

Depth Required for Tested Shock-absorbing Surfacing Materials for Use Under Play Equipment

These data report tested drop heights for specific materials. All materials were not tested at all drop heights. Choose a surfacing material that tested well for drop heights that are equal to or greater than the drop height of your equipment.

Height of Playground Equipment (feet)	Shock-absorbing Substance	Minimum Depth Required Uncompressed (inches)	Minimum Depth Required Compressed (inches)
4	Coarse Sand	--	9
5	Fine Sand	6	9
	Coarse Sand	6	--
	Medium Gravel	6	9
6	Double Shredded Bark Mulch	6	--
	Engineered Wood Fibers	6	9
	Coarse Sand	12	--
	Fine Gravel	6	9
	Medium Gravel	12	--
7	Wood Chips	6	--
	Double Shredded Bark Mulch	--	9
	Engineered Wood Fibers	9	--
	Fine Gravel	9	--
9	Fine Sand	12	--
10	Wood Chips	9	9
	Double Shredded Bark Mulch	9	--
	Fine Gravel	12	--
10-12	Shredded Tires (see note 4 below)	6	--
11	Wood Chips--Double Shredded	12	--
	Double Shredded Bark Mulch	12	--
>12	Engineered Wood Fibers	12	--

- Notes:
- The testing of loose-fill materials was done by the CPSC in accordance with the voluntary standard for playground surfacing systems, ASTM F1292. CPSC reported these data as critical heights for varying depths of material. Since most users of the standard want to know what surfacing is required for a given piece of equipment that has a known fall height, the authors of *Caring for Our Children* converted the CPSC table to start from the known drop height, rather than a specific depth and type of surfacing material. Where CPSC offers no data, the table shows a dash (--). These playground surfacing requirements apply to play equipment whether it is located indoors or outdoors.
 - Fall height is the maximum height of the structure or any part of the structure for all stationary and mobile equipment except swings. For swings, the fall height is the height above the surface of the pivot point where the swing's suspending elements connect to the supporting structure.
 - Protective surfacing recommendations do not apply to equipment that the child uses standing or sitting at ground level like sand boxes or play houses that children do not use as a climber.
 - For shredded tires, the CPSC recommends that users request test data from the supplier showing the critical height of the material when it was tested in accordance with ASTM F1292.
 - Surfacing materials are available as two types, unitary or loose-fill. These recommendations for depth of materials apply to the loose-fill type. For unitary surfacing materials, the manufacturer should provide the test data that show a match between the critical height shock-absorbing characteristics and the fall height of the equipment where the surfacing is used.
 - Since the depth of any loose fill material could be reduced during use, provide a margin of safety when selecting a type and depth of material for a specific use. Also, provide a means of containment around the perimeter of the use zone to keep the material from moving out into surrounding areas, thereby decreasing the depth in the fall zone. Depending on location, weather conditions, and frequency of use, provide maintenance to insure needed depth and loosening of material that has become packed. By placing markers on the support posts of equipment that indicates the correct level of loose-fill surfacing material, users can identify the need for maintenance work.

Reference: United States Consumer Product Safety Commission. *Handbook for Public Playground Safety*. Washington, D.C: U.S. Consumer Product Safety Commission; 1997. Publication 325.