has standing instructions to sound the fire alarm and clear the building without seeking further authorization.

Emergency Response
In the event of a fire, explosion, or any situation threatening human safety, the Fire Safety Director will:

1. Immediately **sound the alarm**.
    - Pull stations are located: **At entrances to ESB, EOSM and EOSS Buildings**, and at numerous other locations with the buildings;

2. Phone the Fire Department at **911**
    - State your name and location. Give any information you have about the emergency (e.g. location, whether fire is spreading fast, people trapped, and known hazardous materials);

3. Do not allow people to use the elevator(s);

4. On exiting the building, ask people to **move to the designated assembly area,** well away from the building;

5. **Meet firefighters outside the annunciator panel (fire panel)** at ESB, EOSM or EOSS Building (as appropriate), give any additional information about the incident/building as required; and,

6. **Do not allow anyone to re-enter the building** until the Fire Department gives permission to do so.

WHEN A BOMB THREAT IS RECEIVED BY TELEPHONE:

- Be calm and courteous
- Listen, do not interrupt the caller
- Obtain as much information as you can
- Notify authorities as soon as possible

QUESTIONS TO ASK:

- What time will the bomb explode?
- What is it?
- What does it look like?
- Where are you calling from?
- What is your name?
- Why did you place the bomb?

PERTINENT DATA TO RECORD:

- Date and time of call
- Duration of call
- Exact wording of threat

Identifying characteristics of caller (e.g. sex, accent, speech, diction, manner, background noises)

In the event of a bomb threat, the Fire Safety Director will treat it as a genuine emergency.

1. Evacuate the building(s);

2. Phone the **RCMP** at **911**
   - State your name;
   - Say that a bomb threat has been received and give any information you have about the threat and the caller;

3. **Call UBC Campus Security** at **822-2222**;

4. **Meet RCMP** and together come to a decision as to whether to evacuate the building. If necessary, use the fire alarm to evacuate the building;

5. Follow instructions given by emergency personnel, as for a fire emergency; and

6. If evacuation is necessary, do not allow anyone to re-enter until RCMP has given permission.

Note: **An explosion of any type must be reported immediately to the Fire Department – call 911.**

BUILDING WARDENS

IDENTIFIED BY: **YELLOW VESTS**

RESPONSIBILITIES

- Inform the Fire Safety Director when they will be away
- Be familiar with the Emergency Response Plan and liaise with the Fire Safety Director
- Be prepared for an annual emergency evacuation drill
- Since the Department of Earth, Ocean and Atmospheric Sciences consists of 3 distinct areas in terms of alarm annunciation and evacuation, Building Wardens for the ESB, EOSM and EOSS Buildings will serve as Fire Safety Directors for their building during an evacuation.
- Complete Building Warden Evacuation Incident Form (see attachment 1-5) , and submit to the Fire Safety Director, for each evacuation incident

PROCEDURES

In case of fire alarm:

1. Report to the designated Emergency Assembly area outside the building, and manage the Evacuees;
2. Immediately contact the Fire Safety Director or designated alternate;
3. Oversee that the Floor Wardens are present and performing their designated duties;
4. Report the evacuation status to the Fire Safety Director using the walkie-talkie system or send a Floor Warden to report to the Fire Safety Director in person;
5. Maintain order and resolve any conflict that may arise; and
6. Complete the “Evacuation Incident Form”.

FLOOR WARDENS

IDENTIFIED BY: **ORANGE VESTS**

RESPONSIBILITIES

- Inform the **Building Warden** when they will be away
- Check their floor and/or area regularly for:
  - Accumulation of combustible material, rubbish, or flammable liquids in excess of quantities allowed by permit;
  - Dangerous ignition sources (e.g. worn extension cords, oily rags, overheating equipment;
  - Exit signs in good order and adequate lighting in public corridors and stairwells;
  - Fire and exit doors and their self-closing hardware in good operating condition (doors should not be wedged open under any conditions);
  - Exit routes unobstructed; and
  - Fire hose and portable extinguishers not obstructed, in good order and ready to use

Any and all fire hazards that are discovered must be reported to the Fire Safety Director immediately.

PROCEDURES

In the event of a fire alarm, explosion, or any situation threatening human safety, the Floor Warden(s) will:

1. Supervise the orderly evacuation to a designated assembly area outside. Meeting areas are shown on the floor plan;

2. Check exit stairwells to ensure they are clear for evacuation, and choose an alternate route for use in the event egress is blocked by fire or smoke;

3. As soon as the main evacuation is over, check **ALL** rooms, and washrooms to ascertain that your floor area has been completely evacuated. Close any doors that have not been closed **BUT** do not lock doors unless security of the area is a priority;

4. Report to the **Building Warden** that evacuation has been completed including information on any mobility impaired persons who may need assistance, or on any person(s) refusing to evacuate;

5. Any knowledge of the emergency problem should be reported to the **Building Warden** immediately;

6. Assist the **Building Warden** in providing guidance to all evacuated personnel at the predetermined gathering location outside the building and away from any hazards; and

7. Do not allow anyone to re-enter the building, under any circumstances, until the Fire Department has given permission to do so.

BUILDING OPERATIONS

During an emergency the Fire Department Captain responding to the alarm will contact Building Operation to request assistance, if necessary, to:

- ensure main gas shut-off valves in laboratories are turned off;
- respond to the annunciation panel and assist the Fire Department and the Fire Safety Director in investigation of the alarm location and cause; and
- Silence the alarm.

SUPERVISORS

Notify the Fire Safety Director if there are any mobility impaired people in their group that will require assistance during evacuation.

TEACHING INSTRUCTORS

If evacuation occurs during class or teaching lab time the class/lab instructor is responsible to make sure that all students have evacuated the building and inform the Building Warden that their area is clear.

ALL BUILDING OCCUPANTS

RESPONSIBILITIES

- Know the procedures to be followed in the event of fire or other emergency. Introduce yourself to your Floor Warden and ensure that you understand your role during an evacuation;
- If you discover a fire or explosion:
    a) sound the alarm by operating the nearest pull station and warn personnel nearby;
    b) notify the Fire Department (**DIAL 911**) from the nearest safe location;
    c) use extinguisher to fight the fire only if it is small and not between you and an exit; and
    d) Evacuate using the nearest safe exit, proceed to the building assembly area, and provide information about the emergency to the Fire Department and to the Fire Safety Director.

DUTIES

In case of fire alarm:

1. Ensure that all gas burners, fume hoods and hot plates are turned off;
2. Follow instructions of your Floor Warden;
3. Leave the building by the nearest safe exit – walk, do not run along corridors and stairwells;
4. The last person to leave an area should leave doors closed but not locked;
5. Report to your group gathering area Assist the Floor Warden in determining evacuation is complete;
6. Do not use the elevator;
7. Assist anyone having difficulty in getting out. Ask others for assistance, as necessary;
8. On leaving the building move well away from it to the predetermined location; and
9. **DO NOT** re-enter the building when the fire bell stops ringing since this is **NOT** the signal that it is safe to do so! Do not go back into the building for any reason until the “ALL CLEAR” has been announced by the Fire Safety Director.

MOBILITY IMPAIRED PERSONS

RESPONSIBILITY

1. Advise the Fire Safety Director of your need for assistance in evacuating during an alarm;

2. Assist in establishing a plan for your evacuation.

DUTIES

- If no emergency exits on your floor, proceed to the predetermined assembly point on your floor and wait for further instructions;

- Advise your Floor Warden if you need any additional assistance; and

- If the fire emergency exists on your floor, request assistance, to evacuate down to the stairwell to the closest safe floor and ensure that the Fire Safety Director is advised of your new location.

If you discover a fire or explosion in the building:

1. Immediately **sound the fire alarm**. See the marked floor plans for the pull station nearest to you.

2. Call **911**.
   (a) State your name;
   (b) Give the address where the fire is and the nearest intersection; and
   (c) Give information about the fire: what floor, how fast fire is spreading, people trapped, etc.

3. If possible, send a colleague to notify the **Fire Safety Director** or **Building Fire Warden** to give **information you have about the emergency** – location, floor, whether fire is spreading, people trapped, etc.
   - The **Fire Safety Director** is located in **EOSM 225, phone 2-3212** or in the Building assembly area.

4. **Attempt to control the fire** with available fire equipment **– IF YOU CAN DO SO SAFELY!** Use an extinguisher or a hose from a hose cabinet. See the marked floor plan for equipment locations.

5. If you cannot control the fire, try to **isolate it** by closing the doors.

6. **Leave by the nearest safe exit**.

7. **Do not use the elevator**.

8. **Walk, do not run**. Shut doors behind you. On leaving the building, move well away from it immediately.

9. Meet the **Fire Department** at the entrance to the building to give updated information and assist as a resource person. Ensure the **Fire Safety Director** has been notified.

10. **Do not re-enter the building** until fire department has given permission to do so.

If you hear the fire alarm ringing – Follow steps 6 through 10 above.

INSTRUCTIONS TO THE OCCUPANTS AND STAFF IN CASE OF EARTHQUAKE

In the event an earthquake strikes – Duck, cover and hold on

1. Move out of the laboratory and chemical storage areas.
2. Face away from windows and watch for objects which may fall.
3. Take cover, and protect your head and face.
4. Stay under cover until the shaking stops.
5. Stay calm, think before you move – reassure others.

After the shaking stops…

- Do not light a match or turn on a light switch. Use a flashlight!
- Put on sturdy shoes and gloves if available.
- Assess your immediate surroundings for dangers. Evacuate if necessary.
- Check utilities (e.g. gas, power). SHUT OFF GAS
- Check for injuries. Administer first aid.
- NEVER TOUCH DOWNED POWER LINES.
- Clean up hazardous materials, *if it is safe to do so.*
- Do not use telephone unless absolutely necessary.

Assist others

- Ensure all building occupants are accounted for.
- Initiate rescue efforts if necessary (e.g. for trapped persons).
- Do not move injured people unless they are in immediate danger of further injury.
- Ensure people take routine medication. In an emergency it's easy to forget.
- Set up emergency care (e.g. shelter, food, first aid).
- Turn on battery operated radio (or car radio) for emergency bulletins.
- Check water supplies. Draw a moderate amount of cold water and store in emergency containers.
- Gather emergency supplies and tools.
- Check to see if sewage lines are intact before flushing toilets.

Stay safe

- Stay out of dangerous areas. Your safety (and life) comes first!
- Respond to instructions of emergency personnel.
- **Be prepared for additional earthquake aftershocks**.
- Open doors carefully and watch for falling objects!

Communicate

- Notify your out-of-town contacts that you are O.K.
- Work together in teams to carry out emergency response efforts.

MAP OF BUILDING WARDEN
EVACUATION ASSEMBLY AREAS

ESB/EOAS Main/EOAS South Evacuation Plan & Muster Stations

During an evacuation/alarm event, the Fire Department will arrive at the main entrance of ESB and EOAS Main to check the annunciator panels. UBC Fire Life Safety and Parking/Security officers will also respond.

There are three designated Muster Stations for the EOAS/ESB Complex. You should go to the Muster Station nearest to your location at the time of the alarm – if you are in an area of the building that is different from your regular work area, do NOT return to your work area: leave the building via the nearest door and assemble at the nearest muster station to that exit.

After leaving the building, if you find that your nearest Muster Station is blocked or otherwise inaccessible, go to the nearest alternate Muster Station, or check with emergency personnel on the scene.

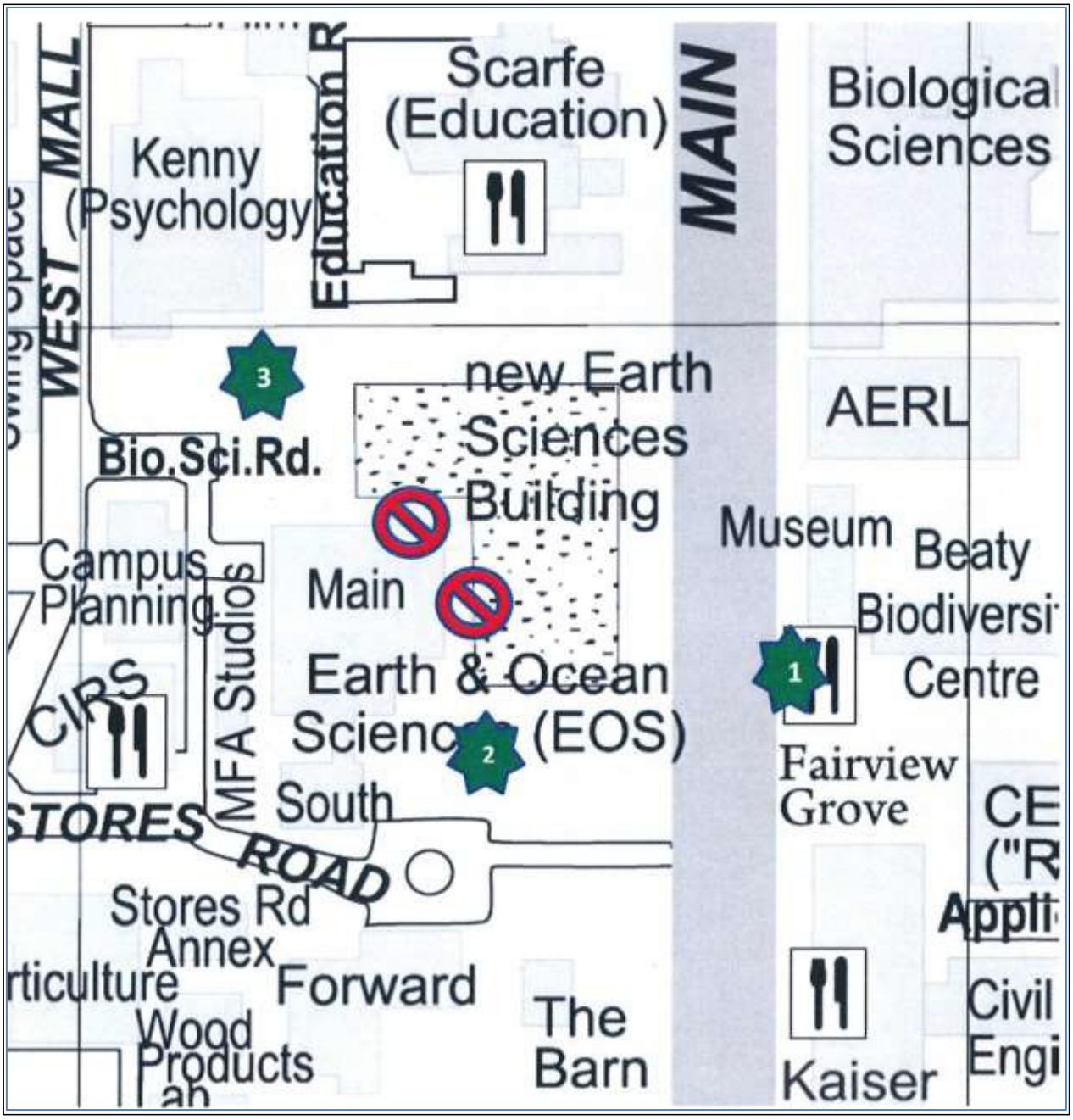
Please be aware that building magnetic door locks will automatically release during an alarm event. The doors will close, but you will be able to exit building through any door. You will not, however, be able to reenter the building once you have vacated.

MUSTER STATION #1 – along Main Mall in front of the SE corner of the Beaty Museum. Assemble here if you are located in the South Block of ESB.

MUSTER STATION #2 – Fairview Commons grassy area near the monolith. Assemble here if you are in EOAS Main or South.

MUSTER STATION #3 – Grassy area to the west of ESB North Block, between ESB North Block and Kenny Building. Assemble here if you are in the North Block of ESB.

DO NOT ASSEMBLE IN THE NORTH (CONCRETE) COURTYARD AREA BETWEEN EOAS MAIN AND ESB



FIRE/EVACUATION DRILLS

Fire drills will be conducted at least once per year. They are intended primarily to ensure that all building staff knows how to respond safely and effectively in the event of a life-threatening emergency.

It is the responsibility of the Fire Safety Director when arranging a fire drill to:

- Arrange for a qualified electrician to activate and reset the fire alarm system, by calling **UBC Trouble Calls at 822-2173;**
- Request "Crew 46";
- Provide contact name and telephone number;
- Provide date and time or fire drill;
- Notify: (various Departments and Groups using building)

Note: It is not necessary to contact the Fire Department when conducting a fire drill. UBC Fire Life Safety will notify the Fire Department, who will attend if available.

RECORD OF FIRE DRILLS

Fire Drills were conducted on the following date(s):

Date (d/m/y)	Arranged by	Attended by VFRS? (y/n)
Date (d/m/y)	Arranged by	Attended by VFRS? (y/n)
Date (d/m/y)	Arranged by	Attended by VFRS? (y/n)

Note: You must maintain records of Fire Drills conducted.

Attachment 1

ESB Building Evacuation Incident Report Form

This form MUST be completed for each time evacuation occurred. Forward completed form to the Fire Safety Director

Building Warden Signature: _____ Date: _____

Evacuation Date: _____ Time incident start: _____

Time building was clear to re-enter: _____

Reason for evacuation:
fire ↑chemical spill ↑contractor work other

Describe: _____

Remarks: _____

Fire Safety Director, ESB		
Building Warden		
Alternate Building Warden		
Location	**Warden/ Alternate Name**	**Area checked by floor warden clear of occupants**
5th Floor		
4th Floor		
3rd Floor		
South		
North		
2nd Floor		
South		
North		
Lecture Theatre 2012		
1st Floor		
Basement		

EOSM Building Evacuation Incident Report Form

This form MUST be completed for each time evacuation occurred. Forward completed form to the Fire Safety Director

Building Warden Signature: _____Date:_____

Evacuation Date:_____Time incident start:_____

Time building was clear to re-enter:_____

Reason for evacuation:
fire ↑chemical spill ↑contractor work other

Describe:_____

Remarks: _____

Fire Safety Director, EOSM		
Building Warden		
Alternate Building Warden		
Location	**Warden/ Alternate Name**	**Area checked by floor warden clear of occupants**
3rd Floor		
2nd Floor		
1st Floor		
PCIGR		
Basement		

EOSS Building Evacuation Incident Report Form

This form MUST be completed for each time evacuation occurred. Forward completed form to the Fire Safety Director

Building Warden Signature: _____Date:_____

Evacuation Date:_____Time incident start:_____

Time building was clear to re-enter:_____

Reason for evacuation:
fire ↑chemical spill ↑contractor work other

Describe:_____

Remarks: _____

Fire Safety Director, EOSS		
Building Warden		
Alternate Building Warden		
Location	**Warden/ Alternate Name**	**Area checked by floor warden clear of occupants**
3rd Floor		
2nd Floor		
1st Floor		
Basement		

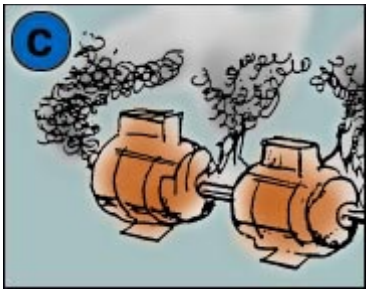
Fire Classifications

CLASS A FIRES

Class A fires involving **ordinary combustible materials** such as wood, cloth, and paper, requires an extinguishing agent which cools. A water or multi-purpose dry chemical can be used.

CLASS B FIRES

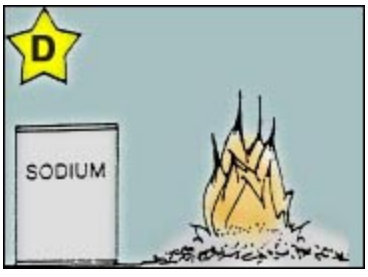
Class B fires involving **flammable and combustible liquids and gases**, such as solvents, greases, gasoline, and lubricating oil, require an extinguisher which removes oxygen or cuts the chain reaction. Foam, carbon dioxide, dry chemical, and halons are effective.



CLASS C FIRES

Class C fires involve **energized electrical equipment**. A non-conducting extinguishing agent such as carbon dioxide or multi-purpose dry chemical must be used. De-energized electrical equipment is a Class A

CLASS D FIRES



Red "D" Extinguisher - combustible metals such as magnesium, sodium, potassium, nickel and sodium-potassium alloys can be extinguished with the Red "D" extinguisher. There is data showing that zirconium, uranium, titanium and powdered aluminum fires can be controlled and extinguished also. This extinguisher contains a blended sodium chloride based dry powder extinguishing agent. Heat from the fire causes it to cake and form a crust excluding air and dissipating heat from burning metal.

Yellow "D" Extinguisher - used for extinguishing lithium, lithium alloys, lithium chloride, graphite, or zirconium silicate fires. The Yellow "D" extinguishers contain a copper compound that smothers the fire and provides an excellent heat sink for dissipating heat. Copper powder has been found to be superior to all other known fire extinguishing agents for lithium.

ABC fire extinguisher for ABC fires

Red "D" Extinguisher

(and Yellow #570 “D” Extinguishers)

- combustible metals such as magnesium, sodium, potassium, nickel and sodium-potassium alloys can be extinguished with the Red "D" extinguisher. There is data showing that zirconium, uranium, titanium and powdered aluminum fires can be controlled and extinguished also. This extinguisher contains a blended sodium chloride based dry powder extinguishing agent. Heat from the fire causes it to cake and form a crust excluding air and dissipating heat from burning metal.

Yellow #571 "D" Extinguisher

- used for extinguishing lithium, lithium alloys, lithium chloride, graphite, or zirconium silicate fires. The Yellow "D" extinguishers contain a copper compound that smothers the fire and provides an excellent heat sink for dissipating heat. Copper powder has been found to be superior to all other known fire extinguishing agents for lithium.

Note: Foam and water extinguishers require a slightly different technique. Always read the instructions on the label **before** you need to use a fire extinguisher.

How to Operate a Fire Extinguisher

The following instructions are applicable for most fire extinguishers.*

If you need to use a fire extinguisher, remember the word **PASS** –

Pull the pin	Fire extinguishers often have a pin, latch, or puncture lever that you need to release first.
Aim low	Aim the nozzle or hose of the extinguisher at the base of the fire.
Squeeze the handle	This releases the extinguishing agent.
Sweep from side to side	Move in close, and sweep across the base of the fire. Watch for re-flash of the fire.

Discharge the entire contents of the extinguisher. If possible, pull apart the burned area to get at hot spots.

Prevention of Laboratory Fires

Housekeeping

- The area must be kept as clean as the work allows.
- Chemicals, especially liquids, should never be stored on the floor, except in closed door cabinets suitable for the material to be stored. Nor should large bottles (2.5 liter or larger) be stored above the bench top.
- Stored items or equipment shall not block access to the fire extinguisher(s), safety equipment, or other emergency items.
- Stairways, hallways, passageways/aisles and access to emergency equipment and/or exits must be kept dry and not be obstructed in any fashion, including storage, equipment, phone or other wiring.
- No combustible material such as paper, wooden boxes, pallets, etc., shall be stored under stairwells or in hallways. Hallways shall be kept free of boxes and materials so that exits or normal paths of travel will not be blocked.
- All containers must be labeled with at least the identity of the contents and the hazards those chemicals present to users.

Fire Extinguishers

- Laboratory personnel should be adequately trained regarding pertinent fire hazards associated with their work. Such training shall be conducted at initial employment.
- Fire extinguishers should never be concealed from general view or blocked from access.

Electrical

- All electrical equipment shall be properly grounded and be CSA listed and/or Factory Mutual approved.
- Equipment, appliance and extension cords shall be in good condition.
- Extension cords shall not be used as a substitute for permanent wiring.
- Electrical cords or other lines shall not be suspended unsupported across emergency showers, overhead pipes or frames, metal racks, etc. Do not run cords through holes in walls or ceilings or through doorways or windows. Do not place under carpet, rugs, or heavy objects. Do not place cords on pathways or other areas where repeated abuse can cause deterioration of insulation.
- Multi-outlet plugs shall not be used unless they have a built-in circuit breaker. This causes overloading on electrical wiring, which will cause damage and possible overheating.
- Most of the portable multiple outlets are rated at 15 amps. Employees shall check when all connections are made to determine that the total input average will never exceed 15 amps. (The amperage on electrical equipment is usually stamped on the manufacturer's plate.)

Vacuum Operations

- When a vacuum is supplied by a compressor or vacuum pump to distill volatile solvents, a cold trap should be used to contain solvent vapors. Cold traps should be of sufficient size and low enough temperature to collect all condensable vapors present in a vacuum system. If such a trap is not used, the pump or compression exhaust must be vented to the outside using explosion-proof methods.
- After completion of an operation in which a cold trap has been used, the system should be vented. This venting is important because volatile substances that have been collected in the trap may vaporize when the coolant has evaporated and cause a pressure buildup that could blow the apparatus apart.
- After vacuum distillations, the pot residue must be cooled to room temperature before air is admitted to the apparatus.

Oil Baths

- Use high flash point silicon based oil.

Explosion-Proof Refrigerators

- If there is a need to refrigerate a substance that is flammable, it shall be refrigerated in an explosion-proof refrigerator. This refrigerator must be designed such that any flammable vapors in the refrigerator do not contact sparks.
- This refrigerator must NOT be used for the storage of food.

Ventilation Hoods

- ONLY ITEMS NECESSARY TO PERFORM THE PRESENT EXPERIMENT SHOULD BE IN THE HOOD. The more equipment in the hood, the greater the air turbulence and the chance for gaseous escape into the lab.
- Exhaust fans should be spark-proof if exhausting flammable vapors and be corrosive resistant if handling corrosive fumes.

Flammable-Liquid Storage Cabinets

- Cabinets designed for the storage of flammable liquids should be properly used and maintained.
- Store only **compatible** materials inside a cabinet.
- Do not store paper or cardboard or other combustible packaging material in a flammable-liquid cabinet.
- The manufacturer establishes quantity limits for various sizes of flammable-liquid storage cabinets; do not overload a cabinet.

Safety Shields

- Safety shields should be used for protection against possible explosions, implosions or splash hazards. Laboratory equipment should be shielded on all sides so there is no line-of-sight exposure of personnel.

- Portable shields can be used to protect against hazards of limited severity, e.g., small splashes, heat and fires. A portable shield, however, provides no protection at the sides or back of the equipment and many such shields are not sufficiently weighted and may topple toward the worker when there is a blast (permitting exposure to flying objects). A fixed shield that completely surrounds the experimental apparatus can afford protection against minor blast damage.

Compressed Gas

- Flammable gases with flash points lower than room temperature compounded by high rates of diffusion (which allow for fast permeation throughout the laboratory) present a danger of fire or explosion.

- Since the gases are contained in heavy, highly pressurized metal containers, the large amount of potential energy resulting from compression of the gas makes the cylinder a potential rocket or fragmentation bomb. Gas cylinders shall be secured at all times to prevent tipping and be stored in a well-ventilated area.

- Signs should be posted in flammable compressed gases, identifying the substances.

- Cylinders containing flammable gases such as hydrogen or acetylene shall not be stored in close proximity to open flames, areas where electrical sparks are generated, or where other sources of ignition may be present.

- Cylinders containing acetylene shall never be stored on their side.

- An open flame shall never be used to detect leaks of flammable gases.

- Oxygen cylinders, full or empty, shall not be stored in the same vicinity as flammable gases.

Cryogenic Liquids

- Neither liquid nitrogen nor liquid air should be used to cool a flammable mixture in the presence of air because oxygen can condense from the air and lead to a potentially explosive condition.

- Adequate ventilation must always be used to prevent the build-up of vapors of flammable gases such as hydrogen, methane, and acetylene.

- Adequate ventilation is also required when using gases such as nitrogen, helium, or hydrogen. In these cases, oxygen can be condensed out of the atmosphere creating a potential for explosive conditions.

Laser Fire & Explosion Hazards

- High-pressure arc lamps, filament lamps and associated optics can shatter or explode during laser operation. These components must be enclosed in housings that can withstand the maximum explosive pressures. The proper installation of the electrical power supply is also important to reduce the potential for electrical fire.

BC Fire Code 1998, Section 2.8 Emergency Planning

PART 2

SECTION 2.8. EMERGENCY PLANNING

SUBSECTION 2.8.1. GENERAL

Application

2.8.1.1. Not withstanding other requirements in this Code, this Section applies to every building containing a Group A or B occupancy and to every building required by the Building Regulations of British Columbia to have a fire alarm system.

A-2.8.1.2. Adequately trained supervisory staff can be of great value in directing people to move in an orderly fashion in the event of a fire and in carrying out appropriate fire control measures until the public fire department arrives. These measures are, as described in the fire safety plan, developed in cooperation with the fire department. The supervisory staff referred to in this Section are assigned their responsibilities by the building owner, unless the public fire department is prepared to take on these responsibilities. Except in hospitals and nursing homes, it is not intended that supervisory staff should be in the building on a continuous basis, but that they should be available to fulfill their obligations as described in the fire safety plan on notification of a fire emergency. In hospitals and nursing homes, however, staff must be in the building at all times to assist occupants who are not capable of caring for themselves in an emergency.

Instructions in emergency procedures

2.8.1.2. 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.

Fire fighting Procedures

2.8.1.4. Fire fighting procedures shall be prepared by the fire department in cooperation with the person in charge of the building for all buildings within the scope of Subsection 3.2.6. of the Building Regulations of British Columbia.

SUBSECTION 2.8.2. FIRE SAFETY PLAN

Measures in a fire safety plan

- **2.8.2.1.(1).** In buildings or areas described in Article 2.8.1.1., an acceptable fire safety plan shall be prepared in cooperation with the fire department and other applicable regulatory authorities and shall include: the emergency procedures to be used in case of fire including:
    - sounding the fire alarm,
    - notifying the fire department,
    - instructing occupants on procedures to be followed when the fire alarm sounds,
    - evacuating endangered occupants, including special provisions for the disabled, and
    - confining, controlling and extinguishing the fire
- the designation and organization of supervisory staff to carry out fire safety duties,
- the instruction of supervisory staff and other occupants in their responsibilities for fire safety,

- the preparation of diagrams showing the type, location and operation of the building fire emergency systems,
- the holding of fire drills,
- the control of fire hazards in the building, and
- the inspection and maintenance of building facilities provided for the safety of occupants.

A-2.8.2.1.(1)(a)(i). These procedures should also include instructions to authorized personnel for silencing fire alarm and alert signals under specified conditions.

A-2.8.2.1.(1)(a)(iv). Fire safety for disabled persons in buildings will depend to a large extent on preplanning and on their awareness of the fire protection measures incorporated into the building. In some buildings, it may be appropriate to advise disabled occupants of what these provisions are by means of posted notices or handouts. In certain residential occupancies, such as hotels or motels, staff should be aware of which rooms are occupied by disabled persons and should notify the responding fire department of these facts.

Institutional Occupancies

2.8.2.2.(1). A sufficient number of supervisory staff shall be on duty in institutional occupancies to perform the tasks outlined in the fire safety plan described in Sentence 2.8.2.1.(1).

Subject: BCFCR - INTERPRETATION - ARTICLE 2.8.2.2.

Article 2.8.2.2. INSTITUTIONAL OCCUPANCIES

- The number of staff necessary to effect a safety evacuation of all occupants from a fire zone is difficult to define. Some of the factors to consider are:
- degree of patients' incapacity,
- training and organization of staff,
- distance to areas of safety refuge,
- fire detection and alarm systems,
- voice communication systems, and
- automatic extinguishing systems.

Assembly Occupancies

(2) In Group A, Division 1 occupancies containing more than 60 occupants there shall be at least 1 supervisory staff member on duty in the building to perform the tasks outlined in the fire safety plan in Sentence 2.8.2.1.(1). whenever the building is open to the public.

High buildings

2.8.2.3.(1). In buildings within the scope of Subsection 3.2.6. of the Building Regulations of British Columbia, the fire safety plan shall, in addition to the requirements of Sentence 2.8.2.1.(1)., include:

- the instruction of supervisory staff on the use of the voice communication system,
- the procedures for the use of elevators and for the evacuation of non-ambulatory occupants,

- the action to be taken by supervisory staff in initiating any smoke control or other fire emergency systems installed in a building in the event of fire until the fire department arrives, and

- the procedures established to facilitate fire department access to the building and fire location within the building.

2.8.2.4. The fire safety plan shall be kept in the building for reference by the fire department, supervisory staff and other personnel.

Maintenance of plan

2.8.2.4.(2). The fire safety plan and record of the fire emergency systems installed in a building within the scope of Subsection 3.2.6. of the Building Regulations of British Columbia shall be maintained at the central alarm and control facility.

(3) The fire safety plan and record in Sentence (2) shall include instructions to the supervisory staff and fire department for the operation of the systems.

Distribution

2.8.2.5. A copy of the fire emergency procedures and other duties for supervisory staff, as laid down in the fire safety plan, shall be given to all supervisory staff.

Posting of instructions

2.8.2.6.(1). A minimum of l copy of the fire emergency instructions procedures shall be prominently posted on each floor area.

2.8.2.6.(2). In every hotel and motel bedroom, the fire safety rules for occupants shall be posted showing the locations of exits and the paths of travel to exits (this may take the form of a diagram).

2.8.2.6.(3). Where a fire alarm system has been installed with no provisions to transmit a signal to the Fire Department, a legible, permanently mounted notice shall be posted at each manually operated fire alarm station requesting that the Fire Department be notified.

SUBSECTION 2.8.3. FIRE DRILLS

Procedures

2.8.3.1.(1). The procedure for conducting fire drills in buildings specified in Article 2.8.1.1. shall be determined by the fire department in consultation with the person in charge of the building, taking into consideration:

- the building occupancy and its fire hazards,

- the safety features provided in the building,

- the desirable degree of participation of occupants other than supervisory staff,

- the number and degree of experience of participating supervisory staff, and

- the testing and operation of fire emergency systems installed in buildings within the scope of Subsection 3.2.6. of the Vancouver Building By-law.

Frequency

2.8.3.2.(1). Fire drills as described in Sentence 2.8.3.1.(1). shall be held at least once during each 12-month period for the supervisory staff, except that:

- in day-care centers and in Group B, Division 2 occupancies, such drills shall be held at least monthly,
- in schools attended by children, total evacuation fire drills shall be held at least 3 times in each of the fall and spring school terms, and
- in buildings within the scope of Subsection 3.2.6. of the Vancouver Building By-law, such drills shall be held at least every 2 months.

Log Books

2.8.3.3.(1). Records of fire drills shall be recorded by the occupants in a log book kept on the premises for examination by the Fire Chief or any member of the Fire Department authorized by the Fire Chief.