CLEANING THE CONVIRON PGW36 GROWTH CHAMBERS
Tonsor Lab Protocol

DATE: 6/07/10 Wolfe

Equipment Required

Wrench / Toolset
Big bristle brush
Wet/Dry Vacuum (*with the filter removed, so it can handle H2O*)
Broom
Gloves and smock
Greenshield detergent (obtain from Ellen York in Greenhouse if necessary)
Detergent siphon

Basic Order of Operations

1. Raise light bank to max height (for ease of access)
2. Clear out contents of growth chamber
    a. Remove tubs
    b. Remove black racks
    c. Remove drains
    d. Remove fill tubes
    e. Remove mist system components
    f. Remove the drain solenoid (or carefully move it out of the way)
        i. This is a gray hose that actually contains wires. It ends in a gray box and then a brass / metal valve. The brass valve part can be removed with a wrench. However, to actually remove the gray hose part from the chamber you would have to open the box and break the wire junction. Typically, I just maneuver around this box so as not to disturb the wires or break the waterproof seals on it!
    g. Remove shelves
    h. Move all items to the prep/cleaning room
    i. Clean those items (see other relevant protocols) before placing back in chambers
3. Remove chamber floors
    a. The metal gratings on the floors of the chambers are removable. There is a metal tube that emerges from the center of the floor with a curve at the end; this tube must be removed in order to get the chamber floors out.
    b. **WARNING:** DO NOT allow any water to enter into the hole where the metal tube used to be. The tube samples air from the chamber and feeds it to sensors for humidity, temperature and CO2, thus the loop at the end of the tube is there to prevent water from entering and damaging the sensors.
    c. Carefully pry the chamber floors up; they are in two parts and are not terribly heavy.
4. Clean the metal floors
    a. Use a heavy bristle brush and plenty of water to remove as much plant detritus as possible from the top and bottom of the metal floors.
    b. Doing this in the garage is probably the best idea, but make sure you sweep up after yourself!
5. Sweep and scrub out chambers

   a. Before we hose the chambers down we want to make sure as much dry matter is removed as possible. There will be algae build-ups and plant material on the chambers, now bare, floor. Remove this stuff either by sweeping or vacuuming (make sure the shop vac has the filter *in* before vacuuming dry stuff).
6. Wash chamber and floors with Greenshield
   a. Now that everything is removed we can apply a soap that is very plant friendly. Greenshield is currently provided by Ellen York in the greenhouse, although she may provide a different product.
   b. **Note:** At this point the chamber *must* be turned off for safety (and convenience since the air handlers will blow water all over the place if left on).
   c. **Note 2:** Make sure the metal tube with the loop on the end is in place before applying water or you may damage the chambers environmental sensors (see above).
   d. On the shelving unit in the growth chamber room there is a small plastic bag with a hose siphon on it. Follow the directions in the bag for use. Briefly, it should attach to the faucet end of the hose. It will have a small black tube that will hang down into a bucket of Greenshield concentrate. Then, when you run the hose it will suck up a controlled, constant amount of detergent and mix it in with the water coming out the nozzle of the hose.
   e. Spray down the walls, ceilings and floors of the chamber.
   f. Scrub everything to remove build-ups.
   g. Wipe the lights down with a rag.
7. Replace metal floors and spray down.
   a. You can at this point put the metal floors back into the chamber, but before putting them in their formal place, hose them down top and bottom with greenshield and scrub as necessary.
   b. Finally, the floors can be put into their proper place…. On the floor.
   c. Spray down the chamber and floors with plain H2O.
8. Clean-up
   a. It may be necessary to remove excess water manually from the floors outside of the chambers using the wet/dry vac. Make sure you take the filter out of the vacuum before handling water with it.
9. Heat Cycle
   a. Now that the chamber is spic and span, the climate control can be turned back on and the set to 40C for ~1 week with no lights. This will have the effect of further sterilizing the chamber.
   b. During this time, the items you initially removed from the chamber (e.g. shelves, tubs, drains, etc.) can be cleaned and then put back into the chamber for storage at 40C.