

Part II:

Activities and Outcomes

OPTIONS CONSIDERED

A drafting table, which tilts, was first considered as a possible solution. However, clamps would be necessary to hold the frame in position and would prevent access to all areas of the frame. Also, since the table does not rotate the frame would need to be moved and shifted several times during the process, requiring repeated lifting and handling. It would be difficult to accommodate different sizes and shapes of frames.

RECOMMENDATIONS

The goal was to provide a workstation where the client could sit and stand on an alternate basis, reduce the amount of repetitive lifting and bending, and have the work positioned in front of her in lieu of having to constantly lean over the table.



The workstation was conceived to consist of a main *worktable*, a smaller *side table*, a *stool*, and a *grid* for frame attachment. The rehab engineers designed a *worktable*, which measures 42” square with a 39” work height. This height accommodates the client when she stands away from her *height adjustable work stool*. This stool was purchased with a back support and a footrest, which provides proper strain relief for the back when one foot is placed upon it, was mortised into the front legs. A *grid*, constructed of half-lapped dadoes, was designed to allow paint and solvent spills to drip through to prevent blemishes on the frame in progress. The frames are attached to the grid by a series of clamps designed to hold the frame by the unfinished inner lip, (where the picture normally rests in the frame.) The clamps attach to the grid with thumbscrews, while the pointed tips grip the frame. This system of clamps permits the client to safely work on a variety of frame sizes while utilizing all of the worktable’s features.

The worktable provides an indexed tilting mechanism and an indexed rotational movement, so the grid can be locked at 30 degrees and 60 degrees from horizontal. A handle is provided for the unlocking of the tilt. A rotational movement, independent of the tilt movement, can be locked in 90-degree increments. This allows Cathy full adjustment of the restoration project without the need to lift or bend over the table. A system of Nylon planetary bearings and a 16” diameter Garolite sun bearing provide the necessary structure for the rotational movement. The tilt mechanism is assisted by a pair of gas-charged springs with a combined 100 pounds of lift. This design raises the frames for the client and only requires her to exert minimal force to lower the frame and grid back to the horizontal positions. Both systems have custom linkages, which provide desk front access to the indexing capabilities.



In essence, the work is now brought to the client by being positioned vertically in front of her. A *side table* provides additional workspace and a large lockable drawer that was specified by Cathy. The drawer construction utilizes a 45-degree locking miter joint for the sides. Also included in the workstation are light fixtures and an anti-fatigue mat.

COST ANALYSIS

The evaluation, design, construction and installation of the grid, two tables, and stool modification required approximately fifty hours of the rehab engineer's time, over a three month period. The cost of the stool and the materials for the table was approximately \$1000, for a total cost of \$3500.

FOLLOW-UP/OUTCOMES

Cathy successfully used the table, grid and stool for over four years before leaving the shop for reasons unrelated to her disability. This was the longest length of employment she had maintained. The shop still uses this equipment and finds it much more comfortable for anyone performing these duties. The employer wrote, "We regret not being able to be there in person to discuss and show how much the table you built has greatly improved Cathy's performance and time she is able to work. Her table allows her to do difficult work while sitting, and turns so she doesn't have to get up and do a lot of standing and bending. Everything is within her reach allowing her to be more productive. It also is very functional when difficult jobs call for tilting and turning without much effort for her. I prefer to personally use this table when Cathy is not here!"



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