

**Factors Affecting the Use of Western Juniper
(*Juniperus occidentalis* Hook.)
as Moulded Picture Frame Stock**

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Introduction

Lumber cut from western juniper, *Juniperus occidentalis* Hook., generally contain defects such as knots, bark inclusions and decay pockets that make large recoveries of moulding stock, select-grade boards, higher common-grade boards and fingerjoint cutstock unlikely. These defects, however, provide material with the appropriate character sought after by artists and galleries for use in frames and display bases for western art and artifacts (Swan, 1995⁽¹⁾). Preliminary investigation of the use of rustic frames and bases for artwork on display in Park City, Utah galleries, showed that the lower quality juniper would be an acceptable, if not highly desirable, addition to the short list of wood species (primarily pine) currently used for these items. The contrast between the pale white sapwood and the reddish-brown heartwood, dark bark inclusions and the undulating wood grain near large knots all combine to produce a dramatic effect suitable for many framing situations.

The artists using this "lower" grade of material for frames and bases have, in addition to aesthetic and artistic considerations, the more technical requirements for finish, miter-joint strength and in-service wood stability. The frames and bases must be able to withstand the structural stresses imposed in many different applications and must also be resistant to warping in service.

Based on this information, an informal survey of artists, gallery proprietors, custom frame and base makers and a moulded frame-stock producer was conducted in order to determine manufacturing and marketing requirements that must be met in order to utilize western juniper for frames and bases. Results are particularly important to potential manufacturers interested in manufacturing picture frame stock as well as the producer of relatively small numbers of frames built to customer specifications.

Methods and Materials

Two western-style artists, proprietors of three western-Montana art galleries specializing in western art, were asked to examine samples of western juniper lumber containing a variety of defects (knots, bark inclusions, decay, warp) and express their impression of the marketability of this material as rustic frames and bases for western art. These individuals were also asked which stock profiles would be the most appropriate for this type of frame, and which miter joint techniques were acceptable, and which was the most-desirable. Specific information concerning the desired size of defects, width, thickness, profile and finish of the frames and bases was also gathered.

In addition, a Missoula, Montana-based frame-stock manufacturer and distributor was queried about their manufacturing process's raw material requirements in terms of knot size and location, required moulding stock thickness and width tolerances, minimum stock length, and overall manufacturing suitability.

Results and Conclusions

Results of the interviews of 2 artists, 4 gallery principals, 3 framing shop proprietors and a frame stock producer provided the following insight into the requirements that western juniper frame stock must meet if it is to enter this market.

- 1 . Frame shops either buy moulded frame stock in 8- to 10-foot lengths, cutting the frame pieces and assembling them in the shop, or they special order the pieces already cut to length at the factory ("chops"), assembling the pieces at the frame shop. Generally, chops are provided as a service in only the less popular, or difficult-to-cut overlaid stock.
2. The market for use of clear and nearly-clear western juniper in non-rustic frames is limited. Based on the sale of frame stock and frames made from other softwoods, such as lodgepole pine, both simple and intricately-moulded, most consumers are not seeking a rustic appearance and are choosing oak and ash.
- 3 . Due to the framed contents exerting large forces on the lower horizontal member, the strength of the lower miter joints is especially critical in the frames of mirrors and large, glass-covered art prints.
- 4 . Regardless of whether the shop utilized in-house cut pieces or chops, the joint of choice is the "Casease", which utilizes thin steel chevrons, pressed into the reverse side of the miter joint, joining both pieces together. The machine that inserts the chevrons is pneumatically-operated, and costs approximately \$2,500.
5. Frames using 1 1/2 inch-wide stock generally will have 2 chevrons in each corner joint, while stock 2 inches and greater in width use up to 4 chevrons. Very wide frames can use even more.
6. The artists generally seek out custom makers for rustic frames. These makers can be difficult to locate, and quality and timeliness of work can often be less than required.
7. Custom makers rarely have the industry-standard "Casease" joint equipment, and generally use the older method of "pinning" the joint with finishing nails from the outside edges.

Implications for Industry

1. Kiln drying and grading 4/4 and 6/4 inch thick western juniper lumber using pine shop grading criteria would allow limited use of western juniper by large moulding producers supplying the picture framing industry. Thickness and width tolerances of dried lumber are +0.063 inches, -0.030 inches, and lengths as short as 18 inches are recommended, with occasional pieces of 12 inches thought to be usable in most moulders. This market, however, is quite small, as these manufacturer's principal customers are not engaged in the rustic segment of the frame market.
2. While the size of the established market for rustic frames is still limited, a manufacturer of quality frames using the lower grades of western juniper should be able to enter this market if they can provide artists and galleries with frame stock and frames from kiln-dried lumber of relatively low (#3 common) quality.
3. "Casease" joints, wood plate joints using the special picture frame plates (Lamello^(R) brand #4) and double-pinning with finishing nails are all options for rustic frames.
4. Clear and slightly-colored polyurethane varnish, applied by high-volume, low pressure (HVLP) sprayer, are standard industry finishes, generally applied to the face and sides of the frames. Occasionally, all four sides are finished. Rustic frames can also be used without finish.
5. Lumber dried to 10 percent moisture content following schedules used for shop (factory) lumber is generally specified by the moulding manufacturers. The relatively low moisture content and more stringent drying regime of shop lumber is chosen due to the minor amounts of residual drying stresses (casehardening) and a final moisture content close to the in-service moisture content. Complaints of movement and warping in service are infrequent when properly-dried lumber is used. It is quite likely that western juniper will be able to perform at a level that approaches these standards, especially considering that most use will be in rustic frames where minor checking, slight warp and other such defects can be viewed as enhancements.

6. Based on retail prices in one western U.S. urban area, retail frame prices for medium-cost profiles of pine, oak and ash average from \$8 to \$12 per lineal foot, with wholesale prices averaging about 50 percent of retail. It is conceivable that custom rustic frames made to artist or gallery specifications would command even higher prices.

1. Swan, L. 1995. Personal communication, 3 September, 1995. Notes on file, USDA Forest Service, Winema National Forest, Klamath Falls, OR.