



Masterfibre - Critical Fall Heights

Playground Equipment Critical Fall Height and Surface Area

How deep should my wet pour surface be?

The South African National Standards (SANS) 51176 – 1, 2, 3, 4, 5, 6, 7, 10, 11 and 51177 of 2010 which is available from the SABS website addressing the safety requirements for play structures and safety matting

The depth and area of the Masterfibre SA(Pty) Ltd rubberised wet pour safety surface depends on the Free Fall Height of the playground equipment along with the Critical Fall Height of the surface.

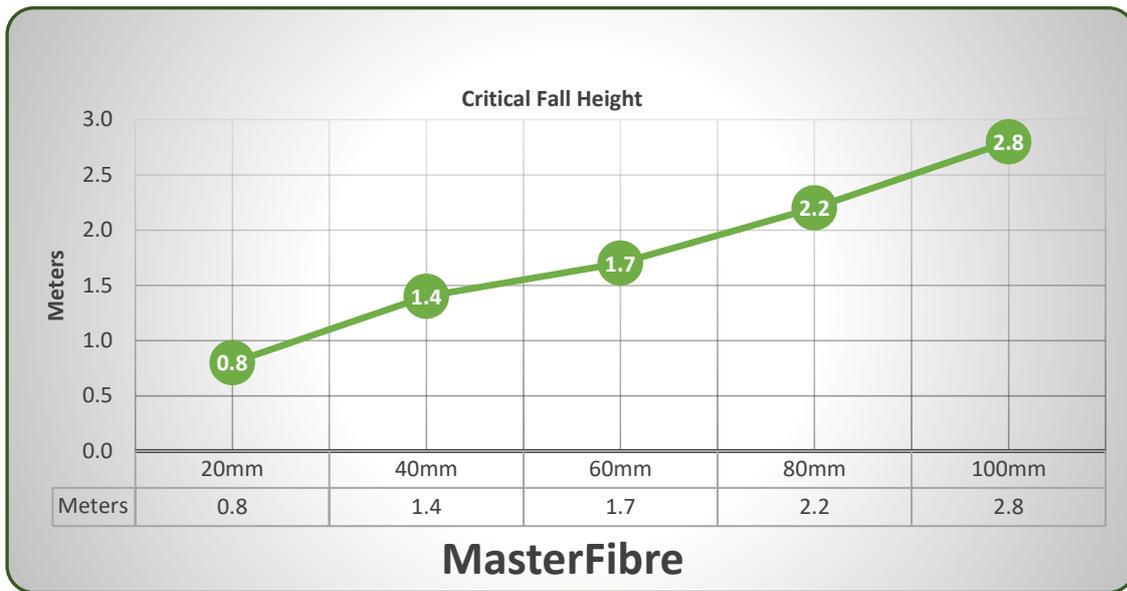
The surface depths on this page only applies to MASTERFIBRE SA (Pty) Ltd wetpour surfaces as tested by an independent laboratory (Test results available on request).

Surfacing Depth

Free Fall Height is a measurement of distance between a play surface and the protective surface. Critical Fall Height relates to the impact attenuation of the surface material and is "the maximum height from which a life threatening head injury would not be expected to occur." Therefore, the fall height of the equipment should not exceed the critical height of the surface in the design of playgrounds and the type and depth of surfacing used under the equipment.

Free Fall Height is measured from the point at which the feet can stand and not the overall top of the playground equipment. Many pieces of equipment have tops or coverings so the measurement is not taken from that point but where the child would be standing at the highest point during normal play. The fall height of see-saws is the maximum height attainable by the seat and the fall height of spring rockers is the height of the seat.

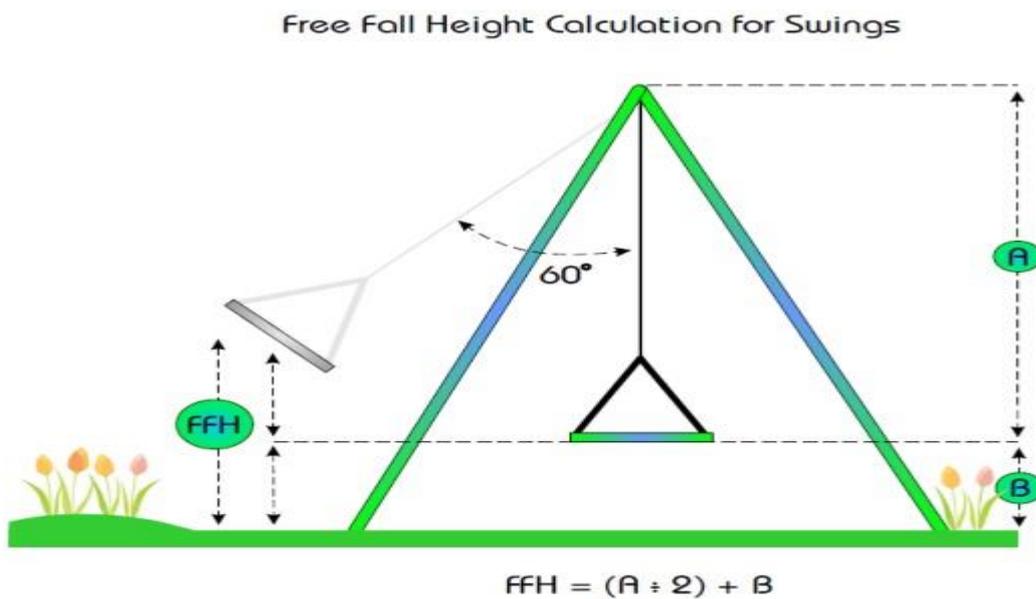
The diagram below gives the critical fall height and the minimum required wet pour safety surface thickness.



Critical Fall Height and Rubberised Safety Surface Thickness

Fall Height for Swings

The fall height for swings is measured from the centre of the stationary swing seat at 60 degrees. To calculate this divide the chain length by 2 and add the distance from the seat to the ground (see image below)



Surfacing Area

The extent of surfacing required around play equipment is dictated by the height of a potential fall.

Stationary Equipment

Stationary play equipment with a Free Fall Height of 1.5m or less should have surfacing which extends at least 1.5m beyond the edges of the equipment. For equipment with a FFH of more than 1.5m, subtract 1.5 from the FFH and multiply the result by 0.667, then add back the 1.5m.

The table below demonstrates this principle:

Free Fall Height	Surface Distance
1.5m	1.50m
1.6m	1.56m
1.7m	1.63m
1.8m	1.70m
1.9m	1.76m
2.0m	1.83m
2.1m	1.90m
2.2m	1.96m
2.3m	2.03m
2.4m	2.10m
2.5m	2.16m
2.6m	2.23m
2.7m	2.30m
2.8m	2.37m
2.9m	2.43m
3.0m	2.50m

Having an adequate and appropriate playground surface, and maintaining it properly, are the most important things a playground owner/operator can do to minimize the severity of playground injuries.

The above information is designed to help you assess the depth and extent of your safety surfacing but please don't hesitate to contact us should you require any further advice or information.