

Development of Reed Blank Machine

For

Tom Hess, professional clarinetist (and Prof. of Environmental Engineering)

Clarinet reeds are made from cane, *Arundo donax*, that is grown principally in France, Argentina, Australia and California. Clarinet reeds are available commercially, in many different brands and strengths and widely used by professional musicians. Current prices are about \$2.00-3.50/reed for a product that is of average quality at best with only about 30% of those purchased actually usable. Because of cost and quality, some professional clarinetists make their own reeds, largely with hand tools and a template copying machine with sandpaper to provide the final reed profile.

Steps in making clarinet reeds include 1) cutting and splitting the cane, 2) planing the split cane flat to a blank, 3) shaping the blank and 4) profiling the shaped blank. Most of the steps are currently accomplished by hand. Step 2 is done with a planer base to hold the quarter split cane and a block plane to flatten the cane to a blank. Step 3 is done with a shaper to hold the blank and knife to trim the sides – the shaper cannot be adjusted. The last step of profiling has been addressed in a previous Capstone project (CNC technology)

The opportunity for this project is to design and construct a new type of device that can be used to make the reed blank, i.e. flatten the quarter split cane tube. It would be desirable for the device to be either mechanical or electromechanical in nature with provision for blank thickness adjustment. Truly inspired design groups may also envision a device that could, in addition, shape the reed through an adjustable shaper.