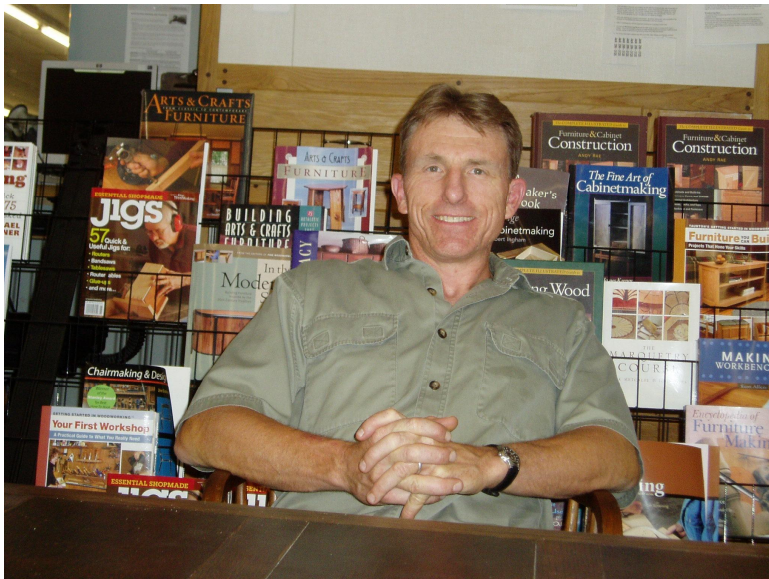


## Mortise and Tenon Joinery Class by Ben Douglas

Those of us who attended the 6<sup>th</sup> class in the series of Introduction to Woodworking classes, were in for a treat. The class was on mortise and tenon joinery and was taught by Chuck Argo, manager at Ideal Saw Works. Chuck is one of the most talented woodworkers in the area. He has extensive experience in fine woodworking and an in-depth knowledge in all aspects of woodworking including furniture making. As a young man, Chuck obtained his formal training at the College of the Redwoods going through their one year program under the direction of James Krenov. He was one of three students in his class to be asked to come back for another year to work as a mentor to students of the new class and continue to work on his own projects. He continued to enhance his woodworking abilities over the years building custom furniture part time and



selling to galleries. In 1990 Chuck joined with long time friend and fellow College of the Redwoods graduate, Tom Brown, to start a custom furniture business. They were in business for 10 years, selling custom furniture in the LA, San Francisco and Phoenix areas.

Chuck began the class by discussing what makes good joinery in general, indicating that, to start with, one needs dry,

preferably quarter sawn wood. Save the highly figured, flat sawn wood for panels and table tops. The joint needs to have close tolerances in conjunction with a balanced design. A joint which is neither too loose nor too tight allows for a good glue line which produces a strong joint.

Chuck went on to discuss the stresses at work in joinery which can make joints loosen or break apart. There are internal and external stresses. Internal stresses are caused by seasonal movement, humidity, temperature and the environment in which the piece is placed. The external stresses are those that are imposed by the use of the piece such as opening cabinet doors or sitting in a chair.

Chuck then began the discussion on the specifics of the mortise and tenon joint. There are various ways to cut the mortise and tenon joint. The mortise should be cut first and the tenon cut to fit the mortise. The mortise can be cut using a very sharp mortising chisel but this is a very slow, laborious method. The drill press can be used with a forstner bit or brad point bit. The sides can then be cleaned up with a chisel. A good fence is important. Another method is to use a router along with a jig to provide a stable platform for the router. This is the noisiest and messiest method. Yet another method is to use a hollow chisel mortiser which can be used in a regular drill press or a specialized

drill press designed specifically for making mortises. This method is relatively quiet, fast and makes square holes. Also, the mortise can be cut using a horizontal slot mortiser which is essentially a large router turned on its side. Typically, these are large, commercial machines costing over \$3000. Finally, most combo machines have mortising attachments and there are also router milling jigs available.

Chuck then discussed the tenon. The tenon should be cut just shy of the depth of the mortise. This will allow for excess glue to collect. The tenon should be between one third and one half the thickness of the wood.

Chuck then described the various methods of cutting the tenon. First is by hand using a back saw, chisels, shoulder plane and marking gauge. This is a very slow process. The next method is to use a band saw to cut the cheeks and a table saw to cut the shoulders. Another method is to use a table or radial arm saw with a dado blade to cut the tenon horizontally, approaching the final length carefully. A router table can also be used in this same manner usually cutting the shoulders on the table saw first. Another method is to cut the tenon vertically on the table saw using a tall fence or tenoning jig. Cut so the waste falls to the outside. A tenoning jig allows fine tuning to get a good fit. Be sure your blade is cutting 90 degrees to the table top or the sides of the tenon will not be parallel. Finally the horizontal slot mortiser can also be used to cut the tenons.

Chuck finished up the session by showing us examples of various types of mortise and tenon joints. Then homework was assigned. We were asked to make some mortise and tenon joints in our own shops and bring them to the next session.

The second session was a “show and tell” about our homework project(s): successes and failures, and difficulties. Chuck then reviewed our work to emphasize the methods we should use with the tools we have.

This was a great beginners class in joinery taught by a master craftsman and was enjoyed by all who attended. Keep practicing!