

Modular rough-surface unit (MRSU)

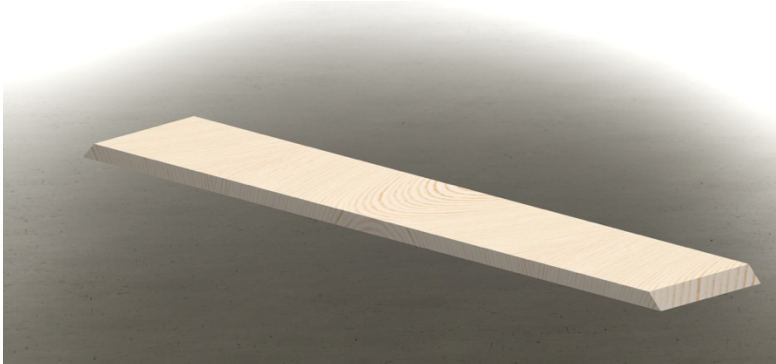
The following instructions are to build one MRSU with the roughness index of 1.36 in/ft (Duval et al. (2013)).

Materials

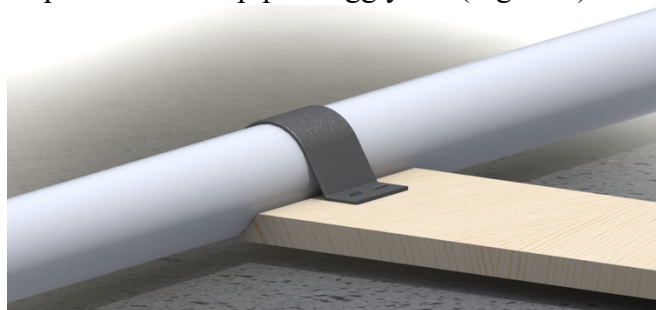
- Sixteen wooden slats (38" by 6" by 3/4")
- Two PVC pipes (3 m in length, 2.375" in outside diameter)
- Thirty-two rubber strips (mountain bike tire tubes, approximately 10" in length)
- Thirty spacers (e.g., 1" diameter PVC pipes cut into 30 pieces with 2" in length).

Procedures

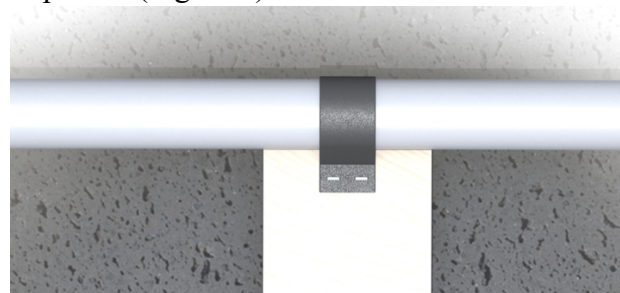
1. Bevel the slats (Figure 1).



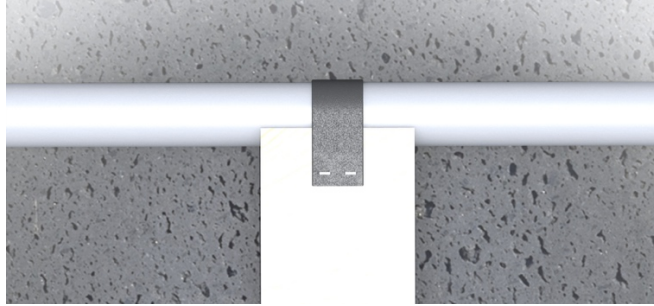
2. Wrap the rubber strip around the PVC pipe and staple to the slat. Adequately stretch the rubber strip such that the pipe snugly fits (Figure 2).



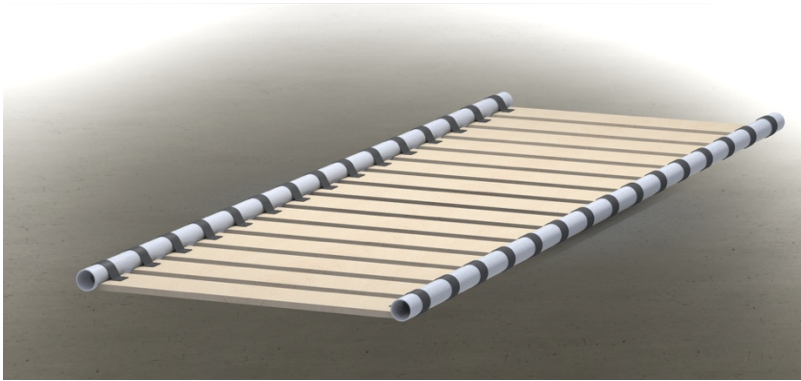
- a. Top view (Figure 3)



- b. Bottom view (Figure 4)



3. Attach all 16 slats to the PVC pipes placed in parallel with an approximate space of 2” between the slats (Figure 5).



4. When used, place the spacers into the gaps between the slats to ensure the gap is 2”.

References

Duvall, J., Cooper, R., Sinagra, E., Stuckey, D., Brown, J., & Pearlman, J. (2013). Development of Surface Roughness Standards for Pathways Used by Wheelchairs. *Transportation Research Record: Journal of the Transportation Research Board*, 2387, 149–156.