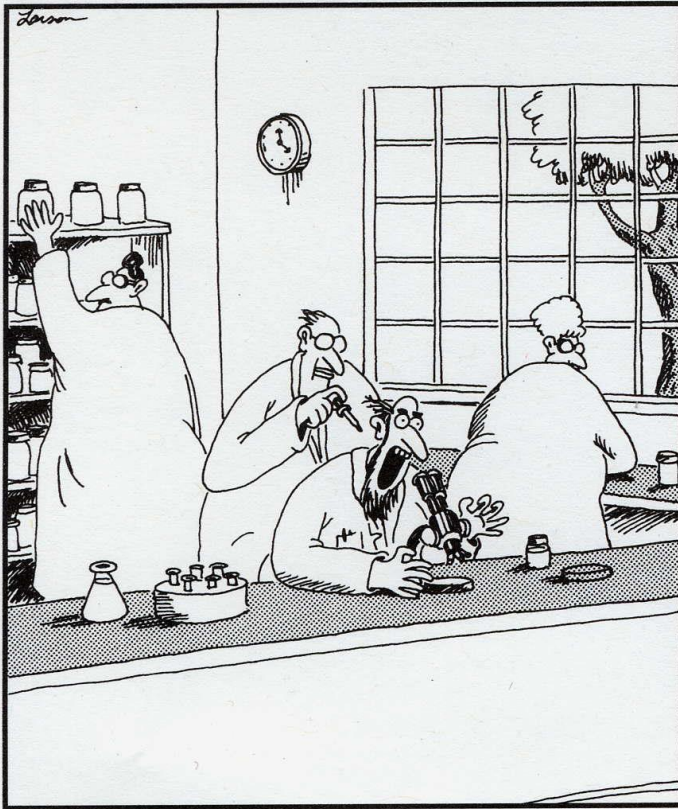


Lab Safety



Professor Glickman, the lab practical joker, deftly places a single drop of hydrochloric acid on the back of Professor Bingham's neck.



Safety Trainings

Mandatory

- WHMIS
- Hazardous Waste Disposal
- Introduction to Biosafety

<http://www.mcgill.ca/ehs/training>

When required

- Radiation Safety
- myLab
- Safe Use of Biological Safety Cabinets
- First Aid in the Workplace

Physiology Departmental Safety Committee

Members of the committee:

● Chair

- Dr. Anmar Khadra

● Members:

- John W. Hanrahan
- Mladen Glavinovic
- Domnica Marghescu
- Rosmarie Siegrist-Johnstone
- Victor Dumitru
- Maurice Chacron
(mechanical workshop)

● Departmental Radiation Safety Officers

- John Hanrahan

● Building Director

- Danielle Dubois

McGill has precise policies on the Internal responsibility regarding safety

Common sense policies

MANDATORY

● Dress code:

- PPE (Personal Protective Equipment)
 - Long pants,
 - Closed shoes (from toes to heel),
 - Lab coat is mandatory when bench working. Wear a different lab coat in cell culture. Send it to wash.
 - Always use gloves, goggles, or facemask when appropriate.



Common sense policies

FORBIDDEN

- **No** food or drinks in the labs
- **No** flip-flops!!! No sandals!!!
- **No** PPE in all non lab areas



Common sense policies **FORBIDDEN**

- **No** gloves on door handles or elevator's buttons (nor the feet!!!)



Accidents in the Lab



What to do?

- Stay calm to assess correctly the situation
- Ask for help if needed
- Take care of the people before the material
- Report the accident.



First aid/ Premier Secours

CSST Certified First Aiders (Secouristes qualifiés)		
Last Name, First Name (Nom, prénom)	Tel.	Department, Room
Other Certifications (e.g. Red Cross, St. John Ambulance, Heart & Stroke Foundation)		
Last Name, First Name (Nom, prénom)	Tel.	Department, Room
First Aid Kits (Trousses de premiers secours)		
Room (Salle)		
Automated External Defibrillator (Défibrillateur Externe Automatique)		
Edifice/Room (Salle)		
Eyewash Stations		Emergency Shower
Room (Salle)		Room (Salle)

	Environmental Health & Safety 3610 McTavish Street, 4 th Floor Tel. 4563 Fax. 8047 ehs@mcgill.ca
	CLSC Lac St. Louis 180 ave. Cartier, Pointe Claire (514) 697-4110
	CLSC Metro, 1801 rue De Maisonneuve Ouest (Coin St. Mathieu, Metro Guy) (514) 934-0354
	CLSC Cote des Neiges 5700 Chemin de la Cote-des-neiges (514) 732-8531

Emergency Phone Numbers (Appels d'urgence)	
	911
	811
QUEBEC POISON CONTROL CENTRE/ CENTRE ANTIPOISON DU QUEBEC  1 800 463-5060 (24 hours a day, 7 days a week)	
CSST 24 heures sur 24 7 jours sur 7 (514) 906-2911	
SPILLS/ URGENCE ENVIRONMENT	
	Downtown 3000 Macdonald 7777

Warning! All persons with serious medical conditions (ex. Allergies) must inform the first aider.

Attention! Toute personne qui a un problème de santé grave (ex. Allergie) doit en informer le secouriste.

EHS Poster: www.mcgill.ca/ehs/forms/posters
 Accidents form: www.mcgill.ca/ehs/forms/forms

McGill Security

3000

(with a lab phone)

514-398-3000

(with a cell phone)

What to do after the (ac/in)cident?

- Within 24 hours of occurrence, accordingly fill out both or either the:
 - (ac/in)cident report
 - pdf format www.mcgill.ca/ehs/forms/forms/accidentincidentreport
 - Web-based <http://webforms.mcgill.ca/ehs/ehs/ehs.asp?bhcp=1>
 - spill report
 - pdf format <http://www.mcgill.ca/hwm/forms/>
 - Web-based <http://www.mcgill.ca/hwm-webforms/spill-report/>

9-1-1

(on a lab phone)

4th floor Bellini



6th floor McIntyre



Automated External Defibrillators (AED) Presentation

Please see the video available here on how to use the AED machine:

<http://www.mcgill.ca/ehs/training/firstaid/aed/presentation>

Ethidium bromide

Wear the PPE (Personal Protective Equipment)

Change gloves to avoid contamination

To use any gel imaging system (make sure first you are allowed to use it):

- Carry your gels in a sealed container;
- Hold the container with a gloved hand;
- Keep the second hand bare to open doors but bring a second glove;
- Remove your gloves to touch the keyboard and the mouse;
- Wipe the transilluminator at the end.

Throw all contaminated waste in the dedicated **doubled bagged** incineration box.

Those dedicated boxes shouldn't be filled more than half.

Risk Assessment



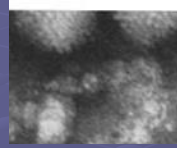
How would you clean up this spill?



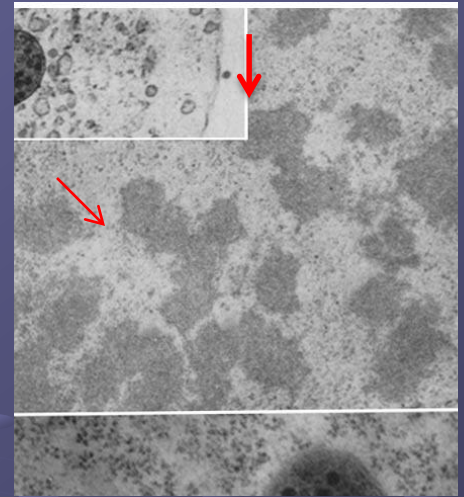
How can this be avoided?

Virus work

● Adenovirus

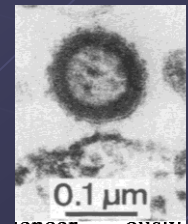


- Classified Biosafety Level 2 (regular cell culture)
- Potential risk:
 - replicative competent adenovirus (RCA)



● Retrovirus, lentivirus or any virus Classified as Biosafety Level 2+

- Has to be used in one of the 3 virus rooms
- Potential risk:
 - insertional mutagenesis



AS SAFE AS POSSIBLE

- Prepare your experiment in advance to develop safe procedures;
- Where is the Biohazard form approved by EHS?
- Refer to the pathogenicity of the parental virus to use the right physical barriers (BSC, double gloves, lab coat, ...);
- NO sharp, NO glass, NO needle;
- All solid waste have to be decontaminated in the hood for 15 minutes before being transferred to the incineration box;
- Before you leave the room, all waste have to be discarded and the hood cleaned.

Waste Management

1st rule: LIQUID \neq SOLID



Waste Management

2nd rule

No direct contact



NON-CONTAMINATED



REGULAR GARBAGE

Direct contact



CONTAMINATED



decontamination or
incineration

Waste Management

Special case: The serological pipets



SHARPS

non-contaminated

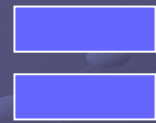
contaminated

Packaging



Waste Management

Special case: The Tips



SHARPS



Waste Management

Special case: Glass



Waste Management

Liquid waste:
with Biohazards
(non chemical)



Corrosive waste



Solvent waste



Chemicals
(**DON'T** mix)

Waste Management

Special case: Chemicals



ONLY INCINERATION

Scientific Equipment

- Scientific Instrumentations are expensive to purchase, maintain & repair.
- Misuse can become a major safety issue!



Safe Use of Scientific Equipment

- Always follow operating instructions;
- Obtain proper training when required;
 - CENTRIFUGATION TRAINING is MANDATORY:
Watch the Beckman online video;
Centrifuge Rotor Safety Seminar :
<http://mediasite.campus.mcgill.ca/mediasite2/viewer/?peid=104aca56-157b-4bf8-a3e1-1d20775e0c9f>
can only be watched using Internet Explorer
- Fill in booking/reservations sheets;
- Fill in SIGN UP/Log Books;
- When unsure, ASK for help!

Safe Use of Scientific Equipment

- Always follow operating instructions;
- Obtain proper training when required;
 - Autoclave
- Fill in booking/reservations sheets;
- Fill in SIGN UP/Log Books;
- When unsure, ASK for help!

Equipment failure

- Turn off the equipment;
- Secure the area where the chemical/biohazard spill has occurred;
- Place an “Out of Order” sign on the unit &
- Report any failure to appropriate staff;
 - Report the incident to the departmental safety committee.

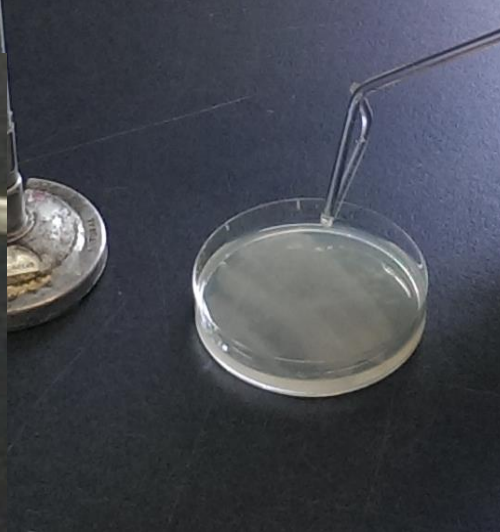
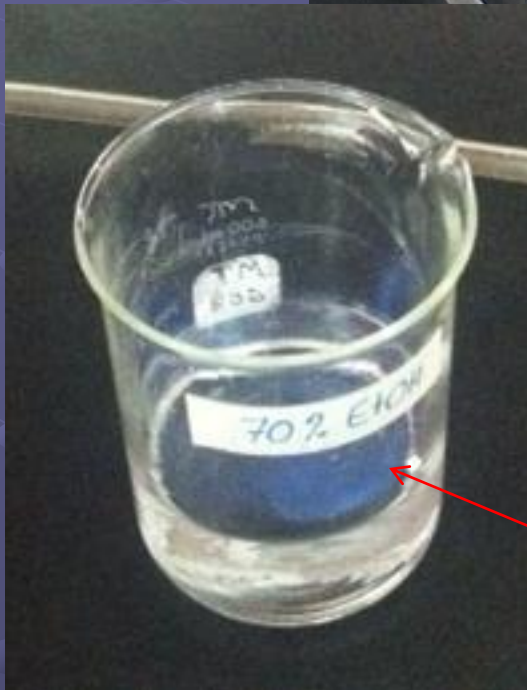
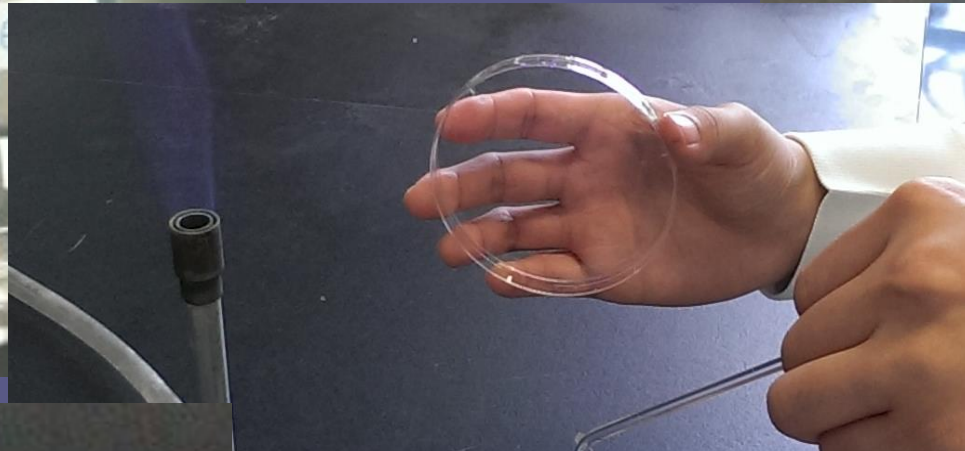
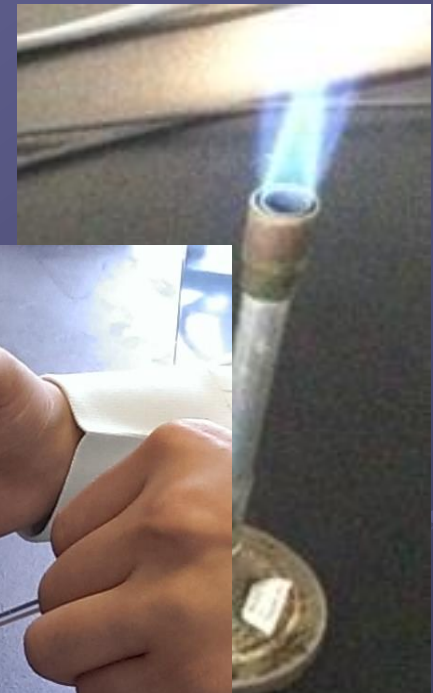
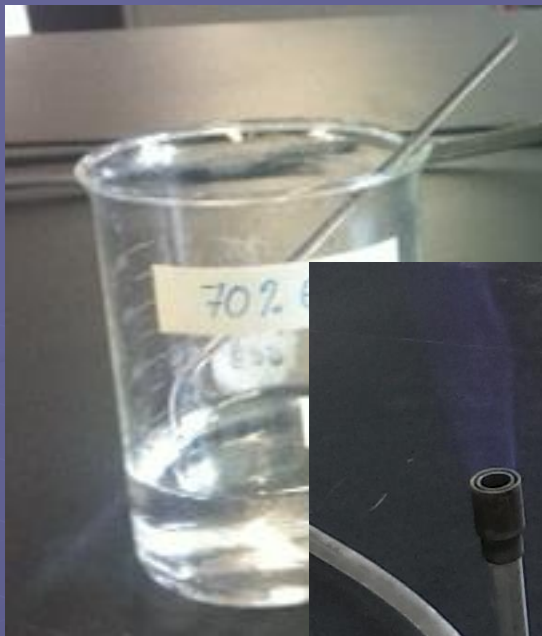
HOT PLATES
are **not** allowed
in cold rooms



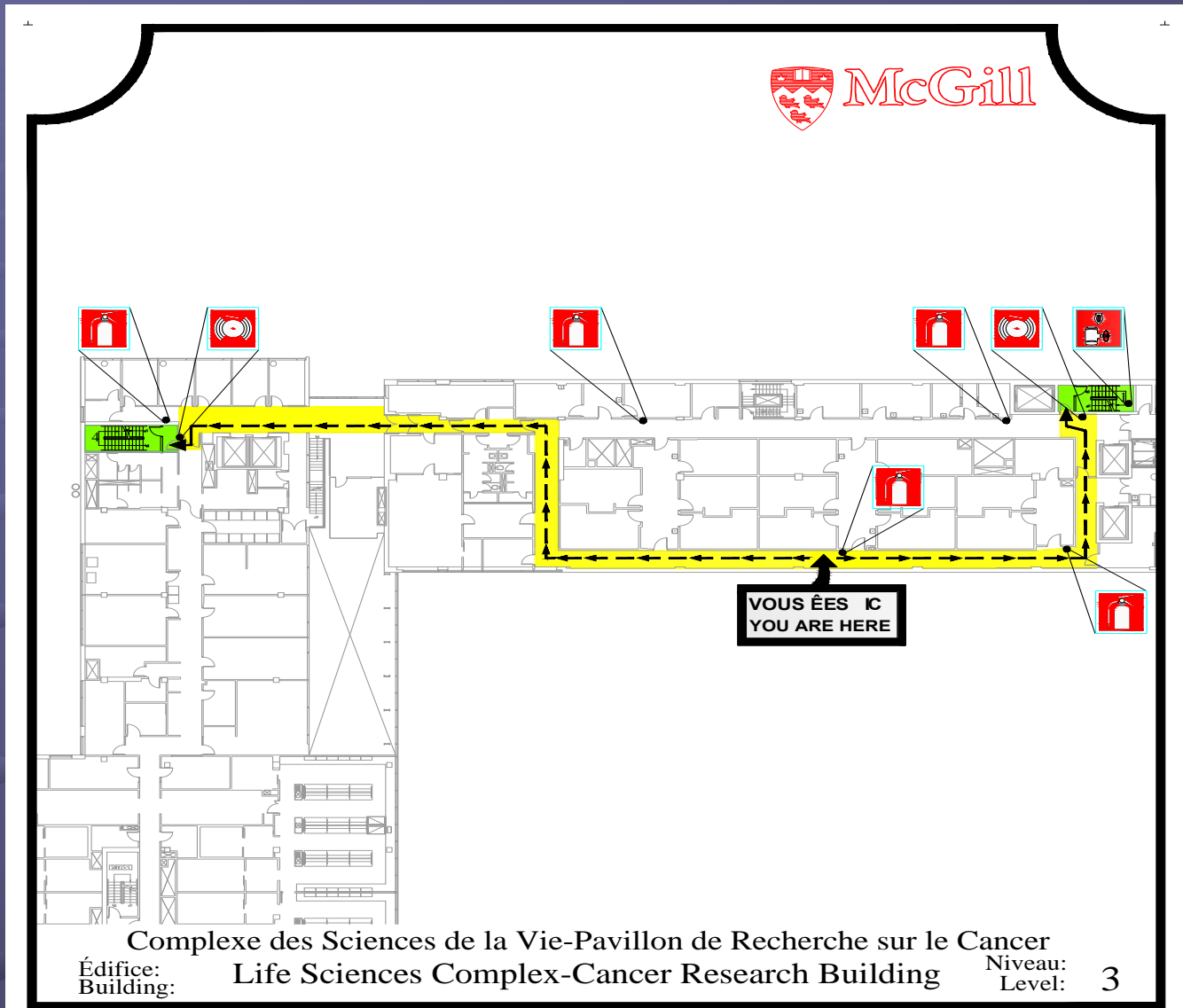
The most common cause of fire:

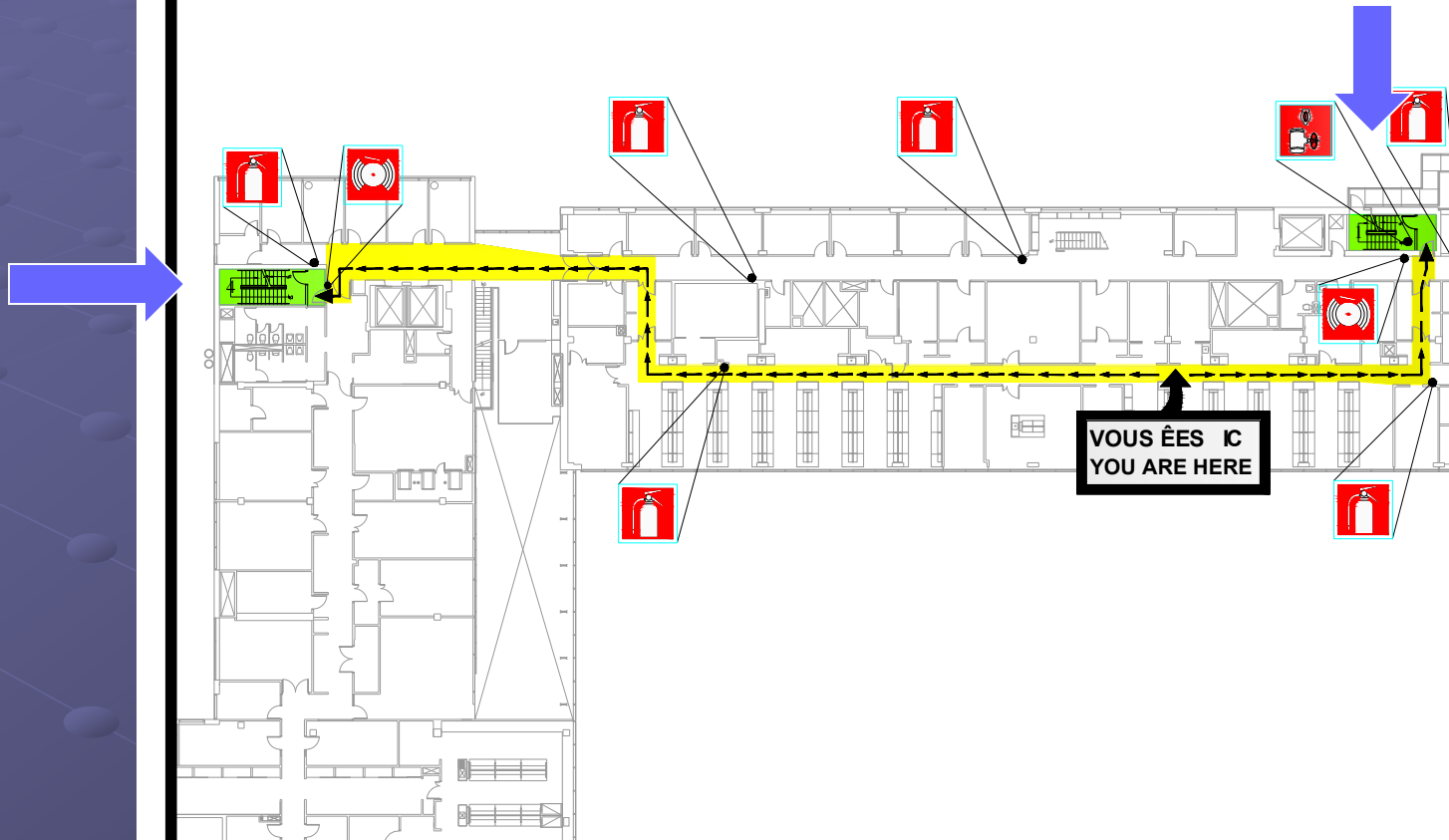
The Bunsen burner





Fire Safety- Bellini

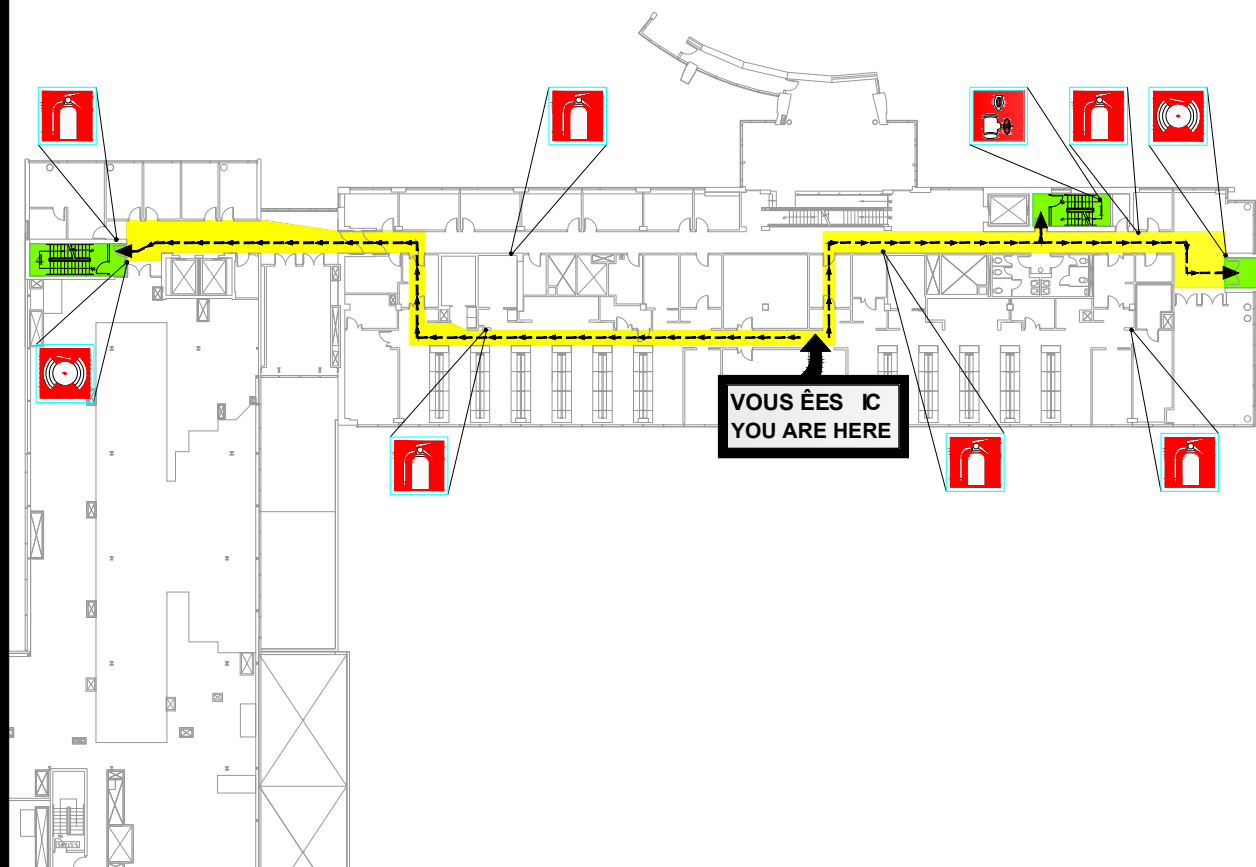




Complexe des Sciences de la Vie-Pavillon de Recherche sur le Cancer
Édifice: Life Sciences Complex-Cancer Research Building Niveau: 4
Building: Level:

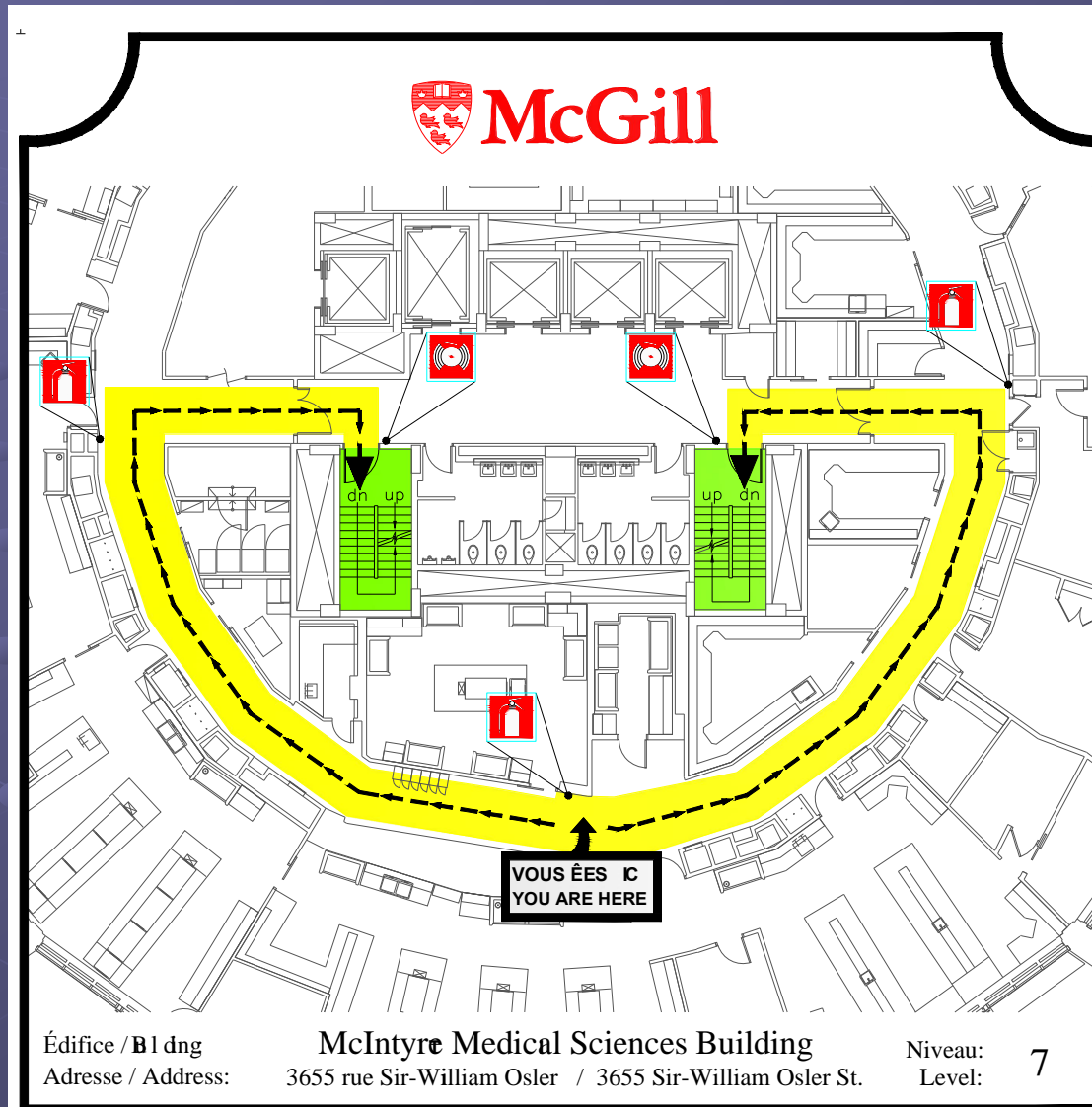


- Pull
- Aim
- Squeeze
- Sweep



Complexe des Sciences de la Vie-Pavillon de Recherche sur le Cancer
Édifice: Life Sciences Complex-Cancer Research Building Niveau: 5
Building: Level: 5

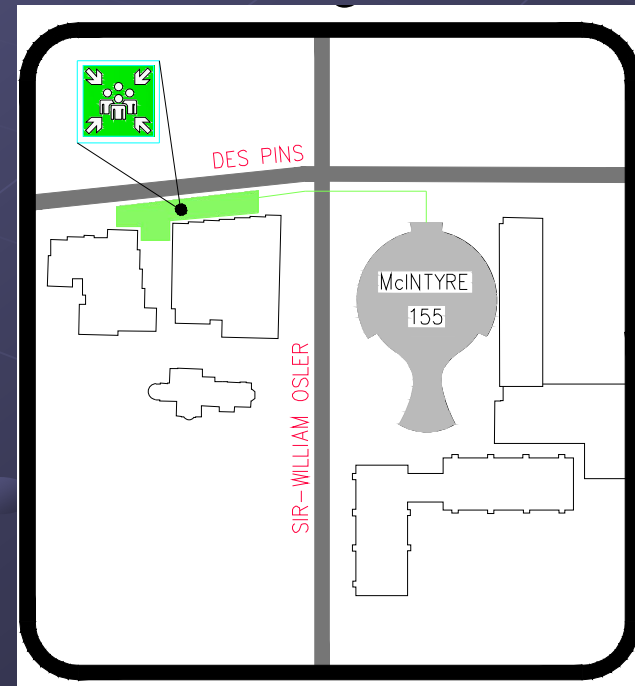
Fire Safety- McIntyre



Fire response

- If possible, secure any hazardous material
- Evacuate
- Follow instructions given by the Evacuation Team (bright Fluorescent coloured vest)
- Outside: move away to the designated meeting point

Point de Rassemblement
Meeting Point



Gas Leaks

- Exit the lab immediately
- Turn off the gas using the main shut off valve next to main entrance of your lab.
- Alert McGill security by dialing 3000.
- Do not attempt to reenter the lab until the all clear has been given from McGill facilities management.



General Security

- You must keep lab door closed at all time;
- Keep all your valuables locked up;
- Use security devices for your computers;
- Do not give access to people you do not know;
- If you see a stranger don't hesitate to ask them if they need help.



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Credits:

This presentation is a revised version of the one (graciously) provided by the GCC.

Slide 1:

The Far Side from Gary Larson from website: <http://scienceteacherresources.blogspot.ca/2012/12/the-far-side-school-and-science.html>

Second picture: http://www.scilogs.com/from_the_lab_bench/a-call-to-arms-lab-safety

Slide 4:

The poster from <http://www.mcgill.ca/ehs/sites/mcgill.ca/ehs/files/McGillPersonalProtectiveEquipmentPolicy.pdf> was cut to give the figure

Slide 5:

<http://www.phdcomics.com/comics/archive.php?comid=1362>

Slide 6:

Hand model: Ms Linda Smolders, picture took by Ms Isabelle Gamache
Footprint is a picture took by Mr Majid Ghahremani

Slide 7:

<http://www.flickr.com/photos/41792362@N00/8426367004/>

Slide 8:

http://www.mcgill.ca/ehs/sites/mcgill.ca.ehs/files/ehs-form-095_v.1.0_lab_workshop_emergency_poster.pdf

Slide 11:

All 3 pictures been taken by Ms Isabelle Gamache

Slide 13:

The video was cropped using the original video “HeartSine samaritan® PAD How to Use, Set-up and Maintain” November 2008 (H009-009-004-0) with microsoft media player

Slide 14:

Broken glass bottle picture from: <http://abclocal.go.com/kgo/story?section=news/state&id=8750966>

Staircase: <http://blog.rayasams.com/articles/clutter-free-and-safe-staircase/>

Slide 15:

1st picture and 2nd pictures: The Journal of Cell Biology, vol. 13, 1962 pp:303-322
Dales,S.

3rd picture: The Journal of virology, Nov 1986 pp:483-490 Benveniste et al.

Slide 17:

Glassware: http://www.123rf.com/photo_10461916_assorted-science-laboratory-glassware-chemistry-equipment-featuring-glass-beakers-with-graduated-sci.html

Plastic consumables: http://www.alibaba.com/product-free/114358368/conical_tube_petri_dish_cell_culture/showimage.html

Gloves: <http://science.kukuchew.com/2007/10/08/laboratory-gloves-and-condoms/>

Hands Paper towels: http://www.healthmedialab.com/fdsftylab_english/handwash2.htm

Slide 19:

Serological pipets: https://us.vwr.com/store/catalog/product.jsp?product_id=4760455

The 3 other pictures been taken by Ms Isabelle Gamache

Slide 20:

Tips: <http://dir.indiamart.com/impcat/plastic-tips.html>

Syringes: <http://depositphotos.com/5249429/stock-photo-Heap-of-used-disposable-syringes.html>

Razor blades: <http://www.homedepot.ca/product/single-edge-razor-blades-10-pack/972574>

Puncture proof containers: <http://www.healthcare.uiowa.edu/cme/clia/modules.asp?testID=18>

Slide 21:

Glassware: http://www.123rf.com/photo_10461916_assorted-science-laboratory-glassware-chemistry-equipment-featuring-glass-beakers-with-graduated-sci.html

Pasteur pipet: <http://myenvirolab.com/products.asp?catid=13>

Garbage: picture took by Ms Isabelle Gamache

Slide 22:

Liquid waste: picture took by Ms Isabelle Gamache

Plastic containers: <http://www.mcgill.ca/hwm/chemical>

Slide 23:

Both pictures been taken by Isabelle Gamache

Slide 24:

Unknown source

Slide 28:

Pictures took by Isabelle Gamache from apparatus damaged at the Centre

Slide 29:

Bunsen burner: <http://www.rsc.org/chemistryworld/Issues/2007/October/ClassicKitBunsenBurner.asp>

Slide 30:

All pictures been taken by Ms Isabelle Gamache.

Hand model: Ms Jieyi Yang

Slide 31 to 35:

Images given by McGill Emergency Measures and Fire Prevention

Slide 36:

Picture took by Isabelle Gamache

Slide 38:

Picture took of Ms Johanne Lamoureux at 2012 McGill Safety Week