



UNIVERSITY
OF MANITOBA

CONTROLLED PRODUCTS STANDARD

Part A: Guidelines for the Design and Commissioning of Use Areas

Part B: Guidelines for the Use, Storage and Handling of Controlled Products (previously distributed as part of the CPS June-1997)

June 2003

Prepared by the Environmental Health & Safety Office

Design Standard prepared in conjunction with Physical Plant

Highlighted Changes:

- fume hood flow rate 80-120LFM
- animal surgery rooms 12 air changes/hour and positive pressure to adjacent areas.
- all furniture in cps area to have 100% wipeable surfaces.



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CONTROLLED PRODUCTS STANDARD

June 2003

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CONTROLLED PRODUCTS STANDARD

June 2003

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INTRODUCTION

PURPOSE

To establish minimum standards for the use, storage and handling of controlled products at the University of Manitoba. To establish minimum design standards for facilities to be newly constructed or renovations to rooms where controlled products will be stored, handled or used.

The Environmental Health and Safety Office (EHSO) should be consulted prior to the purchase, installation, or alteration of fume hoods, Biological Safety Cabinets, eyewashes or safety showers.

CONTROLLED PRODUCTS for the purpose of this document shall mean any materials or chemicals that are regulated by the Transportation of Dangerous Goods Act, Canadian Nuclear Safety Regulations, Explosives Act, Pest Control Products Act and Workplace Hazardous Materials Information System such as:

- | | |
|----------------------|-------------------------------------|
| -Explosive Materials | -Unsealed Radioactive Materials |
| -Pesticides | -Dangerously Reactive Materials |
| -Compressed Gases | -Flammable or Combustible Materials |
| -Oxidizing Materials | -Poisonous or Infectious Materials |
| -Corrosive Materials | -and Biological Materials |

RADIOACTIVE MATERIAL USAGE:

The purchase, possession and the use of radioactive materials requires:

- a permit issued by the University Radiation Safety Committee;
- design approval for a laboratory using radioactive material;
- specific training, and;
- a dosimetry program.

Advice should be obtained from the Radiation Safety Coordinator 789-3613, Environmental Health and Safety Office.

BIOLOGICAL MATERIAL USAGE:

The purchase, possession and the use of biological materials requires:

- a permit issued by the University Biological Safety Advisory Committee;
- design approval for a laboratory using biological material, and;
- specific training.

Advice should be obtained from the Biological Safety Officer 474-8791, Environmental Health and Safety Office.

All areas of the University using, storing or handling controlled products shall have a copy of this Standard (Parts A & B). *Additional copies are available from http://www.umanitoba.ca/campus/health_and_safety/ Or the Environmental Health & Safety Office, 191 Frank Kennedy Centre, University of Manitoba, Winnipeg, MB, R3T 2N2 Tel:(204) 474-6633.*



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PART A: GUIDELINES FOR THE DESIGN AND COMMISSIONING OF CONTROLLED PRODUCTS USE AREAS

The Design Standard sets out the minimum design prerequisites for new construction or renovation to rooms to allow the use, handling or storage of controlled products.

Part A consist of:

Requisitioner's Declaration (Req Dec or RD)
Designer's Declaration (Des Dec or DD)
Request for Variance
Commissioning Form
Decommissioning Forms

Early in the design phase of the project, the designer shall submit a completed Designer's Declaration and a draft set of drawings to Environmental Health and Safety Office (EHSO) for review and comment. Drawings shall include floor plans and elevations of all laboratory case work and equipment. Based on revisions with EHSO, the designer shall develop a final set of working drawings to be submitted.

DECOMMISSIONING

Prior to the commencement of any renovation, the decommissioning of all workspaces that have used or stored Controlled Products is required.

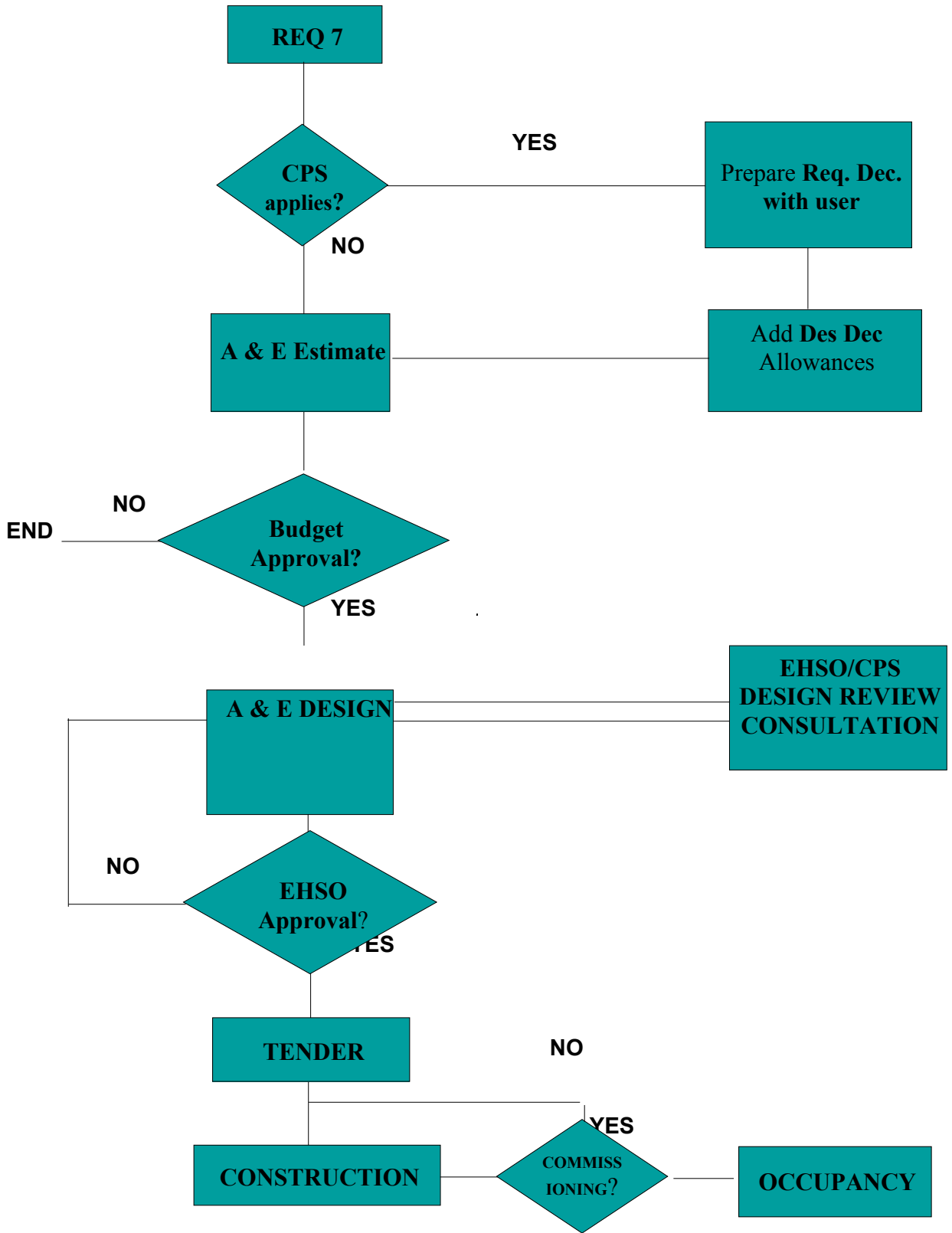
When requesting renovation to areas that previously used controlled products care must be taken to ensure decommissioning prior to renovation.

Asbestos: The presence of asbestos shall be identified prior to renovations. Refer to University of Manitoba Asbestos Management Program.

Chemicals: The Requisitioner is responsible to remove all chemical and wastes, including equipment containing chemicals. Refer to Decommissioning and Decontamination forms in Appendix.

Radioactive Materials: Refer to the Radiation Safety Manual. The Internal Radioisotope Permit Holder is responsible to arrange and document decommissioning with the Radiation Safety Coordinator. Completion of a Radioisotope Permit Decommissioning Form is required. Forms are available from the Radiation Safety Coordinator.

Biologicals: The Requisitioner is responsible to removal and/or decontamination of all Biologicals and space so sued and decontamination of equipment or disposal of biological wastes. Refer to Decommissioning and Decontamination forms in Appendix.



FLOW CHART - CONTROLLED PRODUCTS STANDARD APPLICATION PROCESS FOR NEW BUILDINGS CONSTRUCTION/RENOVATION



REQUISITIONER'S DECLARATION OF CONTROLLED PRODUCTS USAGE

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PURPOSE

This form is to be completed by the user of the space that undergoing renovation or construction. Information indicated on this form will assist the design staff to make the most appropriate design in accordance of regulations regarding the use of Controlled Products. Please attach any additional information to fully describe any design requirements related to the safe use of controlled products. Questions may be directed to the Environmental Health & Safety Office (474-6633). Or refer to the EHSO website: www.umanitoba.ca/campus/health_and_safety/

ADDITIONAL USE APPROVALS AND PERMITS

The application and approval of the required use permits is the responsibility of the Requisitioner. The completion of this form does not negate the requirement to ascertain any required approvals required by UofM policy such as, but not limited to:

- Internal Radioisotope Permit;
- Biosafety Permit;
- Occupancy Permit;
- Animal use;
- Ethical use.
- and Life Safety

CONTROLLED PRODUCTS for the purpose of this document shall mean any materials or chemicals that are regulated by the Transportation of Dangerous Goods Act, Canadian Nuclear Safety Regulations, Explosives Act, Pest Control Products Act and Workplace Hazardous Materials Information System such as:

- Explosive Materials
- Pesticides
- Compressed Gases
- Oxidizing Materials
- Corrosive Materials
- Unsealed Radioactive Materials
- Dangerously Reactive Materials
- Flammable or Combustible Materials
- Poisonous or Infectious Materials
- and Biological Materials

DECOMMISSIONING

Decommissioning is the responsibility of the Requisitioner to ensure that all hazards have been addressed prior to the start of renovation or construction work. Physical Plant designers are responsible to verify that a decommissioning form has been approved by EHSO.

For renovations, contact EHSO to ensure that the appropriate decommissioning is complete prior to the start of any construction or renovation work. Be aware there are procedures to decommission areas and equipment that has been used to store or manipulate: radioactives, biologicals or chemicals. It may take up to two weeks for the EHSO to approve decommissioning forms. Please be sure to keep EHSO informed of your start date.

Physical Plant will not proceed without a decommissioning form approved by EHSO.

STANDARD OPERATING PROCEDURES (SOPs)

The Requisitioner must review the Designer's Declaration for the applicable design requirements. If applying for a **Variance** a written Standard Operating Procedure (SOP) may be required to outline working procedures.



REQUISITIONER'S DECLARATION

UNIVERSITY
OF MANITOBA

Requisition #: _____ Requisitioner: _____

Room #: _____ Building: _____

One declaration per room is required; unless the use and design are identical.

If you fax this form, note that it is double sided - take care to fax both sides!

DD refers to the corresponding item in the Designer's Declaration.

Complete disclosure of intended use shall include all activities in renovated area or the projected new facilities! Not just the activities of the requisitioner!

1. Will controlled products be used or stored?	<input type="checkbox"/> Yes, go to next question.	<input type="checkbox"/> No, therefore, this form is not required.
1A. Will Patient Washrooms be a part of this construction or renovation? (DD1.2m)	<input type="checkbox"/> Yes, go to next question.	<input type="checkbox"/> No, go to next question.
2. Will controlled products be used or decanted (versus only kept in sealed containers)? (DD2.1)	<input type="checkbox"/> Yes, go to Question 3.	<input type="checkbox"/> No, therefore, this space is defined as a <u>Storage Room for Controlled Products</u> as controlled products will only be stored in sealed containers. No dispensing! Go to Question 5.
3. Will scientific experiments be performed in the room? (DD2.2)	<input type="checkbox"/> Yes, go to Question 4.	<input type="checkbox"/> No, therefore, this space is defined as a <u>Controlled Product Work Area</u> as controlled products will only be used for support services or production processes such as, food services, caretaking, cleaning, printing, manufacturing, repairing - not for scientific experiments. Go to Question 5.
4. Will controlled products be used in the preparation of samples or reactions? (DD2.3)	<input type="checkbox"/> Yes, therefore this is a <u>Laboratory</u> . Go to Question 5.	<input type="checkbox"/> No, therefore, this space is defined as an <u>Instrument Laboratory</u> as only minute quantities or concentrations of controlled products will be used in an environment that may require protection from impurities. Go to Question 5.
5. Will Perchloric Acid be heated or digested? (DD3.1k, 3.2)	<input type="checkbox"/> Yes, complete 5A.,	<input type="checkbox"/> No, go to question 6.
5A. A PERCHLORIC ACID FUME HOOD will be required. Where will the Perchloric Acid Fume Hood be located (room number? Location in room if known)? _____		
6. Will a fume hood be installed, modified or relocated as a part of this construction or renovation? Be aware that the construction of new laboratory space normally requires the installation of a fume hood. (DD3.1)	<input type="checkbox"/> Yes, complete 6A.	<input type="checkbox"/> No, go to Question 7.

6A. A fume hood is involved in this project. Please indicate any design requirements.

Go to next question.

9. Will Radioiodinations be performed? (DD4.c)	___ Yes. Complete 9A-E.	___ No, go to Question 10.
<p>CONSULT with EHSO Radiation Safety.</p> <p>9A. Radioiodinations must be performed in a fume hood. It is important to consider any requirements for shielding and that wastes generated will also require ventilation. (DD4.e) What weight of lead will be required in the fume hood?</p> <p>9B. If known, which room will be used for Iodinations?</p> <p>9C. If known, which fume hood will be used for iodinations?</p> <p>9D. What is the plan to keep the waste ventilated while it is in the lab?</p> <p>9E. If known, where specifically, will the radioiodine waste be stored until it is transferred to the EHSO?</p> <p style="text-align: right;">Go to next question.</p>		
10. Will the nature of the atmosphere be potentially explosive? Will ignitable aerosols, vapors, dusts, or gases be produced? (DD1.2q)	___ Yes, complete 10A.	___ No, go to Question 11.
<p>CONSULT with EHSO Fire Safety:</p> <p>10A. What is the plan to minimize the potential for fire or explosion? Please describe:</p> <p style="text-align: right;">Go to next question.</p>		
11. Will ventilation such as local exhaust be required to remove odoriferous or potentially hazardous vapors/aerosols, hazardous fumes, or nuisance dusts that will be generated by equipment or processes? (DD3.6)	___ Yes. Ventilation such as local exhaust is required. Complete 11A and 11B.	___ No, go to Question 12.
<p>11A. Is there any possibility that the exhaust duct may accumulate deposits of highly hazardous residues or will the exhaust require HEPA filtration or other special cleaning. (DD3.1k 3.6c) Details:</p> <p>11B. Will odoriferous chemicals or potentially harmful vapors/aerosols be produced during decanting? ___ No, go to Question 12. ___ Yes, specify: ___ local ventilation or ___ fume hood. Details:</p> <p style="text-align: right;">Go to next question.</p>		

12. Will biological materials (microorganisms; human and animal blood, tissues and organs; recombinant DNA work; cell cultures) be used? (DD3.7, 5)	<input type="checkbox"/> Yes. Complete 12a, 12B and 12C.	<input type="checkbox"/> No, go to Question 13.
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12A. What level of containment will be required as per the University Of Manitoba Biosafety Guide - available on EHSO website:
Level 1 or 2 or **Level 3**

12B. If the answer to 12A was **Level 1 or 2** then a Class I or II Biological Safety Cabinets (BSC) are required for all manipulations of Risk Level 2 agents that may create an aerosol. (see Appendix B of Health Canada's Laboratory Biosafety Guidelines for descriptions of BSCs).
 Will you be requiring a BSC? Yes No

What Class and Type of BSC will be installed (eg. Class II Type A/B3). Refer to Appendix B of Health Canada's 'Laboratory Biosafety Guidelines' and/ or consult with EHSO. Class

Will the BSC require exhaust ducting? Yes No

What are the physical requirements for a Biosafety Cabinet (space and suggested location, room number if known)?

*If the answer to 12B was **Level 3** then a Containment Level 3 Laboratory would require certification by Health Canada. It is essential that the 'Health Canada Questionnaire for the Assessment of Containment Level 3 Laboratories' be checked at the design stage. A current copy is available is from the EHSO. Consultation with the EHSO is required.*

12C. What is the plan for sterilizing waste? Will an autoclave be required? If an autoclave is planned to be included in the design, please indicate any design requirements, such as local ventilation (make sure the answer to question 11 is 'yes'), space required, any preferences for location.

Go to next question.

13. Will animals be housed in the facility? (DD6)	<input type="checkbox"/> If yes, complete 13A.	<input type="checkbox"/> No, go to Question 13B.
---	--	--

13A. For how long?
 Less than 24 hours, therefore this is not an animal holding room. List measures to control allergens then go to next question:

Or,
 More than 24 hours, therefore the room must conform to CCAC Standards for animal holding rooms and the design must be approved by the appropriate University animal care department (CACS, Zoology or Animal Science).
 Animal Care approval started:

Date: Animal Care Contact (name and phone number):

What is the plan to dispose of carcasses?

Go to next question.

17. Will acids or corrosives be stored? (DD3.1g)	<input type="checkbox"/> Yes. Complete 17A.	<input type="checkbox"/> No, then go to Question 18.
<p>17A. You will need a corrosion resistant cabinet. What physical capacity will be required? Indicate any other design specification such as temperature, ventilation or preferred location.</p> <p style="text-align: right;">Go to next question.</p>		
18. Will lockable storage be required for controlled products such as radioactive material, ethanol (95% and absolute) or narcotics? (DD1.5d)	<input type="checkbox"/> Yes. Complete 18A.	<input type="checkbox"/> No, go to question 19.
<p>18A. Provide details of a lockable storage area (cupboard, fridge or freezer) shall be provided for specific controlled products (such as radioactives, ethanol (95% and absolute), narcotics). Storage of certain types of controlled products require consideration of the storage temperature.</p> <p>Go to next question.</p>		
19. Will there be any requirements for facilities to store wastes generated daily within laboratories? (DD1.4e)	<input type="checkbox"/> Yes. Complete 19A and 19B.	<input type="checkbox"/> No, go to Question 20.
<p>19A. Please list requirements for hazardous wastes that will be stored in the lab until transfer to EHSO (include volumes, flammability, incompatibility, ventilation requirements, refrigeration). Describe:</p> <p>19B. Consider the accumulation of wastes prior to transferring to the EHSO for radioactives, autoclaved wastes and others: Is there a need to store accumulated wastes away from occupied areas? <input type="checkbox"/> No, go to Question 20. <input type="checkbox"/> Yes, please identify the requirements for such waste.</p> <p>Go to next question.</p>		

20. General Provisions:

- 20A. Any required signs mandated by regulatory agencies shall be posted adjacent to or on the outside of the exit door. (DD1.6a) What is your plan?
- 20B. Provision shall be made for emergency response materials such as spill clean up and first aid kit. (DD1.6b) Please describe any design requirements (such as space, cupboard or shelf, signage).
- 20C. Provision shall be made for Safety Communication Centre, such as a bulletin board for each local area. (DD1.6c) Provide details:
- 20D. A telephone or alternate emergency communication shall be incorporated into the areas where controlled products are used or stored and must be available to all staff or students while they are working. (DD1.6d) What is your plan?
- 20E. A computer shall be available on a full time basis to provide access to the University of Manitoba MSDS and the departmental chemical inventory. (DD1.6e) Where will this computer be? What is the plan to keep MSDS accessible?
- 20F. Provision shall be made for storage of personal items outside of rooms where controlled products are used or stored. (DD1.6f) Please describe where staff may store personal items.
- 20G. Areas for storing and preparing food and beverages shall be excluded from the rooms containing controlled products. (DD1.6g) Please describe where staff may store, prepare or consume food or beverages for coffee breaks or meal breaks.
- 20H. Desk or study areas shall be excluded from the controlled products areas. For example, an anteroom separate from research areas would provide space for paper work segregated from areas using controlled products. (DD1.6h, DD2.4i) Please describe where staff may complete paperwork:
- 20I. Offices and Controlled Product areas shall have separate access to hallways (ie offices are not to be located such that sole access is through the laboratory). (DD1.6i) Please describe:
- 20J. A lunch room shall be available within each department. (DD1.6j) Provide details:
- 20K. A minimum of 4.6 square metres of free floor area per person shall be provided. (DD1.6k) What is the maximum number of people expected to be in each room?
- 20L. Provision should be made for emergency lighting in controlled products areas. (Dd1.6l) What is your plan?

20M. Will flammable materials be decanted from 20 L or larger containers? If so a grounding strap will be required. (DD1.6m) Where would you like to see the grounding strap located? Consider the need for ventilation (see questions 11A and 11C).

20N. Will a compressed gas cylinder (larger than a lecture bottle) or a cryogenic container that contains flammable gas or gas with a health hazard rating of 3 or 4 (Hazardous Chemical Code) be present? (DD2.4k)

20O. Will a glove box, fume hood, Biosafety Cabinet or autoclave be installed, modified or relocated as a part of this construction or renovation? (DD3.2, 3.5)

20P. What considerations need to be made to minimize sound exposure to workers? Please list noisy equipment or processes. (DD1.6o)

20Q. All upholstered furniture shall be wipeable. Will the upholstered furnishings have wipeable surfaces?

REQUISITIONER'S DECLARATION

To the best of my knowledge, the information provided in this form fully represents the intended usage of all known occupants. I am aware that changes from this declared usage may impact on the design and may result in an inability to obtain approval to use controlled products in the finished construction.

Prior to the commencement of renovation or new construction, I will ensure that all work spaces involved that have previously been used with or used to store Controlled Products will be decommissioned as supervised by the Environmental Health and Safety Office. I designate the following person as the person to contact within my department to represent the department in terms of the decommissioning;

DECOMMISSIONING CONTACT PERSON:

Name: _____ **Phone:** _____

Room & Bldg: _____ **Fax:** _____

Email Address: _____

Primary Investigator signature: _____ **Date:** _____

Department Head signature: _____ **Date:** _____



DESIGNER'S DECLARATION

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DESIGNER'S DECLARATION

Requisition #: _____ Requisitioner: _____

Room #: _____ Building: _____

One declaration per room is required; unless the use and design are identical.
If you fax this form, note that it is double sided - take care to fax both sides!
RD refers to the corresponding item in the Designer's Declaration.

Section 1: Design Requirements for all areas using or storing Controlled Products:

1.1 Ventilation: Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way. All Controlled Products areas shall:		Pre-existing Discipline	Yes	No
1.1a	have ventilation designed to draw dangerous fumes or vapors away from the breathing zones of occupants;	M		
1.1b	have ventilation designed to provide adequate and continuous ventilation at the ceiling and floor;	M		
1.1c	have air conditioning (or provision to ensure maximum temperature will not exceed 23 degrees Celsius);	M		
1.1d	have ventilation designed to meet the requirements for a separate fire compartment;	M		
1.1e	not re-circulate fume hood exhaust air;	M		

1.2 Finishing and Fixtures: Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way. All Controlled Products areas shall:		Pre-existing Discipline	Yes	No
1.2a	have flooring that is seamless, impervious, resistant to chemicals and provide a washable surface with a strippable coating. Carpets will not be permitted. This requirement is extended to the corridor outside;	A		
1.2b	have all joints in the flooring material sealed. Junctions between floor and vertical surfaces (walls and permanently placed fixtures such as fume hoods) shall be smooth, coved and continuous with floor;	A		
1.2c	have walls that provide a smooth, impervious and washable surfaces;	A		
1.2d	have ceilings that are washable or made of tiles that are replaceable;	A		
1.2e	have counter surfaces that are smooth, impervious, chemically resistant, washable and can be easily decontaminated. Surface laminates shall be chosen from water and chemical resistant products;	A		
1.2f	Laboratory chairs shall be made of material that is smooth, impervious, chemically resistant, washable and can be easily decontaminated. No fabric or carpet like material permitted;			
1.2g	have all joints on counters sealed;	A		
1.2h	have cupboards and shelving with smooth, impervious, chemical-resistant and washable finishes. Exposed shelving shall be kept to a minimum to prevent dust accumulation;	A		
1.2i	have light fixtures that are enclosed to be easy to clean;	E		

1.2j	have sinks made of a material that is readily decontaminated;	AM			
1.2k	have sinks with overflow protection;	M			
1.2l	have an emergency eye wash and safety shower that meet ANSI Standard Z358.1 (most current version). The eyewash and safety shower shall be located at least 1.2 meters (6 feet) from any electrical outlets or circuits. The placement of the eyewash and safety shower shall not impede exit door swing or path of egress. The placement of the eyewash and safety shower in the laboratory shall not result in blockage of the shower by other equipment or create other safety hazards;	M			
1.2m	have patient wash rooms finished in materials that are easily decontaminated; (RD1A)	A			
1.2n	have three- wire electrical outlets with high-quality, low-resistance ground connections;	E			
1.2o	have circuits clearly identified to correlate with labels in breaker panels;	E			
1.2p	have the circuits equipped with ground-fault interrupters as required by Electrical Code;	E			
1.2q	If the answer to RD 10 is no, check here _____ and go to next section. If the answer to RD 10 is yes, then the design shall: provide electrical wiring, lights, and electrical switches that are explosion-proof.	E			

1.3 Plumbing: Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way.

All Controlled Products areas shall:

	Pre-existing Discipline	Yes	No
--	-------------------------	-----	----

1.3a	have the plumbing sized to accommodate the required flow rates for emergency shower and eyewash station, ANSI Standard Z358.1 (most current version);	M		
1.3b	have back flow protection devices on all faucets with vacuum or cooling line attachments;	M		
1.3c	have the drain from all sinks go directly to the main building sewer. (Note there are special requirements for BSL 3 (Containment Level 3) laboratories);	M		
1.3d	not include any dilution or neutralization tanks;	M		
1.3e	have all sink drain traps accessible;	M		
1.3f	have drains that are chemical resistant.	M		

1.4 Storage: Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way.

All Controlled Products areas shall:

	Pre-existing Discipline	Yes	No
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1.4a	include a storage area for the controlled products that will be used in the room. Provide glass covered cabinets for chemical storage that are of solid and sturdy construction, hardwood or metal shelving is preferred. Some toxic or odoriferous chemicals require ventilation. Shelves shall be properly anchored. All laboratories shall have storage space for supplies and combustibles such as boxes of gloves and centrifuge tubes etc. Laboratories using free standing gas cylinders shall be constructed to provide areas and equipment to properly secure gas cylinders. Laboratories intended for use of NFPA health hazard 3 or 4 gases shall have mechanically ventilated storage area for the gases;	A		
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1.4b	<p>If the answer to RD 14 is no, check here ____ and go to 1.4d. If the answer is yes, then consult RD14A, the design shall: include a flammable material storage cabinet for the storage of flammable materials; The maximum amount of flammable liquids that may be STORED outside a flammable storage cabinet in a fire compartment is 5 litres or the quantity required in a normal day operation up to 50 litres. (This means flammable liquids in excess of 5 litres and not directly in use must be stored in a flammable storage cabinet). The maximum capacity of a flammable storage cabinet in a fire compartment shall be 500 L of which no more than 250 L shall be Class I Liquids. (Refer to Appendix B: The University of Manitoba Flammable Liquid Storage Policy.) BE AWARE that some designs require that the whole floor be a fire compartment and not each room or lab. Please indicate the volumes and categories of flammables anticipated per fire compartment. List classes and maximum amounts (see Appendix D). STORED, in this context, is defined as left in the open area of the lab and not immediately in use.</p>	A			
1.4c	<p>If the answer to RD 14B is no, check here ____ and go to next item. If the answer is yes, then, the design shall: provide a flammable materials storage refrigeration unit;</p>	A			
1.4d	<p>If the answer to RD 15 is no, check here ____ and go to next item. If the answer is yes, then, the design shall: provide appropriate segregation of incompatible materials;</p>	A			
1.4e	<p>If the answer to RD 16 is no, check here ____ and go to next item. If the answer is yes, then, the design shall: provide ventilation for the storage of materials that may give rise to aerosols or gases and vented air shall not be discharged into occupied areas or re-circulated;</p>	A			
1.4f	<p>If the answer to RD 19 is no, check here ____ and go to next item. If the answer is yes, then consult RD19A, the design shall: have facilities for storing wastes generated daily provided within the laboratory;</p>	A			
1.4g	<p>If the answer to RD 19 is no, check here ____ and go to next item. If the answer is yes, then consult RD19B, the design shall: provide an area for the accumulation of wastes prior to disposal that is isolated from occupied areas.</p>	A			
<p>1.5 Security: Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way. All Controlled Products areas shall:</p>		Discipline	Pre-existing	Yes	No
1.5a	provide locks on doors (padlocks require a variance);	A			
1.5b	be designed such that any ground floor windows prevent access from the outside;	A			
1.5c	have locks on the exterior door of the research area or building that may be set after normal business hours to lock automatically behind you upon exit;	A			
1.5d	<p>If the answer to RD 18 is no, check here ____ and go to next section. If the answer is yes, then, the design shall: have a lockable storage area (cupboard, fridge or freezer) provided for specific controlled products (such as radioactives, ethanol (95% and absolute), narcotics). Storage of certain types of controlled products require consideration of the storage temperature.</p>	A			

1.6. General: Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way.		Discipline	Pre-existing	Yes	No
All Controlled Products areas shall:					
1.6a	provide for the posting of any required signs mandated by regulatory agencies adjacent to or on the outside of the exit door (refer to RD20A);	A			
1.6b	provide for emergency response materials such as spill clean up and first aid kit (refer to RD20B);	A			
1.6c	provide a Safety Communication Centre, such as a bulletin board for each local area (refer to RD20C);	A			
1.6d	provide a telephone or alternate emergency communication into the areas where controlled products are used or stored (refer to RD 20D);	AE			
1.6e	provide a computer that is available on a full time basis to provide access to the University of Manitoba MSDS and the departmental chemical inventory (refer to RD 20E);	AE			
1.6f	provide for storage of personal items outside of rooms for the use or storage of controlled products (refer to RD 20F);	A			
1.6g	exclude areas for preparing or storing food or beverages from rooms containing controlled products (refer to RD 20G);	A			
1.6h	exclude desk or study areas from the controlled products areas. For example, an anteroom separate from research areas would provide space for paper work segregated from areas using controlled products (refer to RD 20H);	A			
1.6i	not contain offices such that sole access to the hall way is through the controlled product area (refer to RD 20I);	E			
1.6j	have access to a lunch room within each department(refer to RD 20J);	A			
1.6k	provide a minimum of 4.6 square meters of free floor area per person (refer to RD 20K).	A			
1.6l	provide for emergency lighting in controlled products areas (refer to RD 20L);	E			
1.6m	provide a grounding strap for decanting flammable material (refer to RD20M)	E			
1.6n	have aisle spaces of more than 1 meter (40 inches) wide. The aisles should lead as directly to a means of egress;	A			
1.6o	be designed to minimize sound exposure to all workers through the selection and location of equipment and noisy processes. (See RD 20P)	A			
1.6p	have hallways or corridors of at least one wall of unobstructed egress;	A			
1.6q	be designed to minimize blind spots for reasons of personal safety and emergency egress in all hall ways, stairways and entrances;	A			
1.6r	have doors or partitions in corridors allowing visibility to ensure no one is coming the other way;	A			
1.6s	be designed with consideration given to the egress of an occupant in the event of an emergency. Hazardous activities shall be carried out in locations leaving unobstructed egress;	A			
1.6t	provide rapid escape from cold rooms and walk in incubators in the event of a electrical failure;	A			
1.6u	provide for hanging up lab coats or other coveralls and any other required personal protective apparel close to the exit of the room;	A			
1.6v	be equipped with appropriate fire extinguishers;	A			
1.6w	provide storage of caretakers supplies and access to an eyewash for the caretakers as per ANSI Z358.1 (most current version).	A			

Section 2: Design requirements based on TYPE of area:

<p>2.1 Storage Rooms for Controlled Products: If the answer to RD 2 is yes, check here ____ and go to Section 2.2. If the answer is no, then, this is a <u>Storage Room for Controlled Products</u> as controlled products will only be stored in sealed containers. No dispensing!! Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way. All Storage Rooms for Controlled Products shall:</p>		Discipline	Pre-existing	Yes	No
2.1a	have negative pressure with respect to adjacent areas. Go to Section 3.	M			

<p>2.2 Controlled Product Work Areas: If the answer to RD 3 is yes, check here ____ and go to Section 2.3. If the answer is no, then, this is a <u>Controlled Products Work Area</u> as Controlled products will be used by support services or production processes, not for scientific experiments. Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way. All Controlled Products Work Areas shall:</p>		Discipline	Pre-existing	Yes	No
2.2a	meet the requirements for a separate fire compartment;	A			
2.2b	have negative pressure with respect to adjacent areas (except Storage Rooms for Controlled Products);	M			
2.2c	have a positive pressure with respect to Storage Rooms for Controlled Products;	M			
2.2d	have additional appropriate ventilation for the controlled products that may be decanted, if required. Go to Section 3.	M			

<p>2.3 Instrument Labs: If the answer to RD 4 is yes, check here ____ and go to Section 2.4. If the answer is no, then this is an <u>Instrument Laboratory</u> as only minute quantities or concentrations of controlled products be used in an environment that may require protection from impurities Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way. Instrument Labs shall:</p>		Discipline	Pre-existing	Yes	No
2.3a	meet the requirements for a separate fire compartment;	A			
2.3b	have negative pressure with respect to adjacent areas (except Storage Rooms for Controlled Products);	M			
2.3c	have positive pressure with respect to storage Rooms for Controlled Products. It may be required to be at positive pressure in comparison to surrounding areas to protect the environment from impurities. Go to Section 3.	M			

2.4 Laboratories: If the answer to RD 4 is yes, then, this is a <u>Laboratory</u> as this room is designed for scientific experiments using controlled products. Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way. All Laboratories shall:		Discipline	Pre-existing	Yes	No
2.4a	meet the requirements for a separate fire compartment having a fire separation of not less than 1 hour;	A			
2.4b	have negative pressure with respect to adjacent areas (except Storage Rooms for Controlled Products);	M			
2.4c	have negative pressure with respect to areas where controlled product areas are not used or stored;	M			
2.4d	have a minimum of 10 air changes per hour;	M			
2.4e	be designed to restrict public access (be located behind lockable doors);	A			
2.4f	provide separate sinks for hand washing and for a wash up sink in laboratories. The hand washing sink should be located near the laboratory exit. The wash up sink should be located in a low traffic area adjacent to the work area (refer to RD7);	A M			
2.4g	have water taps on hand washing sink that may be operated by means not requiring direct hand contact (refer to RD7B);	M			
2.4h	connect the wash up sink drain only to other wash up sink drains;	M			
2.4i	exclude desk or study areas from the wet laboratories or controlled products work areas. For example, an anteroom separate from research areas would provide space for paper work segregated from areas using controlled products (refer to RD 20H);	A			
2.4j	include at least one fume hood (see section on fume hoods);	A M			
2.4k	have a second exit, if: <ul style="list-style-type: none"> 9 the total area is more than 500 square feet; 9 a fume hood is located next to the primary exit; 9 have occupancy greater than 6; 9 a compressed gas cylinder (larger than a lecture bottle) or a cryogenic container which contain flammable gas or gas with a health hazard rating of 3 or 4 (Hazardous Chemical Code) is present (refer to RD20N). 	A			

Section 3: Design Requirements based on type of equipment:

3.1 Fume Hoods

If the answer to RD 6 and RD 200 is no, check here ____ and go to Section 3.2.

If the answer is yes, then complete Section 3.1 about fume hoods.

A fume hood is defined as a ventilated enclosed work space intended to capture, contain and exhaust fumes, vapors and particulate matter generated inside the enclosure. Spaces defined as a laboratory (other than an instrument laboratory) require at least one fume hood. Ductless fume hoods: portable, non-ducted chemical fume hoods are not permitted.

Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way. All Fume Hoods shall:		Discipline	Pre-existing	Yes	No
3.1a	<p>be of bypass type and constructed:</p> <ul style="list-style-type: none"> - of smooth impervious, washable, chemical-resistant and noncombustible material; - with a sash made of shatterproof material; - with a liquid tight working surface with slightly raised edges (1cm) to contain any spills; - to include a light fixture (minimum 80footcandles that is fluorescent and of explosion proof construction); - to include a visual (preferably audible) alarm to indicate reduced airflow and a readily visible flow-measuring device shall be included on the face of the fume hood; - provide a baffle system that allows air to be drawn evenly to the top, middle and bottom of the hood. Baffles shall be arranged so that it is possible to adjust the flow of the air but not shut it down completely. The top baffle must have an opening not greater than 2centimeters; - be designed to minimize counter-current and meet ANSI/ ASHRAE 110; - to include airfoils at the bottom and along both vertical sides of the sash opening; - to provide an override provision on any automatic after hours shutdown system; - not be interlocked with fire detection and alarm systems to shut down automatically upon alarm; 	M A E			
3.1.b	<p>provide a vertical sliding safety glass sash, balanced and counter-weighted so it can be raised or lowered with one hand from any point along the bottom. The vertical sliding safety glass sash shall have a positive steel mechanical latch that shall be operable with one hand and allow unobstructed closing of the sash from any position;</p>				
3.1c	<p>have the linear face velocity between 0.4 and 0.6 meter/second (80 - 120 linear feet per minute, with a minimum of 80 LFM at any measured point) with the sash at 11 inches. There shall be a balanced air feature such that the fume hood is vented even if the sash is closed;</p>	M			
3.1d	<p>be located:</p> <ul style="list-style-type: none"> - in a remote area of the facility away from exits and traffic flow. The hoods should be located more than 3 meters (10 feet) from any door or doorway; - more than 3 meters (10 feet) from face to face if installed opposite a biological safety cabinet; - so that any room air supply diffuser is more than 1.5 m (5ft) of the sash and the room diffuser shall not affect fume hood performance. None the less, the air supply shall not create room air drafts at the face of any hood greater than half the face velocity of the hood; - so that an unobstructed personal work area extends at least 1.5 m (5 ft) from the face of the fume hood; - so that the workstation opposite the face of the cabinet is not one where personnel are likely to spend much of their working day (such as a desk or microscope bench); - so that the sash is at least 2 m (6.6ft) from an opposing wall or other obstruction likely to affect the air flow; - so that the distance from the side of the hood and the wall (or any architectural structure) projecting past the plane of the sash should be at least 0.3m (1foot); 	A M			
3.1e	<p>have all air vented through the fume hood without re-circulation;</p>	M			

Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way.		Discipline	Pre-existing	Yes	No
All Fume Hoods shall:					
3.1f	<p>have the exhaust duct:</p> <ul style="list-style-type: none"> - constructed of corrosion-resistant and non-combustible material; - made of round piping; - with joints that are smoothly finished, free from contamination and sealed; - slope at least 1% back towards the hood; - with bends of long sweep: - that is accessible for inspection; - without filters; - function independent of the general building HVAC system; - connect only with exhaust systems from other fume hoods. If fume hood exhaust systems are to interconnect, provision must be made to ensure that the exhaust from one area cannot flow into another area. A fume hood shall not be connected to an existing fume hood duct, unless this duct is designed for the additional capacity and function of the new hood; - using any gaskets that are chemical- and fire-resistant; - without fire dampers; 	M			
3.1.g	not have any heated drying base cabinets (drying ovens) under fume hoods;				
3.1h	<p>have the fume hood exhaust fan motor:</p> <ul style="list-style-type: none"> - placed close to the discharge point in order to maintain negative pressure in the duct work within the building; - mounted outside the exhaust duct for easy access and to avoid contamination; <p>(if the motors are located in an equipment room the equipment room shall be ventilated); (noise from the fume hood fan shall not be more than 65dBA at the face of the hood);</p>	M			
3.1i	<p>discharge exhaust vertically without obstruction (ASHRAE Handbook Fundamentals 1993, Fig 14 page 14.12) at least 3meters above and 10 meters horizontally from any air intake. The stack arrangement, height, discharge, velocity and location must ensure acceptable dilution, dispersion and elimination of re-entry into buildings. Discharges less than one meter above the local roof line will require specific justification and approval from the EHSO. Design information is available in ASHRAE Handbook 1987 HVAC Systems & Applications chapters 30 & 43, 1991 HVAC Applications chapters 14 & 27 or HVAC Applications 1995 chapters 13 & 26. Refer to ANSI/AIHA Z9.5 Standard:</p> <ul style="list-style-type: none"> - have a discharge velocity of at least 3000fpm for a stack without internal condensation; or - have a discharge velocity of at least 2000fpm or less for a stack if internal condensation might occur. 	M A			
3.1j	<p>have incorporated venting of storage cabinets for controlled products that are located under the fume hood. Venting shall be at floor level and at the top. The storage cabinets under the fume hood shall be vented using stainless steel ducting connected above the hood and the exhaust duct collar. All penetrations shall be sealed. The storage cabinets should have corrosion-resistant interiors and piping to meet the requirements of ANSI/NFPA 30 and 45 for flammable storage (Refer to RD 16 & 17);</p>	M			
3.1k	<p>only have the exhaust ducts manifolded if:</p> <ul style="list-style-type: none"> - EHSO has been consulted; - the hoods are not perchloric acid hoods (Refer to RD5); - the hoods are not used such that deposits, or highly hazardous residues may accumulate in the duct work (refer to RD11 A); - the exhaust does not require HEPA filtration or other special cleaning (Refer to RD 11A); - the exhaust ducts are joined in a fire rated shaft, or mechanical room, or outside of the building at the roof line. 	M			
3.1l	have the fan, duct, breaker and motor identified for the respective fume hood and room number.				

3.2 Perchloric Acid Fume Hood

If the answer to RD 5 is no, check here ____ and go to Section 3.3.

If the answer is yes, then complete Section 3.2 about Perchloric Acid Fume Hoods.

Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way. All Perchloric Acid Fume Hoods shall meet the requirements of 3.1 and shall:		Discipline	Pre-existing	Yes	No
3.2a	have all surfaces of the hood comprised of materials that do not react with the acid to form flammable or explosive compounds;	A			
3.2b	be equipped with water wash down capabilities to wash the interior surfaces of the entire hood, duct, fan and stack surface;	M			
3.2c	be equipped with duct work of Type 316 stainless steel with smooth-welded seams and shall take the shortest, direct, straight path to the outside of the building;	M			
3.2d	not be manifolded;	M			
3.2e	have the hood and duct work labeled "Perchloric Acid Hood";	A			
3.2f	have an exhaust fan that is acid and spark resistant. The exhaust fan motor shall not be located within the duct work. Drive belts shall be conductive and shall not be located within the duct work.				

3.3 Walk-In Fume Hoods Will a walk in fume hood be incorporated? If not, check here ____ and go to section3.4.

If yes, then complete Section 3.3 about walk-in fume hoods.

Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way. All Walk-in Fume Hoods shall meet all the requirements of 3.1 and shall:		Discipline	Pre-existing	Yes	No
3.3a	not have a floor drain;	A M			
3.3b	include a pan retainer deep enough to hold the volume of liquids intended for use in the work.	M			

3.4 Controlled Climate and Walk-In Cold Rooms Will a controlled climate or walk in cold room be incorporated?

If not, check here ____ and go to section3.5.

Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way. All Controlled Climate and Walk-in Cold Rooms shall:		Discipline	Pre-existing	Yes	No
3.4a	provide ventilation during periods of personnel occupancy (EHSO consultation is required);	A M			
3.4b	have latches that can be operated from the inside to allow escape that function under all design conditions. Magnetic latches are recommended;	M			
3.4c	have doors with viewing windows and external light switches	M E			

3.5 Glove Boxes

Glove Box (Adapted from ANSI/AIHA Z9.5 Standard) A glove box is a boxlike structure that is completely enclosed during use, is provided with exhaust ventilation with its own blower and filter system so virtually no contaminant within the box can escape into the room, and permits manual manipulations within the box through armholes provided with impervious gloves sealed to the box at the armholes. It has a slight negative pressure and the blower is in continuous operation. Glove boxes should be used when the properties of the hazardous materials (controlled products), the planned manipulations, or a credible accident would generate hazardous personal exposures if the work is done in an ordinary laboratory fume hood, or if the potential combinations of material properties with planned manipulations is so complex that the hazards cannot be estimated. Details of glove box to be submitted for EHSO for approval, prior to installation.

Will a glove box be incorporated in the design (Refer to RD 200.)?

No, go to section 3.6.

Yes, complete 3.5 and ensure EHSO approval in advance of installation.

Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way. All Glove Boxes Hoods shall:		Discipline	Pre-existing	Yes	No
3.5a	not be located in high traffic areas;	A			
3.5b	be constructed of materials that are fireproof (with exception of gloves and gasket materials), and with surfaces that are impervious, corrosion-resistant for the intended use, and easily cleanable. Interior cracks at seams and joints should be eliminated or sealed;	A			
3.5c	be designed such that utility valves and switches shall be external and conform with applicable codes;	A M			
3.5d	provide spill containment for the maximum volume used;	A M			
3.5e	be provided with exhaust ventilation to result in a pressure inside the box that is at least 0.1" w.g. negative with respect to the room when all openings are closed, and at least 100 fpm inward air velocity when the largest operating opening are open;	M			
3.5f	include a pressure relief valve;	M			
3.5g	be designed to clean exhausted air or gases, if necessary, and discharged to the outside atmosphere;	M			
3.5h	be connected to exhaust ducts in accordance with the ACGIH Industrial Ventilation Manual, ANSI Z9.2;	M			
3.5i	be designed so that all exhaust ducts within the building shall be under negative pressure when in operation;	M			
3.5j	if perchloric acid used (see RD 5), meet the relevant requirements for perchloric acid fume hoods (Section 3.2).	M			

3.6 Other Local Ventilation Systems

Local Ventilation Systems are separate from fume hoods but include all systems that are designed to remove hazardous gases, aerosols or dusts.

Will a local ventilation system be incorporated in the design (Refer to RD 11 and 16)?

___ No, go to section 3.7.

___ Yes, complete 3.6.

Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way. All Local Ventilation Systems shall:		Discipline	Pre-existing	Yes	No
3.6a	be designed to eliminate back draft;	M			
3.6b	be designed to efficiently exhaust fumes, aerosols or gases that are hazardous or explosive either very near the source or near the floor;	M			
3.6c	have a separate exhaust if the exhaust duct may accumulate deposits or highly hazardous residues, or requires HEPA filtration or special cleaning (Refer to RD 11A);	M			
3.6d	include a readily visible flow-measuring device;	M			
3.6e	incorporate an override provision on any automatic after hours shutdown system;	M			
3.6f	be connected to an exhaust duct that has: - been constructed of corrosion-resistant material; - has all joints smoothly finished and sealed; - at least 1% slope back towards the hood; - bends of long sweep and accessible for inspection; - not interconnected to fume hood exhaust;	M			
3.6g	be connected to an exhaust fan: - placed close to the discharge point in order to maintain negative pressure in the duct work within the building; - mounted outside the exhaust duct for easy access and to avoid contamination;	M			
3.6h	discharge exhausts vertically without obstruction (ASHRAE Handbook Fundamentals 1993, Fig 14 page 14.12) at least 3 meters above and 10 meters horizontally from any air intake. The stack arrangement, height, discharge, velocity and location must ensure acceptable dilution, dispersion and elimination of re-entry into buildings. Discharges less than one meter above the local roof line will require specific justification and approval by the EHSO. Design information is available in ASHRAE Handbook 1987 HVAC Systems & Applications chapters 30 & 43, 1991 HVAC Applications chapters 14 & 27 or HVAC Applications 1995 chapters 13 & 26. Refer to ANSI/AIHA Z9.5 Standard;	M A			
3.6i	vent all air through local exhaust without re-circulation.	M			

3.7 Biological Safety Cabinets

Biological Safety Cabinets are different from fume hoods.

Will a Biological Safety Cabinet be incorporated in the design (Refer to RD 12)?

- No, go to section 4.
 Yes, complete 3.7.

Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way. All Biological Safety Cabinets shall:		Discipline	Pre-existing	Yes	No
3.7a	not be installed as an integral part of a room(s) supply and exhaust system in such manner that fluctuations of the room supply and exhaust air cause the biological safety cabinets to operate outside their design parameters for containment.	A M			
3.7b	be located away from doors, from windows that can be opened, from room supply air diffuser and from heavily-traveled laboratory areas.	A M			
3.7c	be located to achieve the recommended minimum of 30cm clearance, behind each side of the cabinet to permit cleaning and testing and a minimum unobstructed clearance of 40 cm at the exhaust filter discharge to permit testing.	A M			
3.7d	be installed and tested in accordance with most current version of CSA Z316.3 or National Sanitation Foundation Standard 49	A M			
3.7e	HEPA-filter any cabinet air prior to re-circulation.	A M			

3.7.1 Class IIB Biological Safety Cabinets

Biological Safety Cabinets, Class IIB require fixed exhaust ducts to remove exhausted air from the building.

Will a Class IIB Biological Safety Cabinet be incorporated in the design (Refer to RD 12)?

- No, go to section 4.
 Yes, complete 3.7.2

Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way. All Class IIB Biological Safety Cabinets shall:		Discipline	Pre-existing	Yes	No
3.7.1a	not be used as the sole source of room exhaust	M			
3.7.1b	have the room supply air system equipped with dampers to prevent back-flow when biological safety cabinets are connected to exhaust duct work.	M			
3.7.1c	be connected to exhaust duct by thimble units where appropriate and room exhaust ducts are equipped with manual dampers to permit sealing for decontamination. Manufacturer's recommendations for installation of BSC should be carefully followed.	M			

Section 4: Design Requirements for Radioisotope Laboratories:

Will Radioactive Materials ever be used?

If the answer to RD7 is no, check here ____ and then go to Section 5.

If the answer is yes, then complete Section 4.

Indicate Yes if requirement is incorporated into design. Indicate No, if the requirement is not incorporated into design and attach a request for variance. Indicate pre-existing if renovation is not changing this feature in any way. All Radioisotope Laboratories shall:		Discipline	Pre-existing	Yes	No
4.a	have "Radioactive" sink drains: - marked at 3 meter intervals (Refer to RD7A); - identified on building plans supplied to maintenance personnel;	A M			
4.b	provide for installing an appropriate radiation monitoring device as required (Refer to RD7C);	A			
4.c	If the answers to RD 8 & 9 are no, check here ____ and go to Item 4.1f. If the answer is yes, then: include a fume hood (refer to RD 8A): - designed to support any shielding required; - have the exhaust duct marked at 3 meter intervals with the radiation warning symbols (only fume hoods so marked will be approved for the use of radioactive materials); - have exhaust ducts from fume hoods in radioisotope laboratories identified on building plans supplied to maintenance personnel;	A M			
4.d	mark exhausts of local exhaust used for radioactive work at 3 meter intervals with the radiation warning symbols (only local exhaust so marked will be approved for the use of radioactive materials);	A M			
4e	be designed so that radioiodination laboratories or radioactive iodine storage areas and shall be at negative pressure with respect to all adjacent areas (refer to RD 9A);	A M			
4.f	provide appropriate shielding for radioactive materials storage areas (refer to RD 7D and 9E);	A			

Section 5: Design Requirements for Biological Laboratories:

Will Biological Materials ever be used?

If the answer to RD12 is no, check here ____ and then go to Section 6.

If the answer is yes, then, this is a Biological Laboratory. In addition to the University Biosafety Guide, consult the Health Canada Biosafety Guidelines (2nd Edition, 1996) Chapter 7 pp 47-65 for Design Specifications. Use the answer to RD 12 to indicate the biological containment level.

____ Level 1 and 2. All biological laboratories shall be built to at least Level 2 containment.
Consultation with EHSO required.

Or,

____ **Level 3: A containment level 3 Laboratory would require certification by Health Canada. It is essential that the 'Health Canada Questionnaire for the Assessment of Containment Level 3 Laboratories' consulted at the design stage. A current copy available is from the EHSO. Consultation with EHSO required.**

Section 6: Design Requirements for Animal Use Areas:

Will animals be housed in the facility?

If the answer to RD 13 is no, check here ____ and then go to Section 7.

If the answer is yes, then:

____ Animals will be housed for less than 24 hours, therefore this is not an animal holding room. Measures to control the spread of allergens shall be incorporated. Go to Declaration.

Or,

____ **Animals will be housed for more than 24 hours, therefore the room must conform to CCAC Standards for animal holding rooms and the design must be approved by the appropriate University animal care department (CACs, Zoology or Animal Science). Animal Care Approval started: Date: Animal Care Contact (name & phone number):**

Section 7: Design Requirements for Animal Surgery Rooms:

Will surgery be performed on animals in this facility?

If the answer to RD 13B is no, check here ___ and then go to the Declaration.

If the answer is yes, then:

___ The room requires 12 air changes /hour.

___ The room requires walls, floor and ceiling that may be washed by a pressure washer..

___ The room requires positive pressure compared to the corridor.

___ Measures to control the spread of allergens shall be incorporated. Go to Declaration.

___ **The room must conform to CCAC Standards for animal surgery rooms and the design must be approved**

by the appropriate University animal care department (CACs, Zoology or Animal Science).

Animal Care Approval started: Date:

Animal Care Contact (name and phone number):

Design Stage Declarations

EHSO Approval at the DESIGN STAGE is REQUIRED by Canadian Nuclear Safety Regulations for an Internal Radioisotope Permit to be issued later.

To the best of my knowledge and ability, the design parameters stated in this form represent the intended design of this renovation or construction. I am aware that any changes or deviation from this must be immediately communicated in writing to the Environmental Health and Safety Office to ensure that the finished project may be approved for use of controlled products.

Design Personnel (names and phone numbers):

Architectural Personnel:

Mechanical Personnel:

Electrical Personnel:

Plumbing Personnel:

Based on the design as indicated in this form, I am approving this design for construction. For the finished project to be approved for use the design parameters indicated in this form must be achieved.

Radiation Safety Approval: _____ Date: _____

Chemical Safety Approval: _____ Date: _____



UNIVERSITY
OF MANITOBA

REQUEST FOR VARIANCE

Responsibility of the Requisitioner or Project Coordinator, Physical Plant.

Requisition #: _____

For Room: _____ **Building:** _____

One Request for Variance per room - unless the design features reported herein are identical. Attach additional pages as required.

I would like to request a variance by demonstrating the equivalent level of safety regarding the following item # from the Controlled Product Standard - Designer's Declaration.

Item #	Description of proposed variance:	Statement of equivalence (attach written SOP if appropriate):	EHSO Provisos:	EHSO Approval:
<i>Example :2.4f</i>	<i>This laboratory will only have one sink. It will not provide separate sinks for hand washing and washing up glassware.</i>	<i>Only small volumes of controlled products will be use in this satellite lab. All glassware will be washed in the main lab (room xyz).</i>	<i>An appropriately labeled bin will be provided for the collection and transport of items to be washed in the main laboratory.</i>	<i>Signed and dated.</i>

Variance Declaration:

I am aware that if this variance is approved as it indicates an equivalent level of safety for the stated usage, there may be limitations as to the other uses for this facility. I take full responsibility to ensure that all persons that access this facility are fully informed of such limitations.

Requisitioner (name and phone number):

Signature of Requisitioner and Date

EHSO Approval (name and Date)

Design Standard - Summary for Renovations

Requisition #: _____ For Room: _____ Building: _____

One Design Standard per room - unless the design features reported herein are identical.

When only some aspects of the space is being altered, Physical Plant staff may chose to complete this summary indicating the aspects effected by the renovation and submit it to EHSO with the appropriate individual Design Standards attached.

Ventilation: The project will alter the ventilation?	9 No	9 Yes Ventilation Design Standard (1.1) is attached.
Finishing and Fixtures: This project will alter the finishing and fixtures?	9 No	9 Yes Finishing and Fixtures Design Standard (1.2) is attached.
Plumbing: This project will alter the Plumbing?	9 No	9 Yes Plumbing Design Standard (1.3) is attached.
Storage: This project will alter the Storage?	9 No	9 Yes Storage Design Standard (1.4) is attached.
Security: This project will alter the Storage?	9 No	9 Yes Storage Design Standard (1.5) is attached.
General: This project will alter the aspects described in the General Section of the CPS?	9 No	9 Yes General Design Standard (1.6) is attached.
Storage Room for Controlled Products: Based on the RD, this project is a Storage Area for Controlled Products?	9 No	9 Yes Storage area for Controlled Products Design Standard (2.1) is attached.
Controlled Products Work Area: Based on the RD, this project is a Controlled Products Work Area?	9 No	9 Yes Controlled Products Work Area Design Standard (2.2) is attached.
Instrument Labs: Based on the RD, this project is a Instrument Lab?	9 No	9 Yes Storage area for Instrument Lab Design Standard (2.3) is attached.
Laboratories: Based on the RD, this project is a Laboratory?	9 No	9 Yes Laboratories Design Standard (2.4)is attached.
Fume Hoods: This project involves changes or installation of a fume hood?	9 No	9 Yes Fume Hood Design Standard (3.1) is attached.
Perchloric Acid Fume Hoods: This project involves changes or installation of a perchloric fume hood?	9 No	9 Yes Perchloric Fume Hood Design Standard (3.2) is attached.
Walk-in Fume Hoods: This project involves changes or installation of a walk-in fume hood?	9 No	9 Yes Walk-in Fume Hood Design Standard (3.3)is attached.
Glove Boxes: This project involves changes or installation of a Glove Box?	9 No	9 Yes Glove Box Design Standard (3.4) is attached.
Other Local Ventilation: This project involves changes or installation of local Ventilation?	9 No	9 Yes Local Ventilation Design Standard (3.5) 4 is attached.
Biological Safety Cabinets: This project involves changes or installation of Biological Safety Cabinet?	9 No	9 Yes Biological Safety Cabinet Design Standard (3.6) is attached.
Class IIB Biological Safety Cabinets: This project involves changes or installation of Class II Biological Safety Cabinet?	9 No	9 Yes Class II Biological Safety Cabinet Design Standard (3.7) is attached.
Radioisotope Laboratories: Based on the RD, this project is a Radioisotope Laboratory?	9 No	9 Yes Radioisotope Laboratories Design Standard (4) is attached.
Biological Laboratories: Based on the RD, this project is a Biological Laboratory?	9 No	9 Yes Biological Laboratories Design Standard (5) is attached.
Animal Use Areas: Based on the RD, this project is a Animal Use Areas?	9 No	9 Yes Animal Use Area Design Standard (6) is attached.

Applicable Regulations and Codes - please refer to the most current version.

Current internet links are available on EHSOs Website

The following should be followed in the design and construction of laboratories:

- Manitoba Building Code;
- fire protection engineering directives - and other fire protection or protection directives as specified in Manitoba Fire Code;
- Canadian Nuclear Safety Act and all applicable regulations and regulatory guidelines issued under the Canadian Nuclear Safety Commission;
- Radiation Protection Bureau of Canada and all applicable code;
- Laboratory Biosafety Guidelines issued by Health Canada;
- Guide to the Care and Use of Experimental Animals (Volume 1) issued by the Canadian Council on Animal Care or ;
- Hazardous Chemicals Code 49, volume 10 - issued by the National Fire Protection Association,
- Treasury Board - all health and safety directives approved for application in the Public Service of Canada;
- Workplace Safety & Health Act, Workplace Hazardous Materials Information System (Manitoba Regulation 52/88), and Workplace Health Hazard Regulation (M.R. 53/88).
- City of Winnipeg By-Laws (or applicable municipal by-laws).
- U of M Asbestos Abatement Protocol issued by the Environmental Health and Safety Office (EHSO).

References for Design Standard:

Refer to ANSI/AIHA Z9.5-1992 or later Standard (American National Standard for Laboratory Ventilation).

LABORATORY DECOMMISSIONING – FORM 1

Potential Hazards in Laboratories that need to be identified when planning renovation

Building Materials

*Asbestos
Lead Paint
Fiberglass or other MMMF*

***Hazardous Materials Used in
Laboratory Work***

*Radioactive Agents
Microbiological Agents
Chemical Agents
Toxic
Flammable
Reactive
Explosive*

***Chemicals of Particular
concern***

*Perchloric Acid and compounds
Mercury
Azides
Metals having pyrophoric
and toxic properties
Toxic organic compounds
Picric Acid
Ethyl ethers and other
peroxidizables*

Physical Hazards

*Broken Glassware
Needles and Syringes
Compressed gases*

***Equipment that may be
Contaminated and Contain Left
over Hazardous Materials***

*Refrigerators
Freezers
Experimental Apparatus
Laboratory Hoods
Biological Safety Cabinets*

DECOMMISSIONING AND DECONTAMINATION

TABLE 1. Potential Hazards in Laboratory Spaces that Need to be Identified before Renovations

Building Materials

Asbestos
Lead Paint
Fiberglass or other MMMF

Hazardous Materials used in Laboratory Work

Radioactive Agents
Microbiological Agents
Chemical Agents
Toxic *Reactive*
Flammable *Explosive*
Corrosive

Chemicals of Special Concern

Perchloric Acid and its salts (Perchlorates)
Mercury
Azides
Metals having pyrophoric and highly toxic properties (e.g., Arsenic)

Toxic organic compounds (e.g., acrylamide, aflatoxin, organic mercury)

Picric Acid
Ethyl ether and other peroxidizable chemicals

Physical Hazards

Broken Glassware
Needles and Syringes
Compressed gases

Equipment that may be Contaminated and Contain Leftover

Hazardous Materials

Refrigerators
Freezers
Walk in Coolers/Cold Rooms
Experimental Apparatus
Laboratory Fume Hoods
Glove Boxes
Biological Safety Cabinets
Incubators

**UNIVERSITY OF MANITOBA
Equipment Decontamination Record**

Type of Equipment: _____
Make and Model: _____
Serial Number if available: _____
UofM Property Number: _____
Other Identification (specify): _____

Principal Investigator or
Supervisor _____

	Name	Tel		Date
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This piece of equipment was used with the following (check all that apply):

No hazardous materials, **OR**

Biologicals

Chemicals

PCB's

Surveyed by EHSO _____

	Initials	Date
--	-----------------	-------------

Radioactive material

Surveyed by EHSO (RSO) _____

	Initials	Date
--	-----------------	-------------

Other hazards (specify) _____

Decontaminated with _____

By _____ Date _____

Equipment OK for removal or reuse: _____ YES _____ NO

Signed:

Title:

Date

REMOVE THIS LABEL BEFORE REUSING THIS EQUIPMENT

October 2002