Adaptive Equipment Designed and Constructed for Samantha Gillard:

Alternative Designs of Adaptive Position Chair

By

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Project for Client #14: Samantha Gillard

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Adaptive Position Chair: Alternative Design 1

Alternative design 1 of the Adaptive Position Chair has square general purpose carbon steel tubes painted for longevity. The legs and back of the chair telescope so that the chair could collapse to a portable size. To achieve this, holes are drilled intermittently along the appropriate tubes and spring pins lock the adjustable portions into place (see Figure 1). The outer diameter of the smaller tube slides smoothly within the clearance provided of the inner diameter of the larger tube. Although round tubing could be used to construct a more aesthetically pleasing final product, using square tubing allows for easier assembly as it will aide in placing things at flush 90° junctions.

Figure 1 (left). Telescoping tubes with spring pin.
Figure 2 (Right). SolidWorks depiction of Adaptive Position Chair.

Adaptive Position Chair: Alternative Design 2

This design is constructed out of square aluminum bar stock (80/20 catalogue) instead of general purpose carbon steel tubes. With this material, T-nuts and Allen bolts can be used for adjustment and positioning. Instead of having a telescoping chair back and legs, this design uses folding pieces. Hinges on the chair back allow it to fold down on top of the seat, and hinges on the legs allow them to fold up to collapse the entire chair to a smaller size.
Adaptive Position Chair: Alternative Design 3

Instead of using metal, alternative design 3 of the adaptive positioning chair is constructed out of wooden panels. Holes are drilled at various locations to allow for positioning adjustment and break-down for storage.