

Laminar Soil Box:

The UCSD large-scale laminar soil shear box, shown in Fig. 1, has a height of 2.9 m, length of 3.9 m, and width of 1.8 m. The laminar soil box consists of 43 steel laminar frames to allow for unidirectional movement.

Each frame section is S3x5.7 (76.2 mm depth and the weight of the frame 83.2 N/m). One of the advantages of the laminar container is that each frame can move relative to the frames above and below it, thus minimizing boundary effect influence. As such, the bearing system of the container consists of 16 cold-rolled steel pipes rolling on stainless steel plates with 1.6 mm thickness. The weight of the steel frame is approximately 10 to 13 percent of the soil mass depending on the soil density. The total mass of the 43 frames is 4229 kg.



Fig. 1: Laminar Soil Box at UCSD Powell Laboratory (H2.9m×L3.9m×W1.8m)