

**UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE**

**CONTAINMENT GUIDELINES
For Educational Displays of Adult, Butterflies
and Moths (Lepidoptera)**

(Revised 7/23/02)

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE
PEST PERMIT EVALUATIONS, UNIT 133
4700 RIVER ROAD
RIVERDALE, MARYLAND 20737

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I. PURPOSE OF THIS DOCUMENT

These guidelines are a reference to help you prepare to comply with the USDA APHIS regulations that oversee import, interstate transport, and possession of organisms regulated by the Plant Protection Act of 2000. The guidelines will help in designing, building, maintaining, and operating a permanent containment facility for non-indigenous, known species of butterflies and moths (Lepidoptera) from pure cultures. These organisms are usually imported only as pupae. The resulting adults are typically displayed in free-flight enclosures accessible to the public. They may be used in educational displays in zoos, museums, and other public facilities (limitations will be stipulated in the PPQ 526 Permit conditions).

These Lepidoptera may be contaminated with organisms, such as: plants, Arthropods, plant parts, parasitoids, hyperparasites, plant and Arthropod disease organisms, etc.

During inspections or re-inspections of your facility, USDA, APHIS, PPQ personnel will review these guidelines and any risk mitigation instructions that may accompany your permit. When your facility meets containment standards, USDA, APHIS, PPQ, Pest Permit Evaluations Staff in Riverdale, Maryland will determine when your facility meets containment standards so that federal permits for organisms you apply for may be issued.

Components of this Document:

To enable issuance of your permit(s), your containment site must meet the **Performance Standards** listed in the gray, shaded boxes. Numerous engineering designs may be available to help you meet these standards. **We strongly encourage you to discuss engineering aspects with qualified professionals.** Professionals know State, local and Federal laws that regulate construction. PPQ only evaluates the physical and operational containment characteristics of a facility, and does not regulate the installation of emergency doors, vestibule doors, incinerators, air intake and exhaust ducts, emergency lighting, plumbing, and many other features. In addition, the design, construction and operation of your containment facility may vary depending on the organisms you wish to contain and your geographic location.

The **Suggestions** listed under each Performance Standard are methods or equipment that commonly are used at this time to accomplish each containment standard. This document offers information on construction, equipment, and operational topics that PPQ currently considers prior to issuing a permit for non-indigenous Lepidoptera used in public displays. However, you may have alternative methods to contain these organisms.

USDA, APHIS, PPQ welcomes alternatives that are proven to meet or exceed the standards. To insure timely permitting, please review this document, and research design alternatives. Once design options are narrowed, call or fax PPQs Containment Facilities group at (301) 734-5304 or FX (301) 734-5392 and continue discussions as the facility is planned and built.

PRIMARY PERFORMANCE CRITERIA- Lepidoptera Display

The inspection and permitting procedures of the USDA APHIS PPQ are intended to prevent the release of non-indigenous Lepidoptera and possible associated contaminants into the environment of the United States. Accidental or purposeful release of these Lepidoptera is a violation of the [Plant Protection Act](#).

These Performance Criteria apply to all containment facilities and permits issued to those facilities as described by this document.

II. CONSTRUCTION STANDARDS FOR THE ENTIRE CONTAINMENT STRUCTURE

CONSTRUCTION STANDARD A. Locate the facility in areas with minimal human, agricultural and environmental risk. Identify the facility as dedicated and secure.

SUGGESTIONS:

1. Locate the facility in areas relatively free of agricultural zones, environmentally sensitive areas (e.g. areas with endangered species that may be negatively impacted by accidental release), high risk microclimates (e.g. known flood zones) or other high-risk areas.
2. Design the containment facility as a separate, dedicated building. If this is not possible, design and build to prevent pest escape.
3. At the public or main entry, post:
 - Containment director/ containment officer name and contact numbers.
 - Emergency telephone numbers.

CONSTRUCTION STANDARD B. Design the **Floor Plan** of the facility to prevent escape of the enclosed Lepidoptera.

SUGGESTIONS:

1. Plan at least two adjacent rooms for the contained Lepidoptera;
 - The first room, or Receiving Room, is for the receipt of packages and manipulation of imported Lepidoptera pupae. This room may be a glasshouse, and it may include a laboratory and other rooms. This room can not be accessible to the public and must be lockable.
 - The second room is for the public display of contained adult Lepidoptera. This room may also be a glasshouse.
2. Build a vestibule at each entrance and/or exit of the Receiving Room and the Display area. A single vestibule may not be used for both the Display area and the Receiving Room. However, the exterior vestibule door of the Receiving Room may open into the Display area, or into the interior of the vestibule of the Display area. Enclosed lobbies, gift shops, etc. may count as a vestibule chamber for the display area, but not for the Receiving Room.
3. See section III. CONSTRUCTION STANDARDS FOR SPECIALIZED ROOMS for recommended features of the Receiving Room, the public Display Room, Glasshouse, Restrooms, and Vestibules.
4. Install an air curtain above the interior doorway of each vestibule.
5. Build public restrooms outside of containment rooms. However, if restrooms must be built inside a containment room, use the same construction standards as listed for that type of containment room.
6. Build offices outside of containment areas.
7. Install self-closing doors throughout the containment areas.
8. Install exterior doors that lock.
9. Block the windows of the most interior doors leading from the containment rooms with blinds or other covers to prevent flying Lepidoptera from moving toward light, toward the doors and beyond.
10. When exterior doors are opened, air should move from the outside environment to inside the containment areas.
11. Air should move from the least to most hazardous rooms (i.e. from Display to Receiving Room).

CONSTRUCTION STANDARD C. Construct Walls, Ceilings and Floors that are impenetrable to the enclosed organisms, and withstand repeated cleaning and decontamination.

SUGGESTIONS:

1. Construct the walls and ceilings with building materials that resist moisture and withstand repeated decontaminations with bleach or other caustic solutions. Suspended or dropped ceilings are not acceptable in the Receiving Room.
2. Install floors that are impenetrable to the organism and withstand repeated cleanings.
3. Seal junctions, holes or penetrations of walls, ceilings, and floors with plaster, caulk, or equivalent materials.
4. Paint the ceilings and walls with a light-colored, washable paint.

CONSTRUCTION STANDARD D. Windows are not required, but if they are installed, use Windows impenetrable to the enclosed organisms.

SUGGESTIONS:

1. Install glazing that resists breakage (safety glass, wire-reinforced glass, Plexiglas, etc.). If windows open to areas outside of containment the window must be covered with suitable screening.
2. Seal joints between the glazing, windowsills, frames, etc. and walls with appropriate materials.
3. Store extra window panels nearby for emergency use.

CONSTRUCTION STANDARD E. Install Doors that contain the organism and contribute to the security of the facility.

SUGGESTIONS:

1. Install self-closing doors throughout the containment areas.
2. Install exterior doors that lock.
3. Lock emergency exit doors from the outside.
4. Install doors that close tightly to their frames and thresholds, and have door sweeps.
5. Doors for vestibules into the Receiving Room must completely seal to their frames and thresholds with gaskets, seals and sweeps (e.g., rubber, Neoprene, magnetic, door sweeps).

6. Post signs on the exterior and interior of the emergency door that state, USDA-APHIS Containment Facility - Emergency Exit Only.
7. Install audible alarms that activate when emergency exit doors are opened.
8. Install an air curtain above the interior door of emergency exits. Fans must activate when emergency exit door is opened.

CONSTRUCTION STANDARD F. Design and install an **HVAC System** (Heating, Ventilation and Air Conditioning) that prevents escape of the contained organisms.

SUGGESTIONS:

1. If possible, install an HVAC system dedicated to the containment areas. If not possible, then insure actions are taken to prevent organism escape from an HVAC connected to other areas or buildings.
2. Install metallic screen over all air sources and exhaust vents to prevent the entrance of local organisms and exit of contained organisms. **Nylon, fiberglass, and plastic screen are not acceptable, because these materials damage easily and some breakdown with UV exposure.** For information on the size of the mesh screens, check the specific type of containment room for prescribed screen size.
3. To slow the clogging of the filters and the subsequent reduction in HVAC efficiency, ask your design engineer about dust filters placed in front of the filters.
4. When exterior doors are opened, air should move from the outside environment to inside the containment areas.
5. Air should move from the least to most hazardous rooms (i.e. from Display to Receiving Room).
6. Seal connections in air ducts, plenums, boots, etc. with caulk or an equivalent material.
7. Seal vent housing to interior surfaces with caulk, building foam, silicon, or an equivalent material.
8. Install filters and screens in the HVAC system so they are easy to clean, decontaminate and replace.

CONSTRUCTION STANDARD G. Design and install an **Electrical System** that maintains containment features under normal and emergency situations and is impenetrable to the contained organisms.

SUGGESTIONS:

Install weatherproof electrical boxes, receptacles, light fixtures, switches, etc. in all containment rooms.

1. Seal electrical boxes, lighting, switches, wiring, conduit, etc, with appropriate materials (caulk, foam, etc.) that are impenetrable to the contained organisms and withstand repeated decontaminations with bleach or other caustic solutions.
2. Install an alternative power source (generator, battery bank, etc.) for use when normal power is lost or interrupted.
3. Install an alarm to indicate power failure.

CONSTRUCTION STANDARD H. Design and install a **Plumbing System** to contain the organisms and remove liquid wastes.

SUGGESTIONS:

1. Install a sink in the Receiving Room for cleaning.
2. Seal sewer or drains (sink, floor, shower, etc.) with metallic screen to prevent the exit of contained organisms. **Glass or openable “J” traps are a suitable location for installing screening.** For information on the size of the mesh screens, check the specific type of containment room for prescribed screen size.

III. CONSTRUCTION STANDARDS FOR SPECIALIZED ROOMS

CONSTRUCTION STANDARDS FOR SPECIALIZED ROOMS A. Build Glasshouses to prevent the escape of any Lepidoptera. (Glasshouses may be used for Display and/or Receiving Rooms. If used for these purposes, also review the standards listed under Display and/or Receiving Rooms rooms.)

SUGGESTIONS:

1. Extend the foundation below the soil line to insure a permanent and stable structure.
2. Construct glasshouse floors of materials that are impervious to the contained organisms and can withstand repeated disinfection with caustic liquids
3. Install a frame strong enough to support the translucent walls and ceilings under all anticipated weather conditions (snow, ice, wind, etc.).
4. Install translucent wall and ceiling materials strong enough to guarantee the security of the facility. Examples of acceptable materials are; Plexiglas, lumite, lexan, safety glass, and wire-reinforced glass. Polyethylene, vinyl or plastic sheeting is NOT acceptable.
5. Seal junctions and joints between frame, panels, walls, and foundation with a suitable caulk or equivalent material.
6. Consider the installation of screens over the roof to protect it from hail.
7. Between the glasshouse and other rooms, install doors that seal completely to their frames and have floor sweeps. Use doors that are windowless or have windows covered by blinds.
9. Regardless of its use, if the containment glasshouse is a detached structure, install a vestibule at each entry and /or exit. (See specialized room section on Vestibules for instructions on installing air curtains and vestibules.)

CONSTRUCTION STANDARDS FOR SPECIALIZED ROOMS B.
Build Public Display Rooms with security and containment features that allow entry and exit of visitors, but prevent exit of contained Lepidoptera.

SUGGESTIONS:

1. Minimize the number of entry and exit areas to help monitor visitors.
2. Install a vestibule at each entry and/or exit to this room. (See section III. D CONSTRUCTION STANDARDS FOR SPECIALIZED ROOMS Vestibules.)

3. Install an air curtain across the full width of the top of the interior doors of the Display Room. Set fans at an angle and speed to blow airborne organisms back into these rooms when the doors are opened.
4. Seal floors with durable, impenetrable materials that withstand repeated decontaminations.
5. Cover floor and sink drains with 16 mesh, metallic screen.
6. Install baseboards at the junctions of the floor and walls to seal crevices and help collect Arthropods on the floor.
7. For the interior door from the Display Room, install a windowless door, or darken the door window with blinds or other covers to prevent organisms from moving toward the doors and beyond.
8. Cover all open windows, air intake and exhaust vents with 16 mesh, metallic screen (aluminum, copper, stainless steel, etc.). **Nylon, fiberglass, and plastic screen are not acceptable.**

CONSTRUCTION STANDARDS FOR SPECIALIZED ROOMS C.

Build the **Receiving Room** with security and containment features that prevent escape of Lepidoptera, their parasitoids, and pathogens.

SUGGESTIONS:

1. Install floors that are impenetrable to the contained organism. Monolithic (one-piece) floors, (e.g. poured concrete) are preferred.
2. Seal floors with durable, impenetrable materials that withstand repeated decontaminations with Bleach or other caustic solutions; for example, asphalt or vinyl tile, chemically resistant paint, etc.
3. Seal junctions, holes or penetrations of walls, ceilings, and floors with plaster, caulk, or equivalent materials.
4. Insure the room is large enough for refrigerators, incubators, temperature cabinets, etc.
5. Install a sink for decontamination of the room.
6. Seal all sink, floor, and autoclave drains with 16-mesh metallic screens.
7. Install a vestibule at each entry to this room. (See section III. CONSTRUCTION STANDARDS FOR SPECIALIZED ROOMS Vestibules.)
8. Install thresholds and gaskets that completely seal the exterior and interior doors with their frames and thresholds. Install door sweeps that prevent organisms from moving under the doors.
9. For the most interior door to the receiving rearing room, install a windowless door, or darken the door window to prevent organisms from moving toward the doors and beyond.
10. Install an air curtain across the full width of the top of the interior doors of the Receiving Room. Set fans at an angle and speed to blow airborne organisms back into

these rooms when the doors are opened.

11. Cover all open windows and air intake and exhaust openings with at least 60-mesh (openings not exceeding 0.250 mm or 0.0098 inch) metallic screen. **Nylon, fiberglass, and plastic screens are not acceptable.**
12. Seal the ceilings and walls with a light-colored, washable paint. Suspended or dropped ceilings are not acceptable in the receiving/ rearing room.
13. Install baseboards at the junctions of the floor and walls to seal crevices and help collect organisms on the floor.
14. Install a telephone(s) or intercom system in the rearing room to reduce movements in and out.
15. Post a sign on the outside of the most exterior vestibule door of the receiving/rearing room stating USDA Inspected Containment Room - Authorized Personnel Only.
16. Post emergency phone numbers including home phone numbers or numbers for afterhours emergencies for at least 2 persons.

CONSTRUCTION STANDARDS FOR SPECIALIZED ROOMS

D. Vestibules

SUGGESTIONS:

1. Install a vestibule in each entry and /or exit to the Receiving Room and Display Room.
2. Build each vestibule at least 6 feet in length from door threshold to door threshold.
3. Insure the vestibule door opening is no larger than 50% of the interior wall on which the door is installed.
4. Install a light in the vestibule that turns on when any vestibule door is opened.
5. Insure that vestibules are darker than adjacent rooms.
6. Insure vestibule doors interlock so that only one door can be opened at a time (check with local fire code).
7. If the most interior vestibule door has a window, make sure the window is tinted.
8. Install thresholds and gaskets that seal the exterior and interior doors with their frames and thresholds. Include sweeps on the bottom of the doors.
9. Install full-length mirrors on the walls of the exit vestibule to help visitors check themselves for hitchhiking Lepidoptera.
10. Post a sign in the public exit vestibule stating "Removal of Butterflies and Moths is a Violation of USDA Regulations and may Result in Civil or Criminal Penalties."
11. Install fans or an air curtain across the full width of the top of the interior doors of each containment room (both the Display Room). Set fans at an angle and speed to blow airborne organisms back into these rooms when the doors are opened.
12. Air curtain fans should produce an air speed of at least 230 meters (=2500 feet) per

minute at the nozzle or a volume of at least 70 cubic meters (=2500 cubic feet) per minute

13. Air curtain fans may automatically activate when a door is opened, or they may run continuously. USDA highly recommends the installation of automatically activating air

curtains over all emergency exit doorways.

Lobbies, gift shops, darkened hallways or other relatively large areas may serve as a vestibule for the display area, only if the features of the interior doorways prevent adult Lepidoptera from escaping into these areas. However, USDA recommends that these areas serve only as secondary chambers that are connected to primary vestibules.

CONSTRUCTION STANDARDS FOR SPECIALIZED ROOMS E.

This room is not required for containment, however if installed in the containment area, **Restrooms must prevent organism escape.**

SUGGESTIONS:

1. If installed in a containment area, place restrooms in a lower risk room (the Display Room).

Seal sewer or air vents, and open windows of this room with the metallic mesh screen that is prescribed for the containment area in which the restroom is placed.

IV. EQUIPMENT STANDARDS

EQUIPMENT STANDARD A. Use Benches, Tables and Other Furniture that are easy to inspect and clean.

SUGGESTIONS:

1. Install work surfaces and laboratory furniture (bench tops, cabinets, tables, etc.) that are water resistant, impervious to Arthropods, and resistant to caustic chemicals and heat.
2. Insure spaces between benches, wall cabinets, and equipment are easy to clean and inspect.
3. Dedicate cleaning equipment (mops, brooms, buckets, etc.) for use only in the containment areas, and store them in their respective containment areas.

EQUIPMENT STANDARD B. Use equipment to Sterilize or Decontaminate solid waste (e.g. organisms, soil, plant material, solid waste, and contaminated or infested articles) before removing it from the facility.

SUGGESTIONS:

1. Install an autoclave in the receiving/rearing room. Conduct periodic tests to evaluate effectiveness of autoclave.
2. Supply the Receiving Room with insect killing jars, alcohol (at least 70%), and bleach solutions (at least 10%) to kill undesirable organisms (e.g., parasitoid and pathogens) and decontaminate other biological materials (e.g., cocoons, emerged chrysalis exuvia).
3. A freezer or microwave may be used to kill organisms, but are not approved to sterilize or decontaminate materials, including dead organisms.

EQUIPMENT STANDARD C. Use Cages, Containers and Chrysalis Emergence Cabinet to confine Lepidoptera.

SUGGESTIONS:

1. Construct cages from glazing/metallic screen, to prevent Arthropod escape.
2. Cover cage ventilation areas with at least 60-mesh, (openings not exceeding 0.250 mm or 0.0098 inch) metallic, screen.

3. Insure cages are easy to clean and disinfect.
4. Construct a chrysalis emergence chamber that prevents escape of parasites and adult butterflies. The chrysalis emergence chamber should be placed in the receiving room, and access to it should only be through the receiving room to prevent parasite escape. Most exhibits want emergence chambers to be viewable by the visitor as part of the life cycle story. To do this, the chamber is often constructed with transparent materials (plastic sheeting, e.g. Acrylic, Plexiglass, Lexan) and located in a wall or placed so that it can be viewed by visitors. The chamber will require ventilation openings that must be covered with 60+ mesh screen. This means 60 divisions per linear inch in each direction. Metallic or other material are acceptable for screening. The chrysalides are hung inside for emergence and accessed through a door that locks and seals tightly. The interior of the emergence chamber should be painted a light color so parasitoids can be easily seen. There should be no hiding places for parasitoids in the material used to suspend the chrysalids. Parasitoids will go to the top and to the corners of the chamber. Aspirators or paint brushes dipped in alcohol or soapy water can be used to eliminate the occasional parasitoid.

V. OPERATIONAL STANDARDS

OPERATIONAL STANDARD A. A **Containment Director** is responsible for the daily operation of the facility and its physical integrity.

SUGGESTIONS:

A **Containment Director** is responsible for the organisms contained in the facility. The Containment Director also maintains a copy of the Standard Operating Procedures (SOP) Manual for the facility. SOPs contain directions for normal use, maintenance, testing, and disinfection of the facility, waste, and it's equipment.

SOPs also describe how to:

- Respond to emergency events (power outage, fire, glass breaks in containment area, flood, etc.).
- Replace glazing in glasshouse.
- Monitor visitors.
- Copies of SOPs should be available to workers within the containment areas. Each revision must be dated. The SOPs must be on file with the APHIS Permit Unit.

Containment Director;

- Implements the SOPs and permit conditions.
 - Responsible for annual submission of PPQ 526 Permit activity report.
 - Liable for organisms regulated under PPQ 526 Permit.

- Trains employees and or authorized personnel in the SOPs.
- Updates copies of construction records for the facility.
- Maintains daily, weekly and monthly maintenance records of the facility.

And the **Containment Director** updates these lists

- The names and phone numbers of those to call during emergencies, as changes occur.
- The plants species in facility, as changes occur.
- Authorized personnel, as changes occur.
- Incoming and outgoing shipments of permitted organisms including dead or destroyed incoming organisms,

SOPs also describe procedures related to all operating standards listed below:

OPERATIONAL STANDARD B. Only **Authorized Personnel** have complete access to the facility.

Once you receive a permit to receive plant pests, the activities of people who have access to your facility will become a large part of the effectiveness of the containment features. Your selection of individuals to work in this facility is critical to maintenance of plant pest containment. In addition to selecting good personnel, please consider the suggestions below.

SUGGESTIONS:

1. Train authorized personnel in the SOPs.
2. List the personnel authorized to enter the receiving room.
3. Insure emergency exit doors are not used as an entrance, remove handles from exterior, etc.
4. Lock the most exterior door of the vestibule to the Receiving Room to restrict entry to authorized facility personnel (the public is not allowed entry into the receiving room).
5. Lock exterior doors when public display hours are over.

OPERATIONAL STANDARD C. Manage **Visitors** in the display area to prevent them from causing the escape of any contained Lepidoptera.

SUGGESTIONS:

1. When the display is open to the public, assign at least one readily identifiable employee to the Display area to prevent the accidental or intentional removal of Lepidoptera by visitors.
2. Visually inspect visitors as they exit the vestibule chamber and remove hitchhiking Lepidoptera from clothing, hair, etc. If mirrors are placed in the vestibule, the visitors may inspect themselves or facility personnel can assist. If mirrors are used, post instructions on how to inspect in the vestibule chamber.
3. Prevent visitors from removing dead Lepidoptera from the display area.
4. Restrict access to the Receiving Room to authorized personnel only.

OPERATIONAL STANDARD D. Wear appropriate personal Apparel to minimize the risk of organism escape.

SUGGESTIONS:

1. Insure employees wear a laboratory-style coat or light-colored overalls in the receiving/
rearing areas and remove them and place them in the vestibule, before leaving the areas.
2. Prohibit entry of overcoats, hats, purses, etc. into the Receiving and Rearing Room, as these articles may allow an organism to hide and escape.

OPERATIONAL STANDARD E. Use Personal Cleanliness to contain organisms.

SUGGESTIONS:

1. Insure employees, volunteers, and other facility personnel wash their hands before exiting the Receiving Room.

OPERATIONAL STANDARD F. Clean and Disinfect the interior of the facility, its waste, and its equipment regularly.

SUGGESTIONS:

1. Do not flush biological wastes, including treated materials, down the drains.
2. Autoclave or sterilize solid wastes (cultures, plant materials, soil, trash, etc.) before disposal.
3. Periodically collect dead adults from the display area and disinfect or incinerate them. Dead
Butterflies and Moths may be donated to educational institutions, prepared for display, or

- sold once they have been heat treated or frozen for an extended period.
4. Clean the Receiving Room (walls, floors, and tops of benches) regularly and thoroughly with
a solution of at least 10% bleach or equivalent disinfectant to reduce or eliminate pests,
pathogens and other contaminants.
 5. Eliminate undesired pests and pathogens (e.g., crickets, aphids, mealy bugs, whiteflies, etc.)
from the facility.
 6. Dedicate cleaning equipment (mops, brooms, buckets, etc.) for use only in the containment
areas, and store it in respective containment areas.
 7. List materials and methods used to clean and disinfect the facility and its equipment.
 8. Wipe sleeve cages after each use with a solution of at least 10% bleach or equivalent disinfectant.

OPERATIONAL STANDARD G. Open and Handle packages of permitted organisms to prevent organism release.

SUGGESTIONS:

1. Open packages of live pupae only in the Receiving Room.
2. If the following are discovered in the imported packages, destroy (kill, autoclave, or incinerate) them immediately: Permitted organisms that are parasitized or hyperparasitized.
 - Contaminated parasites or predators of the permitted organisms.
 - Permitted organisms that appear diseased or deformed.
 - Plant materials.
 - Species that are not on your approved list of permitted organisms.
3. To kill and disinfect the above items, do one of the following--autoclave, incinerate, or put in minimum 10% bleach or 70% alcohol solution. **Treatment by freezing or with microwave ovens is not acceptable for decontamination.**
4. Autoclave or incinerate packing materials immediately after the removal of specimens and cultures. Incinerate or thoroughly wipe boxes and packing materials not in contact with Lepidoptera with a bleach or alcohol solution prior to disposal or reuse.
5. Lock and secure all cages on display to prevent the public from opening, moving, or knocking over cages.
6. Move cages to the Receiving Room before opening.

OPERATIONAL STANDARD H. Contain All Pupae within the receiving/rearing room of the facility.

SUGGESTIONS:

1. Emerge pupae in a specially designed “Emergence Cabinet” constructed specifically to contain parasitoids and emerging Lepidoptera.
2. Check all pupae in the Receiving Room at least daily and remove diseased, parasitized and nonviable pupae.
3. Remove and kill adult parasites that emerge from pupae as frequently as possible to avoid parasitism of healthy pupae. Immerse contaminants in 10% bleach, 70% alcohol, or autoclave them.
4. Collect adult Lepidoptera that have emerged, visually inspect each for parasites, and place in a cage for transfer to the Display area.

OPERATIONAL STANDARD I. Landscape the display area to avoid reproduction of contained Lepidoptera and to minimize plant refuse.

SUGGESTIONS:

1. Landscape the Display area with plant species that DO NOT stimulate oviposition or support larval feeding of any of the contained butterfly or moth species.
2. When approved as a special condition on the USDA permit for the facility, certain species of potted plants may be temporarily placed in display areas to educate the public on butterfly oviposition behavior and immature development. Handling of these plants will be described in the condition statement of the permit.
3. Remove plant refuse (pruning, weeding, etc) only after: Sealing it securely in bags. Follow closely the waste removal conditions specified in the PPQ 526 Permit. Remove live plants from the Display area only after inspection by and approval of the local APHIS PPQ official. Plants may require an insecticide application or fumigation before removal is approved. Previously approved species of plants may be added to the display at any time, but major landscape changes must be discussed with APHIS officials.

OPERATIONAL STANDARD J. Follow all PPQ Regulatory Requirements for organisms received in the containment facility.

SUGGESTIONS:

1. Meet all PPQ requirements or conditions as listed in permits for organisms kept in the facility. Permits from other Federal and State Agencies may also be required for certain plant pests. Receipt of USDA Plant Pest Permits does not relieve applicants from the responsibility of obtaining other permits. USDA Permits may be withheld or revoked if other Federal and State requirements are not satisfied.
2. Contact the State Department of Agriculture to determine whether they need reference or voucher specimens.
3. You must obtain additional permits from PPQ PPE to move or ship living organisms outside of the facility.
4. Maintain a list of all organisms described in PPQ permits (including those received dead, diseased, parasitized and destroyed), that enter and leave the facility. Submit the above list to USDA APHIS PPQ (at address below) by January 31 of every year.

USDA, APHIS, PPQ, PPE, Unit 133
4700 River Road, Riverdale, MD 20737
Phone (301) 851-2046
FAX (301) 734-4300

5. If the facility stops operating as a containment facility, either temporarily or permanently, notify PPQ PPE. Either closure may require PPQ PPE inspection to release it from containment requirements. Permits will be cancelled for facilities closed for over 6 months. Reopening of any facility that was previously closed requires a new inspection.
6. Notify PPQ PPE of any structural or containment changes prior to implementation, the development of blueprints, signing of construction contracts, start of construction, etc.
7. Send SOP and blueprints to:

Containment Facilities Program Assistant
USDA, APHIS, PPQ, PPE, CF, Unit 147
4700 River Road, Riverdale, MD 20737
PH (301) 851-2046
FX (301) 734-8669