

Appendix B: Material Specifications

- **Sand:**
 - Clean sand with grain size distribution as specified in Table 1 and Figure 7
 - Grain shape will be rounded to sub-rounded
- **Sandbox Material:**
 - Walls and Base: 23/32 inch or ¾ inch plywood, any grade
 - Pile Guide: any wood material ¼ inch thick or less
 - Tie Rod: ¼ inch threaded steel rod with washers and nuts as needed
 - Fasteners: any suitable wood fasteners
- **Pile Material:**
 - 1-½ inch Schedule 40 PVC pipe
- **Tunnel Material:**
 - 3 inch Schedule 40 PVC pipe
 - 3 inch Schedule 40 PVC caps
 - Restraints: any suitable removal screws
- **Horizontal Loading Frame Materials:** These are recommended materials. Teams may fabricate their load frames out of any material so long as they have the correct moment arm, as shown in Figures 5 and 6. The load frames provided by the organizers for the competition will use the following materials and meet dimensions shown in Figure 6.
 - 1-¼ inch steel EMT conduit (thin wall electrical conduit)
 - ¾ inch steel L
 - ¾ inch bolts
 - ¼ inch eye hooks
- **Facing Material:**
 - Poster Board, 22 inch x 28 inch, White
 - Grammage: 194 g/m², 0.125 g/in²
 - Office Depot® Item # 858277 (Pack Of 10)
- **Reinforcing Material:**
 - 60 lb kraft paper
 - Grammage: 97.7 g/m², 0.063 g/in²
 - Office Depot® Postal Wrap Item # 444835 (2 ft x 50 ft roll)
- **Adhesive Material:**
 - Heavy duty, clear, 2 inch wide, polypropylene package tape
 - Scotch® 142-B Super Strength Mailing Tape, clear
 - Office Depot® Item #650457, 2 inch x 22.2 yd with dispenser
- **Vertical and Horizontal Surcharge Buckets:**
 - 5 gallon Home Depot Bucket
 - Home Depot Internet SKU #100087613

Materials listed within the red boxes will be provided by competition host.

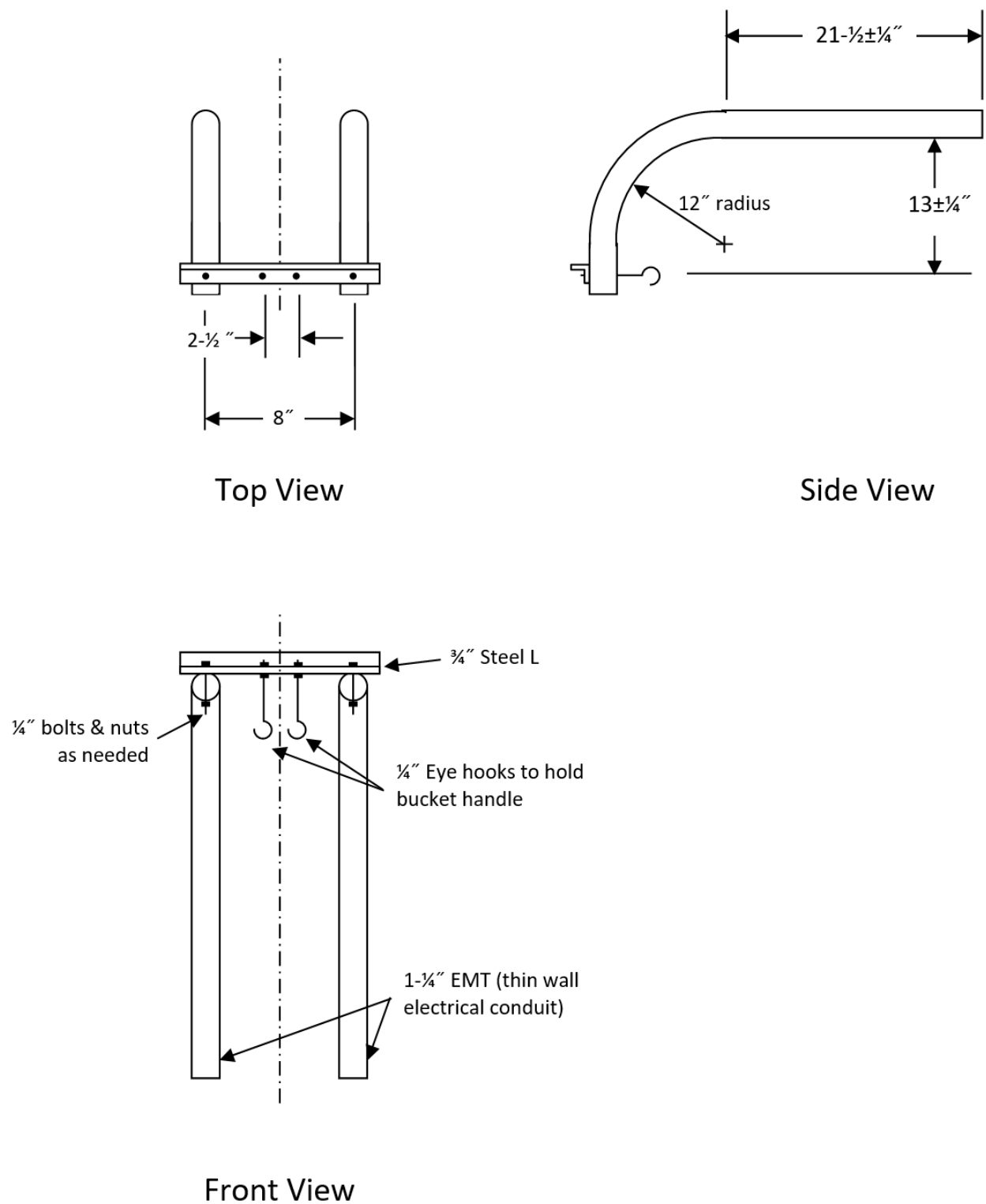


Figure 6: Dimensions of Horizontal Load Frame (not to scale)