

Stopping Sight Distance

Civil Engineering

Reaction plus braking, plus gradient.

Stopping distance is what a driver covers while reacting plus what the brakes then need.

$$\text{SSD} = 0.278Vt + V^2/(254(f \pm g))$$

V 80, t 2.5 s, f 0.35

Level road.

SSD $\approx$ 128 m

Four per cent downgrade

f – g in the term.

Braking distance grows

Wet surface

Design assumes wet.

f falls, SSD rises

THE COMMON MISTAKE

✗ **Dropping the gradient term**

✓ **Subtract downgrade, add upgrade**

A steep downgrade adds tens of metres of braking, and that is usually the very place where the sight line is already restricted.

Educational reference. Reaction time and friction values are fixed by the governing design standard, not chosen freely.