**BL2/BSL-2/BL2-P SELF-INSPECTION CHECKLIST**

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| **Section 1: instructions** |

1. Using the checklist below, inspect your lab and note any deficiencies that need to be addressed (the PI may assign a senior lab member to complete the checklist but the PI must review, date and sign the checklist).
2. Sign and date the completed checklist.
3. The BSL-2 self-inspection is only used for annual reviews. Upload the completed self-inspection into the annual review page of IBC Protocol Management (<https://secure.research.vt.edu/ibc>).
4. If you have any questions, please contact the IBC administrator at ibc@vt.edu, or 540-231-1910.

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| **Section 2: General Laboratory Information** |

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| Lab PI/Contact Person: | Self-Inspection Date: |
| Lab Location (Bldg/Room #) | Dept: | Phone #: |
| Type of Agents In Use( ) Recombinant DNA: ( ) Bacteria: ( ) Parasite: ( ) Toxin: ( ) Virus: ( ) Prion: ( ) Fungus: ( ) Plant ( ) Human or primate cells, tissue, blood or body fluids ( ) Animals ( ) Other |
| **BL2 (Biosafety Level 2 - NIH):** is suitable for work involving agents of moderate potential hazard to personnel and the environment. Laboratory personnel have specific training in handling pathogenic agents and are directed by competent scientists. Access to the laboratory is limited when work is being conducted. Certain procedures in which infectious aerosols are created are conducted in biological safety cabinets or other physical containment equipment.**BSL-2 (Biosafety Level 2-BMBL):** builds upon the practices, procedures, containment equipment, and facility requirements of BSL-1. BSL-2 is suitable for work done with the broad spectrum of indigenous moderate-risk agents that are present in the community, are associated with human disease of varying severity and pose a moderate risk to lab personnel or the environment. Lab personnel must demonstrate proficiency in special microbiological procedures. It also addresses hazards from ingestion as well as from percutaneous and mucous membrane exposure.**BL2-P (Biosafety Level 2 -Plants - NIH):** is designed to provide a greater level of containment (than BL1-P) for experiments involving plants and certain associated organisms in which there is a recognized possibility of survival, transmission, or dissemination of recombinant/synthetic nucleic acid (rsNA)-containing organisms, but the consequence of such an inadvertent release has a predictably minimal biological impact.BMBL: Biosafety in Microbiological and Biomedical Laboratories (6th Edition) |

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| **Section 3: Self-Inspection Checklist** |

| ***Reference*** | ***STATEMENT*** | ***Y*** | ***N*** | ***N/A*** | ***Comments*** |
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|  | ***Standard Microbiological Practices*** |  |  |  |  |
| *BMBL:A1**NIH:G-II-B-1-a**NIH:G-II-B-2-b* | * Access doors to the laboratory are controlled. The Principal Investigator (PI) has determined how to limit or restrict access to the lab when work with BSL-2 material, infectious organisms, organisms containing recombinant/synthetic nucleic acid (rsNA) molecules or potentially infectious material is in progress.
* Doors are locked when no one is in the lab for extended periods.
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| *VT-EHS* | * Emergency Contact Sign is posted and has current contact information.
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| *BMBL:A9**NIH:G-II-B-2-d* | * A hazard warning sign incorporating the universal biohazard symbol is posted on all access doors to the laboratory, where materials involving anything infectious or organisms containing rsNA moleculesare used or stored. The sign includes:
* the name and phone number of the PI, laboratory supervisor or other responsible personnel (can be on emergency contact sign)
* The biosafety level
* Required PPE for working with the material
* Any requirements ( e.g., medical, escort) for entering the lab
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| *VT-EHS* | * No eating, smoking or drinking signs are posted on each access door if no building policy is in place.
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| *BMBL:A2**NIH:G-II-B-1-f* | * Persons wash their hands after working with materials and before leaving the laboratory.
* If visitors touch anything in the lab they wash their hands before leaving the lab.
* Hand washing protocols are rigorously followed and enforced.
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| *BMBL:A3**NIH:G-II-1-e* | * Eating, drinking, handling contact lenses, applying cosmetics, and storing food for human consumption is not permitted in the laboratory. Food is stored outside the laboratory in cabinets or refrigerators designated and used only for this purpose.
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| *BMBL:A4**NIH:G-II-B-1-d* | * Mouth pipetting is prohibited; mechanical pipetting devices are used.
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| *BMBL:A5**NIH:G-II-B-2-j* | * Policies for the safe handling of sharps, such as needles, scalpels, razors, glass slides, pipettes, and broken glassware are in place and are enforced. Plastic ware has been substituted for glassware whenever possible. Improved engineering and work practice controls that reduce risk of sharps injuries have been adopted. Precautions, including those listed below, are taken with sharp items. These include:
* Careful management of needles and other sharps are of primary importance. Needles are not bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before disposal.
* Extreme caution is used when handling needles and syringes to avoid autoinoculation and the generation of aerosols during use and disposal.
* Hypodermic needles and syringes are used only for parenteral injection and aspiration of fluids from laboratory animals and diaphragm bottles.
* Only needle-locking syringes or disposable syringe-needle units (i.e., needle is integral to the syringe) are used.
* Used disposable needles and syringes and other sharps are promptly and carefully placed in conveniently located puncture-resistant containers used for sharps collection.
* Puncture –resistant sharps containers are decontaminated prior to being disposed of through the Regulated Medical Waste (RMW) program.
* Non-disposable sharps are placed in a hard walled container for transport to a processing area for decontamination.
* Broken glassware is not handled directly. It is removed using a brush and dustpan, tongs, or forceps.
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| *BMBL:A6**NIH:G-II-B-1-g* | * All procedures are performed carefully to minimize the creation of splashes and/or aerosols.
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| *BMBL:A7**NIH:G-II-B-1-b* | * Work surfaces are decontaminated with an appropriate disinfectant after completion of work and after any spill or splash involving biological materials.
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| *BMBL:A8**NIH:G-II-B-1-c**NIH:G-II-B-2-i**VT-EHS* | * All cultures, stocks, and materials involving potentially infectious, infectious, or organisms containing rsNA molecules are decontaminated, using an effective method, before disposal. Autoclaving is the preferred method for decontamination
* All Biological Waste Procedures are followed.
* After decontamination all solid waste is disposed of as [Regulated Medical Waste](http://www.ehss.vt.edu/programs/waste_regulated_medical.php) (RMW).
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| *NIH:G-II-B-2-a**BMBL:B6**VT-EHS* | * Before being removed from the laboratory, contaminated or potentially infectious materials are placed in a durable leak-proof container which is closed and disinfected on the outside and disinfected on the outsdie al and agree to follow all procedures.
* If contaminated or potentially infectious materials are to be removed from the building they are placed in a primary leak proof container which is disinfected on the outside and then placed within a durable, leak proof secondary container. The outside of the secondary container is disinfected and secured for transport. A biohazard symbol is on the primary container.
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| *VT-EHS* | * A current and accurate list of organisms containing rsNA, potentially infectious material, and toxins is available on the inside of the lab access door or in the lab specific biosafety manual.
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| *BMBL:A10**NIH:G-II-B-2-e* | * A written effective integrated pest management program is in place (Sect. 17 of your lab-specific biosafety manual).
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| *BMBL:A11**NIH: Appx.G1* | * All personnel directly or indirectly involved in experiments using potentially infectious, infectious, or rsNA material receive adequate instruction before working in the lab. At a minimum these instructions include:
* Biosafety for Research Labs training
* Information on the practices, procedures, techniques and duties required to ensure safety
* training in aseptic techniques
* training in the biology of the organisms used in the experiments so that the potential biohazards can be understood and appreciated
* training on all other hazards in the lab
* training on the proper use of personal protective equipment (PPE)
* training on the emergency plan that describes the procedures to be followed if an accident contaminates personnel or the environment
* information of the reasons and provisions for any precautionary medical surveillance/practices
* NIH Guidelines training for anyone handling rsNA material/organisms (see [IBC website](https://www.research.vt.edu/ibc/review-approval-training.html))
* Personnel receive annual updates and additional training when procedural or policy changes occur.
* Documentation of all training is maintained for a minimum of three years after the date of training.
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| *BMBL:B1**NIH:G-II-B-2-c* | * All persons entering the lab are advised of the potential hazards and meet specific entry/exit requirements.
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| *NIH: Appx.G1* | * An emergency plan that describes the procedures to be followed if an accident contaminates personnel or the environment is available and accessible. Everyone in the laboratory is familiar with both the potential hazards of the work and the emergency plan.
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| *VT-EHS* | * Lab specific Chemical Hygiene Plan and MSDS’s are available
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| *VT-EHS* | * All chemicals and disinfectants are properly labeled.
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| *VT-EHS* | * Spill and emergency procedures are posted.
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|  | ***Special Practices*** |  |  |  |  |
| *BMBL:B4**NIH:G-II-B-2-m* | * A Lab-Specific Biosafety manual is available and has been adopted as policy. The biosafety manual is available and accessible to all personnel. Personnel are advised of hazards and are required to read and follow instructions on practices and procedures.
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| *BMBL:B2**NIH: Appx.G1* | * Laboratory personnel have completed the **medical surveillance survey** and are provided medical surveillance, as appropriate. Personnel are offered available immunizations for agents handled or potentially present in the laboratory
* Personnel update their medical surveillance form annually and whenever their potential exposure to infectious material changes.
* Personnel monitor their health status daily.
* Personal health status may impact an individual’s susceptibility to infection, ability to receive immunizations or prophylactic interventions. Therefore, all laboratory personnel and particularly women of childbearing age are provided information regarding immune competence and conditions that may predispose them to infection. Individuals having these conditions are encouraged to self-identify to the institution’s healthcare provider for appropriate counseling and guidance.
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| *BMBL:B5* | * Laboratory personnel have demonstrated proficiency in standard and special microbiological practices, to the PI or lab manager, before working with biological material. This proficiency is documented.
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| *BMBL:B7* | * Laboratory equipment used in the manipulation of materials involving biological organisms is routinely decontaminated with an effective disinfectant.
* Equipment is decontaminated after spills, splashes, or other potential contamination and before repair, maintenance, or removal from the laboratory.
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| *BMBL:B8**NIH:G-II-B-2-k* | * Spills, accidents, or incidents which may result in exposures to biological organisms or toxins are immediatelyevaluated and treated according to procedures described in the laboratory biosafety manual/emergency plan. These events arereported to the Institutional Biosafety Officer at the earliest possible moment. Medical evaluation, surveillance, and treatment are provided as appropriate and written records are maintained.
* Spills involving biological materials are contained, decontaminated, and cleaned up by staff properly trained and equipped to work with the material.
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| *BMBL:B9**NIH:G-II-B-2-g* | * Animals and plants not associated with the work being performed are not permitted in the laboratory.
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| *BMBL:B10* | * All procedures involving the manipulation of infectious materials that may generate an aerosol should be conducted within a BSC or other physical containment devices.
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|  | ***Safety Equipment*** |  |  |  |  |
| *BMBL:C1**NIH:G-II-B-3* | * Properly maintained Biological Safety Cabinets (BSC), other personal protective equipment (e.g., gloves, lab coats, face shields, respirators, etc.) and/or other physical containment devices or equipment, are used whenever conducting procedures with a potential for creating aerosols or splashes are conducted. These may include pipetting, centrifuging, grinding, blending, shaking, mixing, sonicating, opening containers of infectious materials whose internal pressures may be different from ambient pressures, inoculating animals intranasally, harvesting infected tissues from animals or eggs or using high concentrations or large volumes of infectious agents. Such materials may be centrifuged in the open laboratory using sealed rotor heads or centrifuge safety cups if they are opened in a biological safety cabinet.
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| *BMBL:C1**NIH:G-II-B-3* | * Centrifuge has safety/biocontainment cups or a sealed rotor
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| *BMBL:C2**NIH:G-II-B-2-f* | * Protective laboratory coats, gowns, or uniforms are worn, when working with biological materials to prevent contamination of personal clothing.
* Protective clothing is removed and left in the lab before leaving for non-laboratory areas, e.g., cafeteria, library, and administrative offices. All university, departmental and building policies are followed.
* Disposable protective clothing is disposed of with other contaminated lab waste.
* Laboratory clothing is not taken home.
* Reusable clothing is decontaminated, either with an appropriate disinfectant or by autoclaving, before being laundered by the institution.
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| *BMBL:C3* | * Eye and face protection (goggles, mask, face shield or other splatter guard) are used for anticipated splashes or sprays when working with biological materials and toxins when the materials are handled outside the BSC or containment device.
* Eye and face protection is disposed of with other contaminated laboratory waste or decontaminated before reuse.
* Persons who wear contact lenses in laboratories are encouraged to wear eye protection.
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| *BMBL:C4**NIH:G-II-B-2-h* | * Gloves are worn to protect hands from potential exposure to biological materials and toxins. Glove selection is based on an appropriate risk assessment. Alternatives to latex gloves are available.
* In addition, workers:
1. Change gloves when contaminated, glove integrity is compromised, or when otherwise necessary
2. Remove gloves and wash hands when work with hazardous materials has been completed and before leaving the laboratory.
* Do not wash or reuse disposable gloves. Dispose of used gloves with other contaminated laboratory waste.
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| *VT-EHS* | * Biohazard labels are on all equipment or items that could be contaminated. (i.e., anything used to store or manipulate infectious material)
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| *VT-EHS* | * Spill equipment is available.
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|  | ***Laboratory Facilities*** |  |  |  |  |
| *BMBL:D1* | * The lab has doors with locks for access control. Doors should be self-closing are recommended.
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| *BMBL:D2**NIH:G-II-B-4-a* | * The lab has a sink for hand washing. It should be located near the exit door
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| *BMBL:D3**NIH:G-II-B-4-a* | * The laboratory is designed so that it can be easily cleaned. There are no carpets or rugs in lab.
 |  |  |  |  |
| *BMBL:D4**NIH:G-II-B-4-b**NIH:G-II-B-4-c*  | * Spaces between benches, cabinets, and equipment are accessible for cleaning.
* Bench tops are impervious to water and resistant to heat, organic solvents, acids, alkalis, and other chemicals*.*
* Chairs are covered with a non-porous material that can be easily cleaned and decontaminated with appropriate disinfectant.
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| *BMBL:D5**NIH:G-II-B-4-e* | * Laboratory windows that open to the exterior are fitted with screens.
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| *BMBL:D6* | * BSC is installed so that fluctuations of the room air supply and exhaust do not interfere with proper operations. BSCs should be located away from doors, windows that can be opened, heavily traveled laboratory areas, and other possible airflow disruptions.
* BSC is certified annually.
 |  |  |  | **Enter date of last certification:** |
| *BMBL:D7* | * Vacuum lines are protected with liquid disinfectant traps or High Efficiency Particulate Air

 (HEPA) filters or their equivalent.  |  |  |  |  |
| *BMBL:D8* | * An eyewash station is readily available within 50 ft. and 10 unobstructed seconds of any work area.
 |  |  |  |  |
| *BMBL:D9* | * There is no recirculation of lab air to other areas of the building. HVAC systems must be adjusted to provide an inward flow of air if possible.
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| *BMBL:D11* | * A method for decontaminating all laboratory wastes is available in the facility (e.g., autoclave, chemical disinfection, incineration, or other validated decontamination method).
* Autoclave has been verified as per the Autoclave Use and Verification Program
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|  | ***Greenhouse Facilities: BL2-P*** |  |  |  |  |
| *App P-I-A**App P-I-E* | The principal purpose of plant containment is to avoid the unintentional transmission of a recombinant/synthetic nucleic acid (rsNA)-containing plant genome, including nuclear or organelle hereditary material, or release of rsNA-derived organisms associated with plants.These containment practices include the use of plant tissue culture rooms, growth chambers within laboratory facilities, or experiments performed on open benches. |  |  |  |  |
|  | ***Greenhouse – General Practices - Access – Manuals - Records***  |  |  |  |  |
| *App P-II-B-1-a* | * Access to the greenhouse is limited or restricted, at the discretion of the Greenhouse Director, when experiments are in progress.
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| *App P-II-B-1-h* | * A greenhouse practices manual is prepared and adopted. This manual: (i) advises personnel of the potential consequences if such practices are not followed, and (ii) outlines contingency plans to be implemented in the event of the unintentional release of organisms.
 |  |  |  |  |
| *App P-II-B-1-a* | * Prior to entering the greenhouse, personnel are required to read and follow instructions on BL2-P greenhouse practices and procedures. All procedures are performed in accordance with accepted greenhouse practices that are appropriate to the experimental organism.
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| *App P-II-B-1-b* | * A record is kept of experimental plants, microorganisms, or small animals that are brought into or removed from the greenhouse facility.
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| *App P-II-B-1-b* | * A record is kept of experiments currently in progress in the greenhouse facility.
 |  |  |  |  |
| *App P-II-B-1-b* | * The Principal Investigator will report any greenhouse accident involving the inadvertent release or spill of microorganisms to the Greenhouse Director, Institutional Biosafety Committee, University Biosafety Officer and other appropriate authorities immediately. The IBC or University Biosafety Officer will send the appropriate report to NIH/OSP.
 |  |  |  |  |
| *App P-II-B-1-e* | * Experiments involving other organisms that require a containment level lower than BL2-P may be conducted in the greenhouse concurrently with experiments that require BL2-P containment. Under these circumstances all work is conducted in accordance with BL2-P greenhouse practices.
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|  | ***Decontamination/Inactivation – Autoclave - Transfer*** |  |  |  |  |
| *App P-II-B-1-c* | * Experimental organisms are rendered biologically inactive by appropriate methods before disposal outside of the greenhouse facility.
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| *App P-II-B-2-c* | * An autoclave is available for the treatment of contaminated greenhouse materials.
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| *App P-II-B-1-g* | * Materials containing experimental microorganisms, which are brought into or removed from the greenhouse facility in a viable or intact state, are transferred in a closed non-breakable container.
 |  |  |  |  |
| *App P-II-B-1-c* | * Decontamination of run-off water is not necessarily required. If part of the greenhouse is composed of gravel or similar material, appropriate treatments will be made periodically to eliminate, or render inactive, any organisms potentially entrapped by the gravel.
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|  | ***Control of Undesired Species and Motile Macroorganisms*** |  |  |  |  |
| *App P-II-B-1-d* | * A program has been implemented to control undesired species (e.g., weed, rodent, or arthropod pests and pathogens), by methods appropriate to the organisms and in accordance with applicable state and Federal laws.
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| *App P-II-B-1-d* | * Arthropods and other motile macroorganisms are housed in appropriate cages. If macroorganisms (e.g., flying arthropods or nematodes) are released within the greenhouse, precautions are taken to minimize escape from the greenhouse facility.
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|  | ***Facilities - Design - Signage*** |  |  |  |  |
| *App P-II-B-2-a**App P-II-B-2-a* | * The term "greenhouse" refers to a structure with walls, a roof, and a floor designed and used principally for growing plants in a controlled and protected environment. The walls and roof are usually constructed of transparent or translucent material to allow passage of sunlight for plant growth.
* The term "greenhouse facility" includes the actual greenhouse rooms or compartments for growing plants, including all immediately contiguous hallways and head-house areas, and is considered part of the confinement area.
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| *App P-II-B-1-f* | * A sign is posted indicating that a restricted experiment is in progress. The sign indicates the following: (i) the name of the responsible individual, (ii) the plants in use, and (iii) any special requirements for using the area.
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| *App P-II-B-1-f* | * If organisms are used that have a recognized potential for causing serious detrimental impacts on managed or natural ecosystems, their presence is indicated on a sign posted on the greenhouse access doors.
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| *App P-II-B-1-f* | * If there is a risk to human health, a sign is posted incorporating the universal biosafety symbol.
 |  |  |  |  |
| *App P-II-B-2-b* | * A greenhouse floor composed of an impervious material. Concrete is recommended, but gravel or other porous material under benches is acceptable unless propagules of experimental organisms are readily disseminated through soil. Soil beds are acceptable unless propagules of experimental organisms are readily disseminated through soil.
 |  |  |  |  |
| *App P-II-B-2-b* | * Windows and other openings in the walls and roof of the greenhouse facility may be open for ventilation as needed for proper operation and do not require any special barrier to exclude pollen or microorganisms; however, screens are required to exclude small flying animals (e.g., arthropods and birds).
 |  |  |  |  |
| *App P-II-B-2-d* | If intake fans are used, measures are taken to minimize the ingress of arthropods. Louvers or fans shall be constructed such that they can only be opened when the fan is in operation. |  |  |  |  |
| *App P-II-B-2-e* | BL2-P greenhouse containment requirements may be satisfied by using a growth chamber or growth room within a building provided that the external physical structure limits access and escape of microorganisms and macroorganisms in a manner that satisfies the intent of the foregoing clauses. |  |  |  |  |

**By typing your name *below,* you agree *that this is valid as your signature***

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| *Electronic signature:*  |
| *Date:*  |