Key Findings

The alternative upright system significantly reduced trunk inclination (bending at the waist) and activity level in several muscle groups.

Workers welding using conventional methods were exposed to high levels of iron, zinc and manganese in welding fume, levels that exceeded recommended limits. Exposures were substantially reduced when using the upright system, although they remained above ACGIH Threshold Limit Values (TLVs) when welding through decking.

The upright system reduced exposure to hazards during stud welding simulations, but improvements in durability and maneuverability are needed for use in the field.