

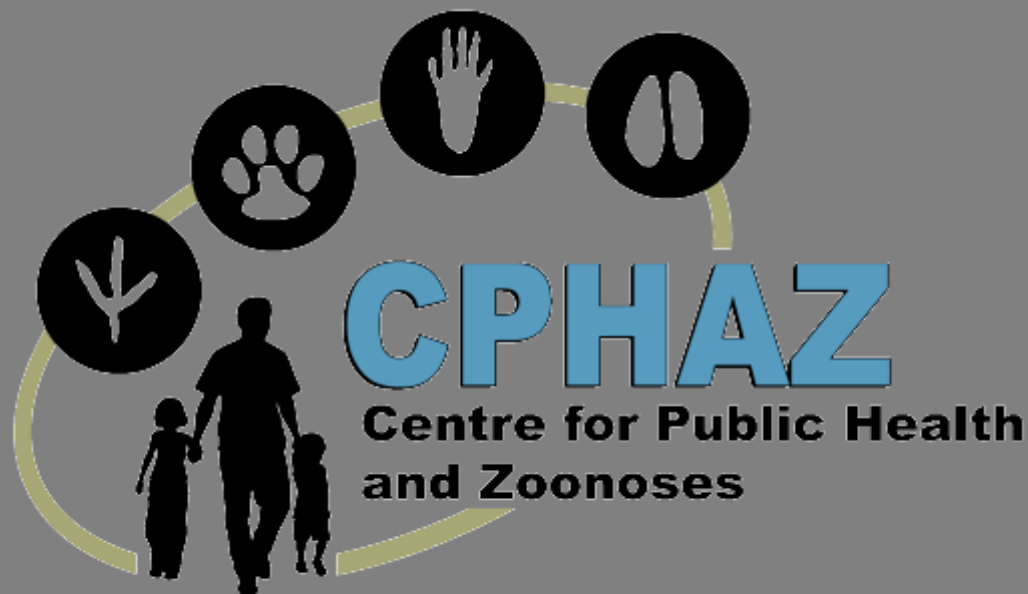
2012

UNIVERSITY
of GUELPH

CHANGING LIVES
IMPROVING LIFE

Centre for Public Health Research Laboratories

Building 49
Ontario Veterinary College
University of Guelph
Guelph, Ontario
N1G 2W1



Centre for Public Health and Zoonoses
Last updated: 6/25/2012



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1.0 Introduction

1.1 CPHAZ Overview

The Center for Public Health and Zoonoses (CPHAZ) was established within the OVC, at the University of Guelph, in 2006. Our focus is to provide a coordinating and leadership role for existing and new initiatives in animal related aspects of public health in research, teaching, and knowledge translation. CPHAZ thus encourages and fosters a multidisciplinary and collaborative research atmosphere.

1.2 Objectives - Philosophy of the Research Laboratories

- The intent is to create a community of practice, where zoonotic disease researchers with diverse disciplinary backgrounds can work together.
- The CPHAZ research laboratories are purely a research facility and not a diagnostic service (**any diagnostic requests will be directed to the Animal Health Laboratory).
- The CPHAZ research laboratories provide space and equipment for short term and long term use and will be managed as a cost recovery laboratory. Our fees reflect the predetermined costs for maintenance, supplies and long term equipment replacement. These fees will be re-evaluated periodically.

2.0 The Facility

2.1 Overview of the facilities

This facility is the product of a one million dollar grant from Canada Foundation for Innovation, with matching funds from the Ontario Research Fund (Ministry of Economic Development and Innovation). The renovated facility includes wet laboratories for bacterial and molecular characterization, computer laboratories for disease modeling and surveillance research, as well as a zoonotic disease isolate sample bank, and space for field collection equipment storage.

General culture facilities provide basic equipment as well as a Sensititre MIC system to determine antimicrobial resistance. The laboratory design will facilitate multiuser collaborative efforts by virtue of a large and functional conventional microbiology laboratory and separate cell culture facilities.

Separate rooms will be available for different procedures including initial sample handling, pulsed field gel electrophoresis, DNA/RNA extraction, and PCR running room. The available equipment includes high throughput instrumentation such as the MagnaPure DNA/RNA extraction system, LightCycler 480 systems and microarray scanner. The Roche Flex Jr and Qiagen Pyromark Q96 ID systems will be available for short and long base pair sequencing.

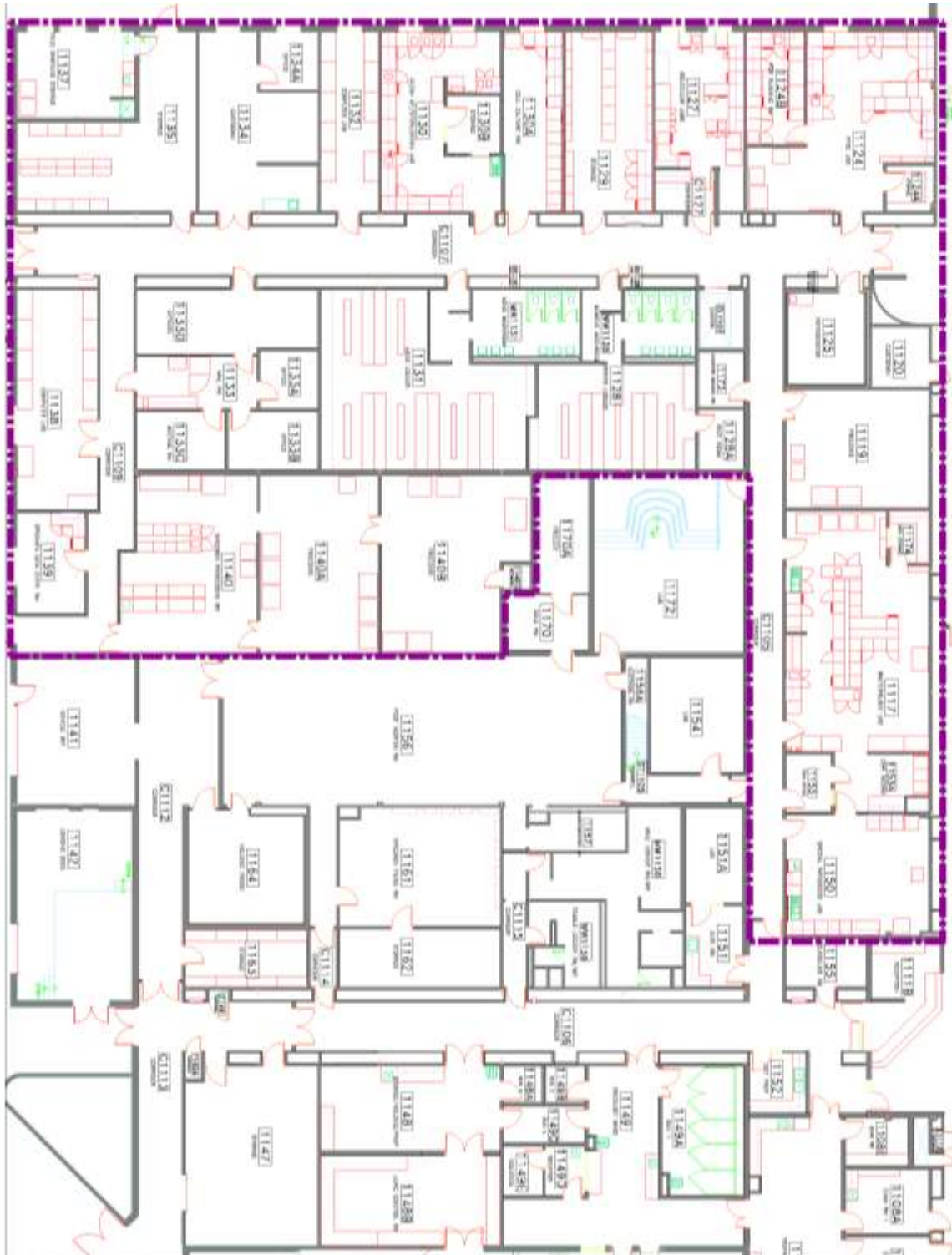
Two complementary computer laboratories are part of this infrastructure. One of these will be located in the Department of Mathematics and Statistics and will focus on infectious disease modeling. The other computer laboratory, located in the new CPHAZ lab area, will focus on quantitative analysis of molecular data and surveillance data. Specialty software will be available in both laboratories.

The new facilities include cryostorage facilities to allow researchers to begin to build a bank of zoonotic disease isolates and samples. Isolates of zoonotic disease agents can be used to identify virulence factors, conduct molecular studies, develop and validate diagnostic tests, and develop vaccines. This information in turn provides improved diagnostics for field applications and provides the foundation for the conceptualization of new applied research studies. The CPHAZ isolate bank will be a central resource of isolates and samples, with standardized sources and epidemiological data collection. As isolates are characterized by new tests of methods, the continued adding of this information to the isolate database will create, over time, a unique and innovative resource that can be used to address new research questions.

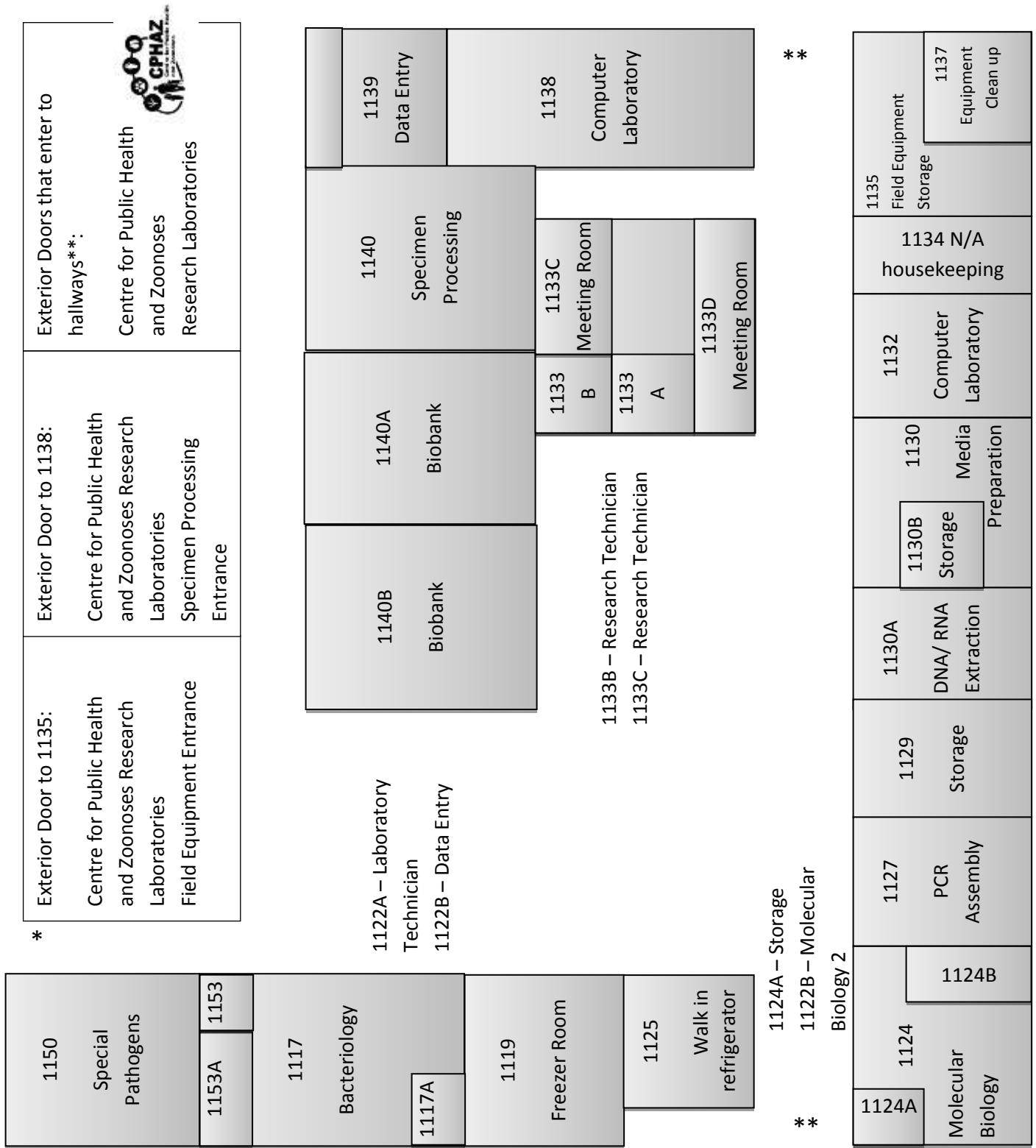
The new CPHAZ facility will be for use by CPHAZ members, their graduate students and collaborators. This facility will have some space available for technicians and students to work. We encourage cross-disciplinary research and look forward to research in public health and the prevention and control of zoonotic diseases coming out of this facility.

2.2 Map of the facility

The dotted lines define the CPHAZ Research Laboratories space within the main floor of building 49.



2.3 Details on CPHAZ Research Area



2.4 Room Descriptions

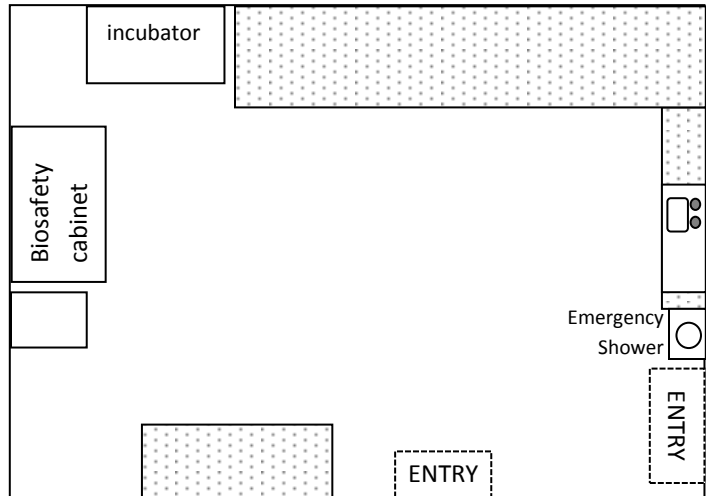
a. Bacteriology Laboratories

These are two level 2 laboratories dedicated to the culture and identification of micro-organisms. In addition, a Sensititre system is available for high-throughput testing of antimicrobial resistance in room 1122.

Room Name: General Bacteriology and Sample Processing

Room number: 1150

Square Footage: 500 sq. ft.



Room Name: General Bacteriology

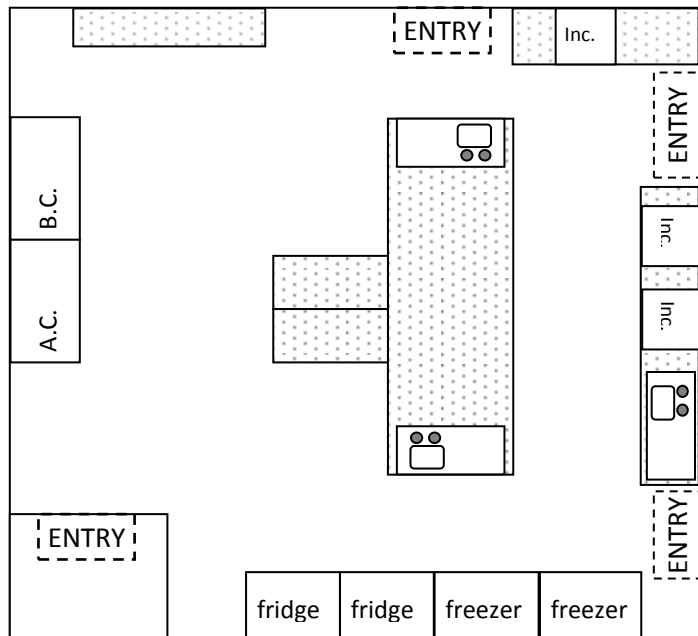
Room number: 1117

Square Footage: 1000 sq. ft.

notes: A.C. = Anaerobic Chamber

B.C. = Biosafety Cabinet

Inc. = Incubator



b. Molecular Laboratories

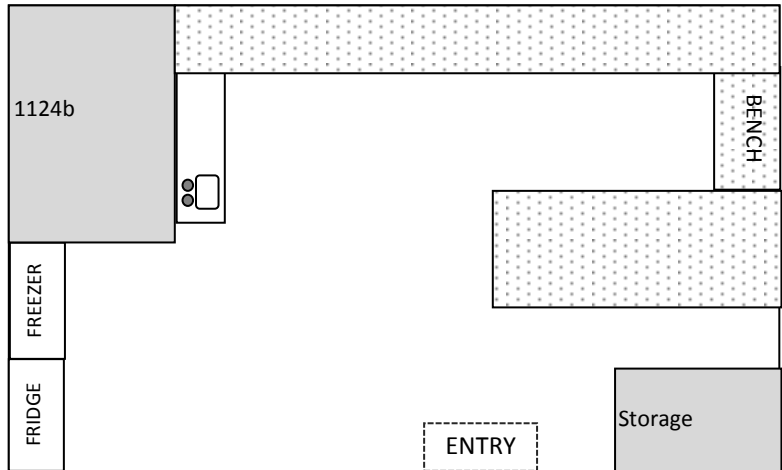
Four laboratories are dedicated to molecular techniques and diagnostics. The laboratories are designed to maximize through-put while minimizing risk of contamination. Separate rooms are dedicated to different procedures ranging from DNA/RNA extraction to sequencing.

Room Name: Molecular Biology

Room Number: 1124

Square Footage: 600 sq. ft.

Descriptions/Needs: *This is not a level 2 laboratory.*

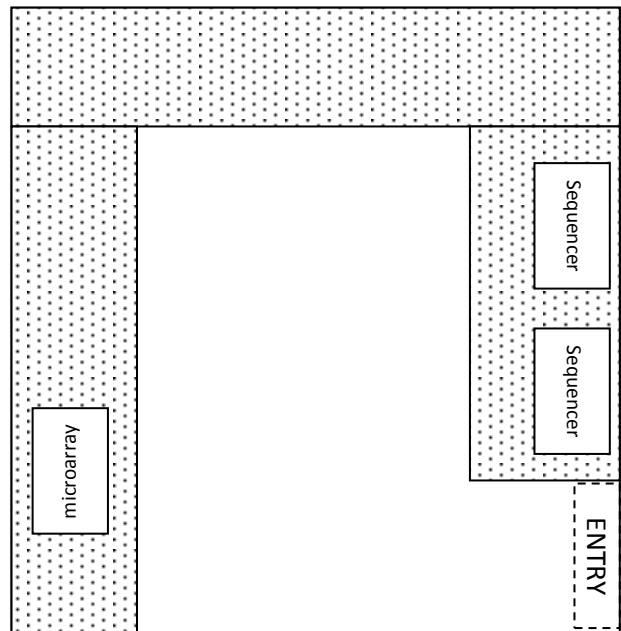


Room Name: Molecular Biology 2

Room Number: 1124b

Square Footage: 300 sq. ft.

Descriptions/Needs: *This is not a level 2 laboratory.*

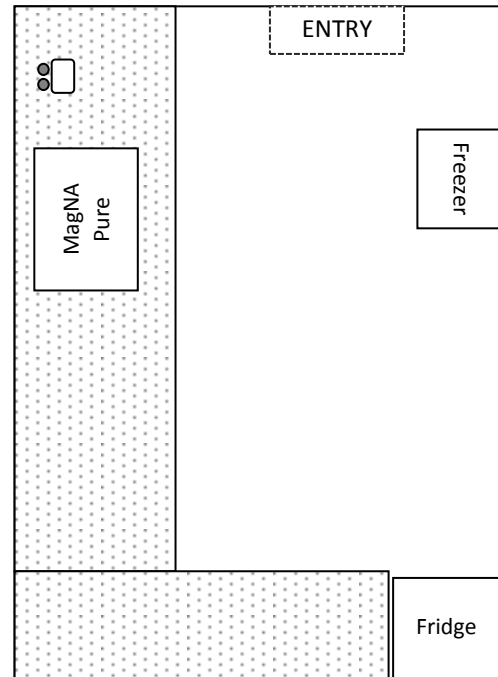


Room Name: DNA/RNA Extraction

Room Number: 1130A

Square Footage: 300 sq. ft.

Descriptions/Needs: *This is a level 2 laboratory.*

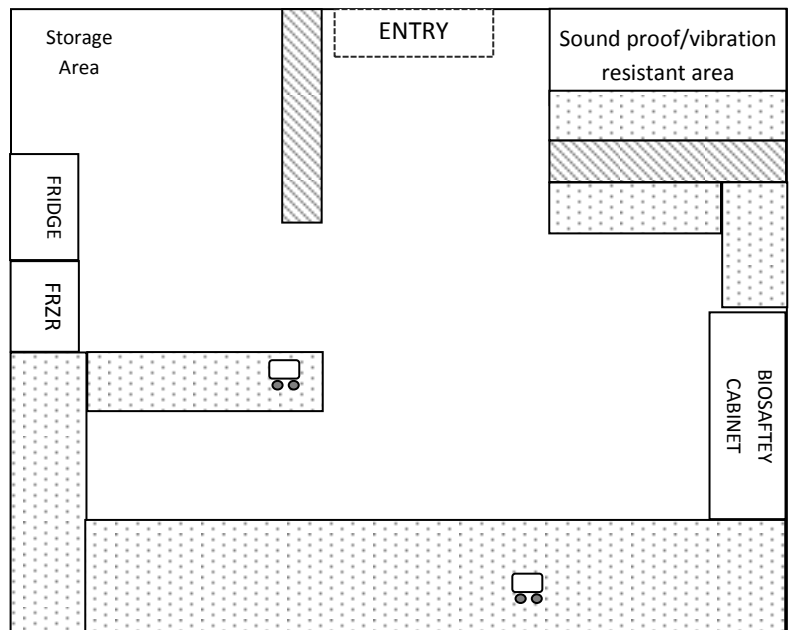


Room Name: PCR Assembly

Room Number: 1127

Square Footage: 450 sq. ft.

Descriptions/Needs: *This is not a level 2 laboratory.*



c. Field Sampling and Processing

Room Name: Equipment Clean Up

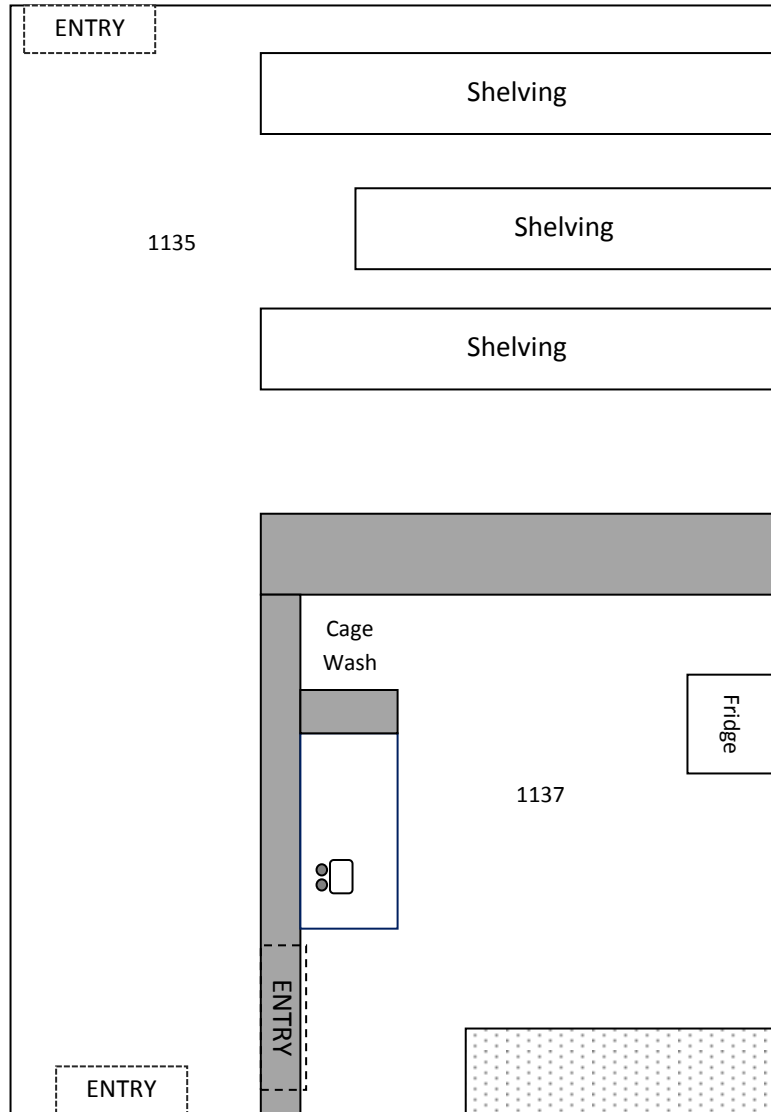
Room Number: 1137

Square Footage: 300 sq. ft.

Room Name: Field Equipment Storage

Room Number: 1135

Square Footage: 450 sq. ft.



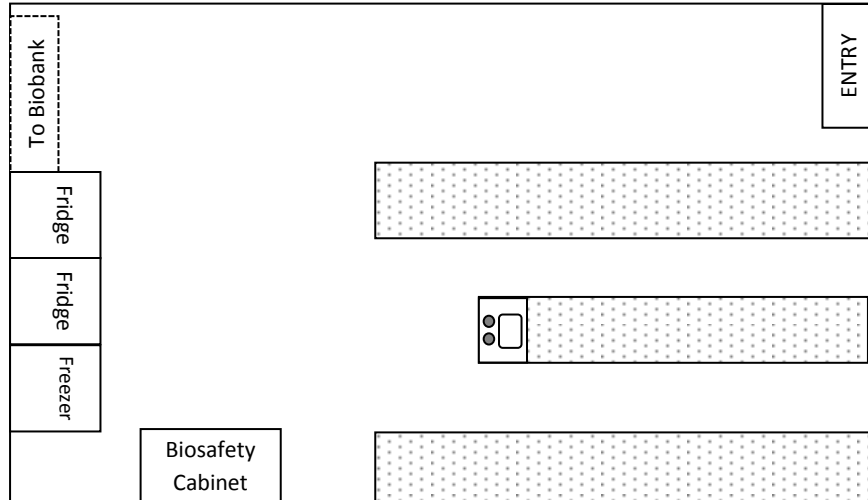
Descriptions/Needs: *This area is used for initial field sample arrival and temporary storage. The room features clean and dirty areas to provide an area for initial sample arrival and sorting and a clean area for equipment and supply storage. There is a large floor sink suitable for washing coolers, traps, etc. Refrigerators and freezers are available for overnight sample storage.*

Room Name: Special Pathogens

Room Number: 1140

Square Footage: 600 sq. ft.

Descriptions/Needs: *This is a level 2 laboratory. This space is for initial processing of samples, prior to moving to the bacteriology lab or submitting to the Animal Health Laboratory or other laboratory for further diagnostics. This room can be used to process tissue, samples, feces, and serum/blood, etc.*



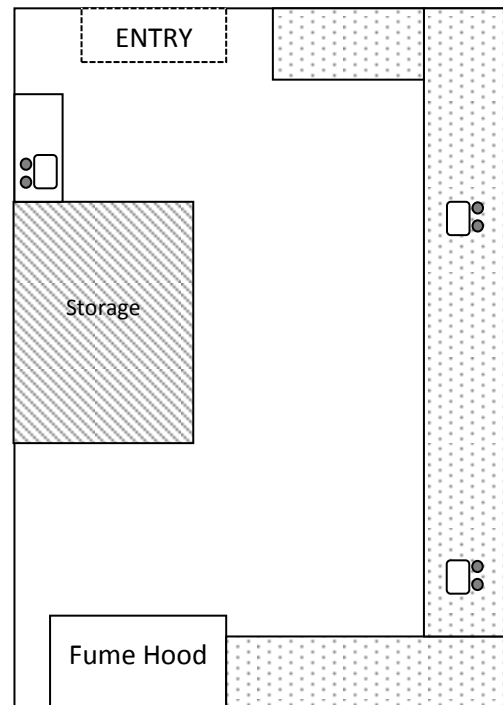
d. Sterilization and Media prep.

Room Name: Media Preparation

Room Number: 1130

Square Footage: 600 sq. ft.

Descriptions/Needs: *This is a level 2 laboratory with media prep, dishwashing and sterilization equipment. There also is a fumehood located in this room.*



e. **Computer Laboratories**

Room Name: Computer Laboratory 1

Room Number: 1138

Square Footage: 500 sq. ft.

Descriptions/Needs: *Room 1138 includes eight Precision workstations with specialised software for analysis of molecular and surveillance data. The room is available for faculty, graduate students and other collaborators who require access to the software. The room is also configured and available for use for a small workshop. Anticipated software programs include, but are not limited to: Bionumerics, PAUP, Latent Gold Advanced, Spacestat, ClusterSeer, DNASTar software (Lasergene, ArrayStar, Genvision), Geneious Pro, Analytica Professional, Vector NTI, R, GenStat, MPlus, and AnyLogic.*

Room Name: Computer Laboratory 2

Room Number: 1132

Square Footage: 300 sq. ft.

Descriptions/Needs: *Room 1132 includes standard desktop computers.*

Room Name: Infectious disease modelling computer room

Room Number: MacNaughton 315

Square Footage: 600 sq. ft.

Descriptions/Needs: *This room includes 12 Mac Pro's with specialized software for infectious disease modelling. This computer system is run by an Apple server. Anticipated software programs include, but are not limited to: Maple, Matlab (includes multiple additional options and toolboxes), Endnote, Adobe Acrobat Pro, Adobe Photoshop, Intel Fortran Professional.*

f. **Biobank**

Room Name: Biobank

Room Number: 1140A + 1140B

Square Footage: 1200 sq. ft.

Descriptions/Needs: *These two rooms will hold the CPHAZ isolate sample bank. Visit www.ovc.uoquelph.ca/cphaz for more information about this initiative.*

3.0 Equipment List

The laboratory will be equipped with standard common use equipment in addition to the following major equipment.

Name	Quantity	Room No.	Notes
Ultra Low Freezers (-86)	10	Biobank rooms	
Cryogenic Freezer (-150)	1	Biobank rooms	
Biological Safety Cabinet	4	1117;1140; 1127; 1150	
Sensititre	1	1117	
Pyromark ID Q96 Sequencer	1	1124b	
Roche Flex Jr Sequencer	1	1124b	
MagnaPure DNA/RNA Extraction	1	1130A	
Microarray Scanner	1	1124b	
Light Cycler 480	2	1124	
Fume Hood	1	1130	
Pulse Field Gel Electrophoresis	4	1124	Gel Doc system as well
Ice Machine	1	1130	
Incubator	multiple	1117, 1140, 1150	CO2 and mixed gas incubators
Thermal Cyclers (eg. Eppendorf Mastercycler)	multiple	1124	
Live Animal Traps	Various sizes and quantities		800 small rodent traps and various size raccoon traps (20 of each size – 3 different sizes)
Autoclave	2	1130	Sizes: 84L tabletop 32L upright