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.

NOTE: You must be trained on all safety aspects and the proper use of the LPKF ProtoMat C20 Circuit Board Plotter prior to using it independently.

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) **Safety glasses are required during use of this machine.**

5) **Ear protection is required during the use of this machine.**

6) **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.

7) **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.

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