**Labgard Class II, Type B1 Laminar Flow Biological Safety Cabinet Tip sheet for Optimal Use**

FYI Type B1 means less than 50% of the air in the hood is recycled

**Know Your "Safe Working Area"**

The LFBSC safe working area is the work tray or depressed area. All work should be performed on or above the work tray. The area on or above the front grill is a non-safe working area.

**6.2.2 Minimize Penetration of "Air Curtain"**

The minimum number of items necessary should be placed into the cabinet to prevent overloading, but the work should also be planned to minimize the number of times an operator's hands and arms must enter and leave the air curtain at the open face. The ideal situation is to have everything needed for the complete procedure placed in the hood before starting, so that nothing need pass in or out through the air barrier at the front until the procedure is completed. This is especially important in working with moderate risk agents.

Unnecessary rising of the hands inside the cabinet above the level of the work opening should be avoided.

This presents an inclined plane from hands to elbows along which the downflow of air may run to, and possibly out, the open face.

**Note:** When working with agents of lower risk, it is not as important for all materials to be placed in the cabinet before starting, or for the procedure to be completely finished before materials are removed. Also, the time period for a cabinet may be continued over a more extended period during which entries and withdrawals from the cabinet may be made.

**6.2.3 Minimize Room Activity**

Activity in the room itself should be held to a minimum. Unnecessary activity may create disruptive air currents as well as interfere with the work of the operator. A person walking past the front of a cabinet can cause draft velocities up to 175 fpm (.89 m/s), which are sufficient to disrupt the air balance of the laminar flow cabinet.

**6.2.4 Utilize Unidirectional Airflow**

The operator must keep two important facts in mind:

(1) The air, as supplied to the work area through filters from the top, is contaminant free and

(2) Airborne contamination generated in the work area is controlled by the unidirectional flow of parallel air

streams in a top-to-bottom direction.

A solid object placed in a laminar air stream will disrupt the parallel flow and consequently, the capability of controlling lateral movement of airborne particulates. A cone of turbulence extends below the object and laminarity of the air stream is not regained until a point is reached downstream, approximately equal to three to six times the diameter of the object. Within the parameters of this cone, particles may be carried laterally by multidirectional eddy currents. Transfer of viable materials and manipulations, which may generate aerosols, should not be performed above sterile or uninoculated materials. Items should be localized on the work surface in "clean" and "dirty" groups.

**Employ Aseptic Technique**

The operator must not assume an attitude of "let the cabinet do it" when performing procedures within a LFBSC. Properly balanced and properly used cabinets will do an excellent job of controlling airborne contamination and containing viable agents, but the cabinet will not eliminate contact transmission of contamination. Normal laboratory contamination control procedures and basic aseptic techniques are necessary to obtain maximum benefit from the cabinet. For example, open bottle, tube, or flask mounts should be kept as parallel as possible to the downflow to minimize capture of chance particulates. This precaution is merely an extension of good aseptic technique as practiced on open bench tops. The good laboratory practices designed to minimize creation and/or release of aerosols to the environment should not be discontinued.

Items of equipment in direct contact with the etiologic agent must remain in the cabinet until enclosed or until surface-decontaminated. Trays of discard pipettes must be covered before removal from the cabinet (aluminum foil may substitute for fabricated covers).

If an accident occurs which spills or splatters suspensions of etiologic agent around the work area, all surfaces and items in the cabinet must be surface-decontaminated before being removed.