



# Box Car Construction Specifications

## Car Design, Construction and Regulations

Box Cars may be built by the participating team or participants will be allowed to purchase pre-manufactured cars, as long as they only move with the aid of gravity, and have adequate braking and steering systems. Modifications to purchased cars is allowed to ensure adequate safety systems are installed, including but not limited to steering, and brakes. Embellishments and design liberties to all cars is encouraged.

The design of the car is open to interpretation & imagination by the participating team, and must be a vehicle which can move down the track with only the aid of gravity. No motors (electric or gas), or any other mode of propulsion may be used. Box Cars range from the realistic to the imagined. Examples of car design include the realistic looking car, to the imaginary vehicles like a couch with wheels, a mini fire engine or even a guitar. A very loose interpretation of the car will be used by the officials inspecting the vehicles, but safety will be of top priority. Achieva Credit Union officials reserve the right to refuse any vehicle from competing in the race if they deem said vehicle to be unsafe for any reason. It is recommended that all car plans are submitted for prior approval before the race to avoid any last minute disqualifications due to safety concerns.

## Box Car Body Requirements

- A. Minimum of ½" plywood must be used for the floor.
- B. No windshields of any kind will be permitted.
- C. Interior area must be open for inspection purposes.
- D. It is recommended that all exposed edges of the cockpit opening have pipe insulation or equivalent padding for driver safety.
- E. Cars in the Homemade car division may be built in any shape the driver/builder desires as long as the driver's vision is not blocked in any way.
- F. Cars in the All-American Soap Box Derby style car division must follow the specified body styles of the All-American Soap Box Derby.
- G. A seat may be used but must be removable for inspection.
- H. Only quality wheels and axles are permitted.
- I. **NO** tampering or altering of wheels or axles is allowed, wheels may be painted.
- J. Wheels must be secured on axles with cotter pins or locking nuts.
- K. A minimum of 2" x 4" pine or equivalent strength metal must be used to secure axles to body.
- L. Steering is required on all Box Cars, and is subject to inspection.
- M. All cars must have some type of a steering wheel system.
- N. All cars must be equipped with a minimum of braking capability consisting of a hardwood block connected to a hinge and pedal system, so as to contact the ground when pedal is depressed.
- O. The use of any liquid lubricant, such as WD40 or silicone is allowed on the wheel bushing and steering components.
- P. No method of propulsion can be used.
- Q. No improvements to car on ramp or starting gate will be allowed.

## Car Dimensions

- A. Maximum length - 96 inches.
- B. Minimum lengths - 48 inches.
- C. Minimum cockpit opening if applicable - 14 inches wide; 25 inches long and 16 inches high.
- D. Ground clearance - no less than 3 inches from bottom of floor to ground.
- E. Ramp clearance – no greater than 6 inches from front wheels to nose of the car. Ramp angle is approximately 12-15 degrees.
- F. Wheelbase from tip of front wheel to back of rear wheel is a maximum of 90 inches and a minimum of 48 inches.
- G. Maximum wheel width to be 48 inches from the outside edge of the front and rear wheels, and minimum width of 24 inches.

## Car Weight

- A. All Box Cars to be limited to weighing no more than one hundred fifty (150) pounds.
- B. The use of additional weights in the cars may be used (although in our testing it appears to make little difference).
- C. If the use of additional weights is used (with the exception of the driver) they will have to be secured to the car permanently, and are subject to inspection by Achieva Credit Union officials for approval. Carrying weights in pockets/clothing is prohibited for safety reasons.