

Critical Heights of Protective Surfacing

Note: This table lists the critical height for each of the eight materials commonly used under play structures, when tested in an uncompressed state at depths of 150 mm (6 in), 225 mm (9 in), and 300 mm (12 in). The table also reports the critical height when a 225 mm (9 in) depth of each material was tested in a compressed state.

The table should be read as follows:

If, for example, uncompressed wood chips are used at a minimum depth of 150 mm (6 in), the critical height is 2.1 m (7 ft.). If 225 mm (9 in) of uncompressed wood chips are used, the critical height is 3.0 m (10 ft.). It should be noted that, for some materials, the critical height decreases when the material is compressed.

Critical height value - equivalent to the height of the designated play surface above the finished surfacing material (fall height).

	Uncompressed Depth	Uncompressed Depth	Uncompressed Depth	Compressed Depth
Material	150 mm (6 in.)	225 mm (9 in.)	300 mm (12 in.)	225 mm (9 in.)
Wood chips	2.1 m (7 ft.)	3.0 m (10 ft.)	3.3 m (11 ft.)	3.0 m (10 ft.)
Double-shredded bark mulch	1.8 m (6 ft.)	3.0 m (10 ft.)	3.3 m (11 ft.)	2.1 m (7 ft.)
Engineered wood fibres	1.8 m (6 ft.)	2.1 m (7 ft.)	3.6 m (12 ft.)	1.8 m (6 ft.)
Fine sand	1.5 m (5 ft.)	1.5 m (5 ft.)	2.7 m (9 ft.)	1.5 m (5 ft.)
Coarse sand	1.5 m (5 ft.)	1.5 m (5 ft.)	1.8 m (6 ft.)	1.2 m (4 ft.)
Fine gravel	1.8 m (6 ft.)	2.1 m (7 ft.)	3 m (10 ft.)	1.8 m (6 ft.)
Medium gravel	1.5 m (5 ft.)	1.5 m (5 ft.)	1.8 m (6 ft.)	1.5 m (5 ft.)
Shredded tires	3.6 m (12 ft.)	N/A	N/A	N/A

* Source of Data – Table 1, Page 97 - CSA-Z614-98 - Children’s Playspaces and Equipment (May, 1998)

Playground Safety:

As many as 70% of serious playground injuries result from falls onto inadequate or improperly maintained ground surface beneath the play structures. Although it may be difficult or expensive to retrofit or replace the play structure with CSA-compliant equipment, maintaining proper protective surfacing can be one of the most effective risk management strategies to reduce serious playground injuries.

The above table indicates the MINIMUM depth of the given materials necessary to protect against head injuries from the fall heights indicated.

Maintaining the protective surfacing to at least the MINIMUM depth indicated is crucial to providing reliable protection against injury.

Protective surfacing material requires regular **raking** to maintain a consistent minimum depth.

Most types of protective surfacing are ineffective at temperatures below freezing – CAUTION IS ADVISED WHEN USING PLAYGROUNDS DURING WINTER CONDITIONS.