The LPKF ProtoMat C20 Circuit Board Plotter is a powerful rapid prototyping tool for circuit development. It is also a very expensive tool, so it must be operated carefully. There is already a detailed procedure for creating a printed circuit board using the LPKF ProtoMat C20. Please refer to it for actually procedure; this handout is only a summary of key safety issues involving the LPKF ProtoMat C20.

Please observe the following guidelines when operating the LPKF Circuit Board Plotter:

1) **Obtain permission before using the LPKF Circuit Board Plotter**
   Before using the plotter, you must first schedule a time with the EE/CE technician. This simplifies scheduling when more than one person needs to use the machine.

2) **Use the plotter only with the technician (or a work-study) present**
   This is a requirement, not a suggestion. If something goes wrong the technician or an approved work-study student will be able to fix the problem more easily than you will.

3) **Follow the proper PCB manufacturing procedure**
   This procedure is outlined in the document entitled “Procedure for Creating a Printed Circuit Board.” Please follow the procedure precisely; it will both prevent errors on your board and keep you safe.

4) **You may wish to use ear protection**
   The LPKF Circuit Board Plotter is very loud when the vacuum is on.

5) **Never operate the plotter without cardboard backing material**
   This is critical! The backing material prevents the milling bits from cutting into the steel of the circuit board plotter’s surface. Failure to use a backing plate will ruin the bits and damage the surface of the plotter.

6) **Close the metal guard ring on the milling head before operating the machine**
   This promotes better vacuum suction around the bit and helps prevent the bit from overheating.

7) **Close the Plexiglas doors while the milling head is rotating**
   This cuts down on noise and protects people from the milling head