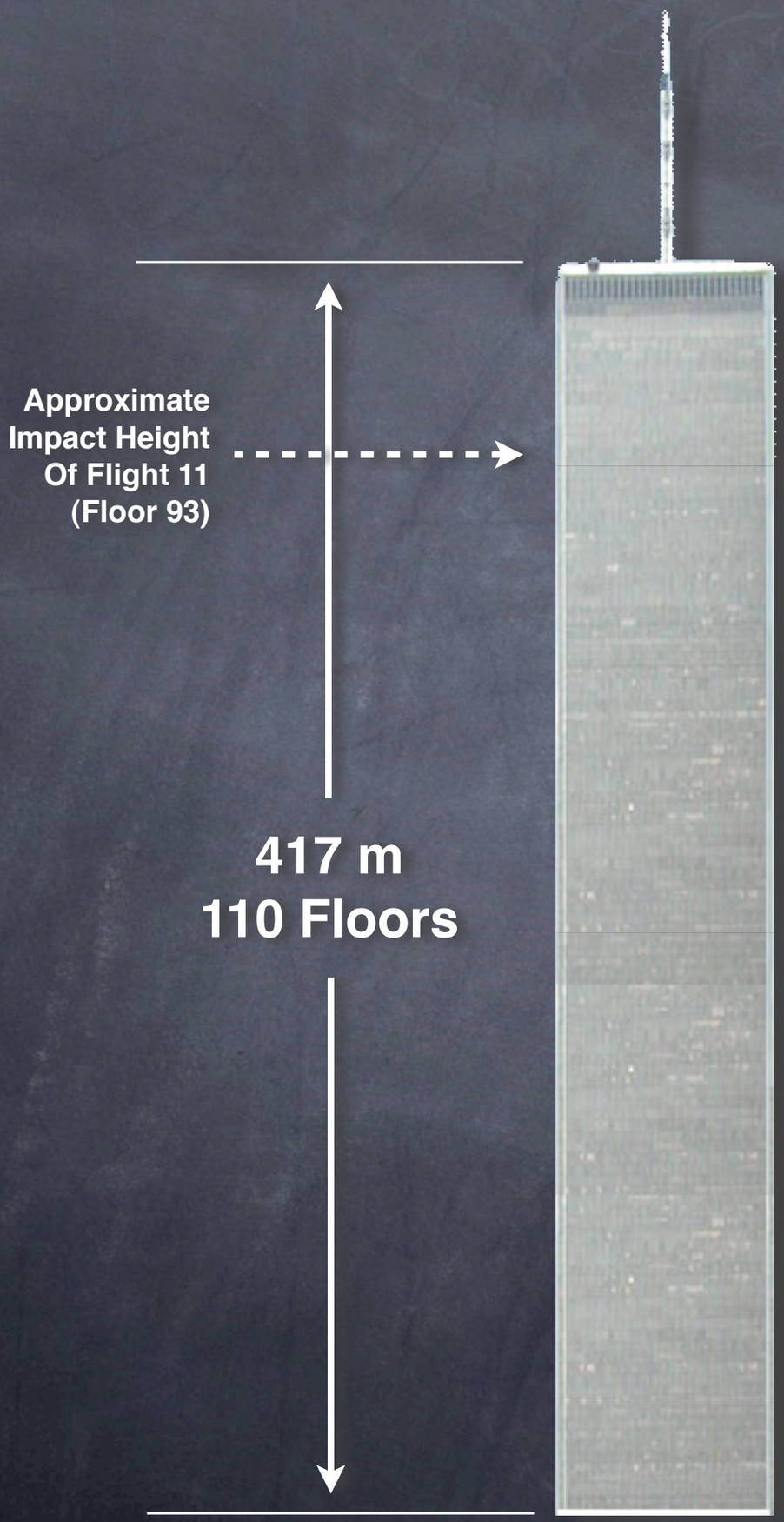
Physics Of 9/11

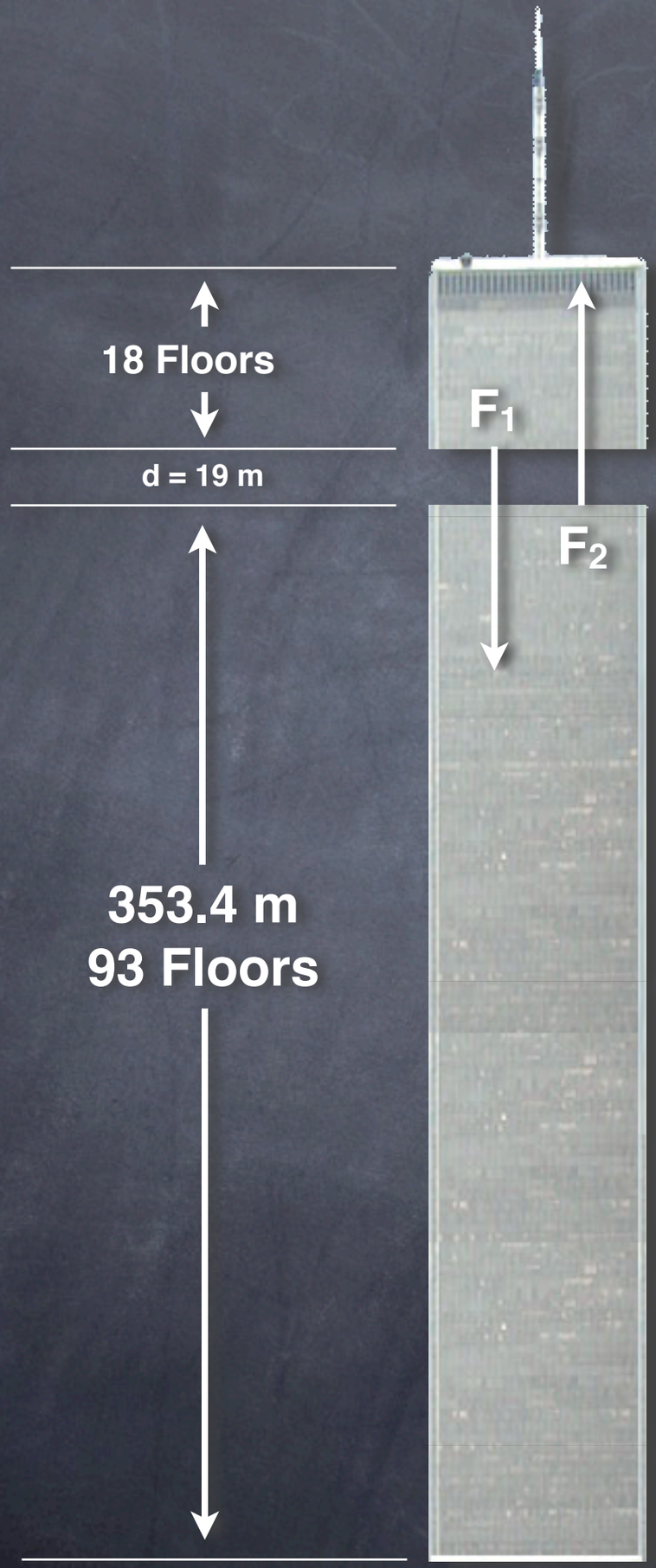
Why The World Trade Center Towers *Could Not*, According To The Basic Laws Of Dynamics, Have Fallen At The Speeds At Which They Were Observed To Fall, Unless Forces Other Than Weight And Gravity Were At Work

WTC1, North Tower



WTC1 Loaded Mass	450,000,000 kg
WTC1 Loaded Floor Mass	4,100,000 kg
WTC1 Floor Height	3.8 m
Height Of 5 Impacted Floors	19 m
Height Of Lowest Damaged Floor (93)	353.4 m
Number Of Floors Above Impact	18 floors

WTC1, North Tower



$v^2 = v_0^2 + 2ad$

$v^2 = 0 + 2 \cdot 9.81\ m/s^2 \cdot 19\ m$

$v = 19.3\ m/s$

$F = ma$

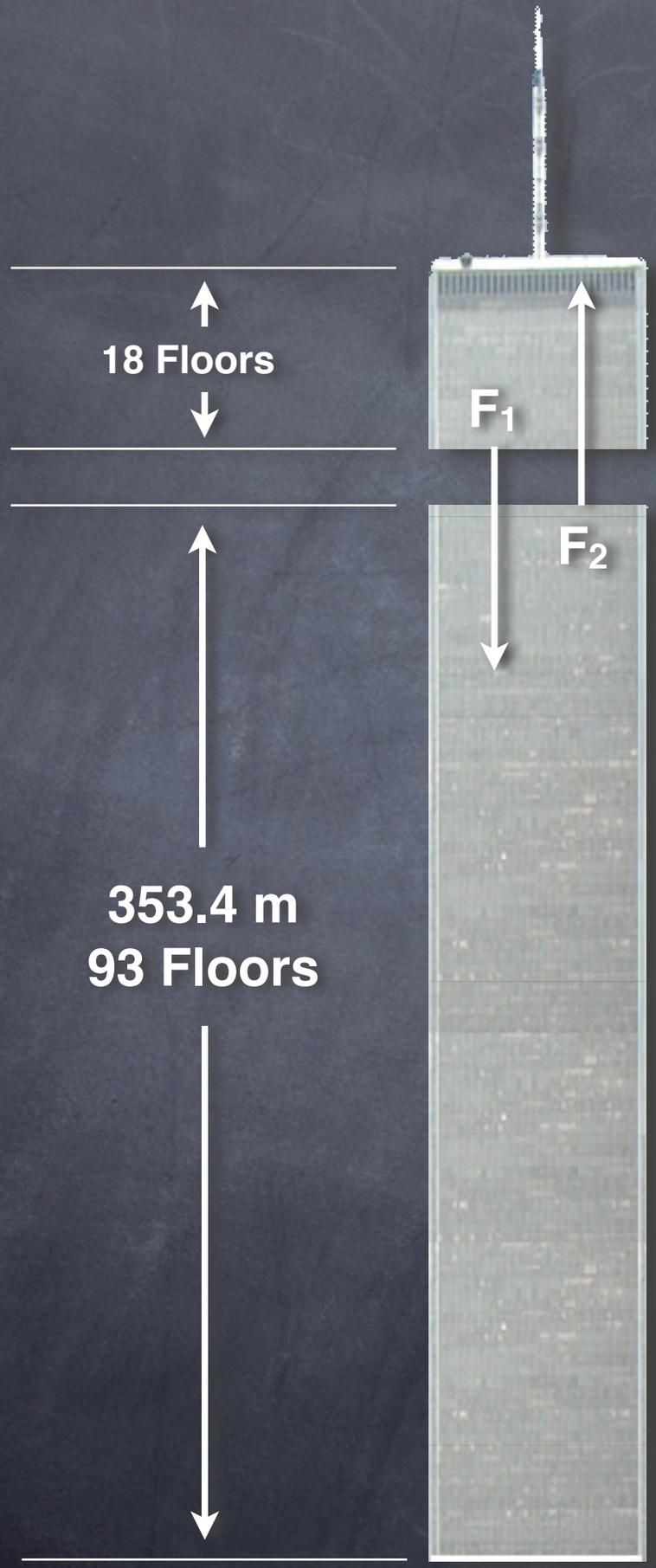
$F_1 = mg = 18 \cdot 4{,}100{,}000\ kg \cdot 9.81\ m/s^2$

$F_1 = 723{,}978{,}000\ N$

$F_2 = (m + m_s)g = 18 \cdot 4{,}500{,}000\ kg \cdot 9.81\ m/s^2$

$F_2 = -794{,}610{,}000\ N$

WTC1, North Tower



$F_1 = 723{,}978{,}000\ N$

$F_2 = -794{,}610{,}000\ N$

$$\Sigma F = \Sigma m \cdot \Sigma a$$

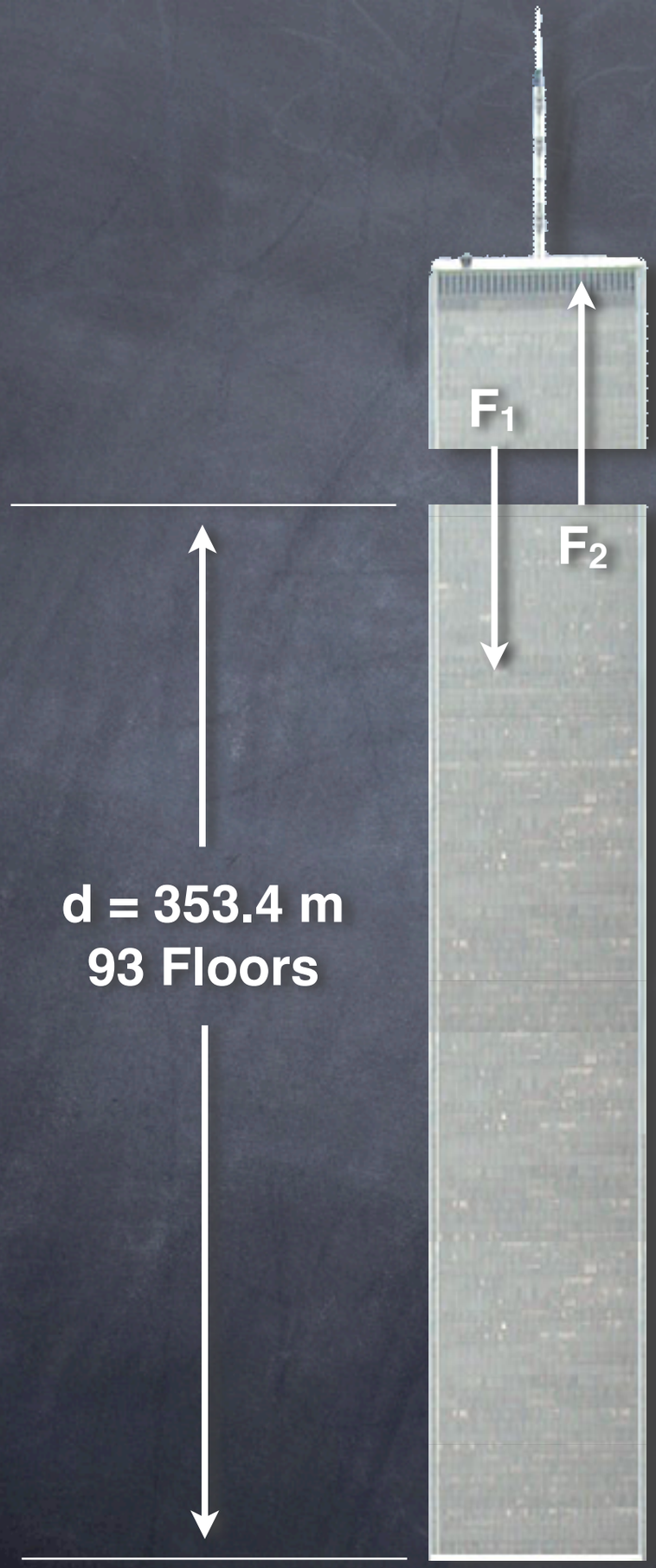
$$\Sigma a = \frac{\Sigma F}{\Sigma m}$$

$$\Sigma a = \frac{723{,}978{,}000\ N - 794{,}610{,}000\ N}{18 \cdot (4{,}500{,}000\ kg + 4{,}100{,}000\ kg)}$$

$$\Sigma a = -0.456\ m/s^2$$

$$a_0 = 0$$

$$a = -0.456\ m/s^2$$



WTC1, North Tower

d = 353.4 m

v_0 = 19.3 m/s

a = -0.456 m/s²

$d = v_0t + .5at^2$

353.4 m = 19.3 m/s • t + .5 • -0.456 m/s² • t²

353.4 = 19.3t - 0.228t²

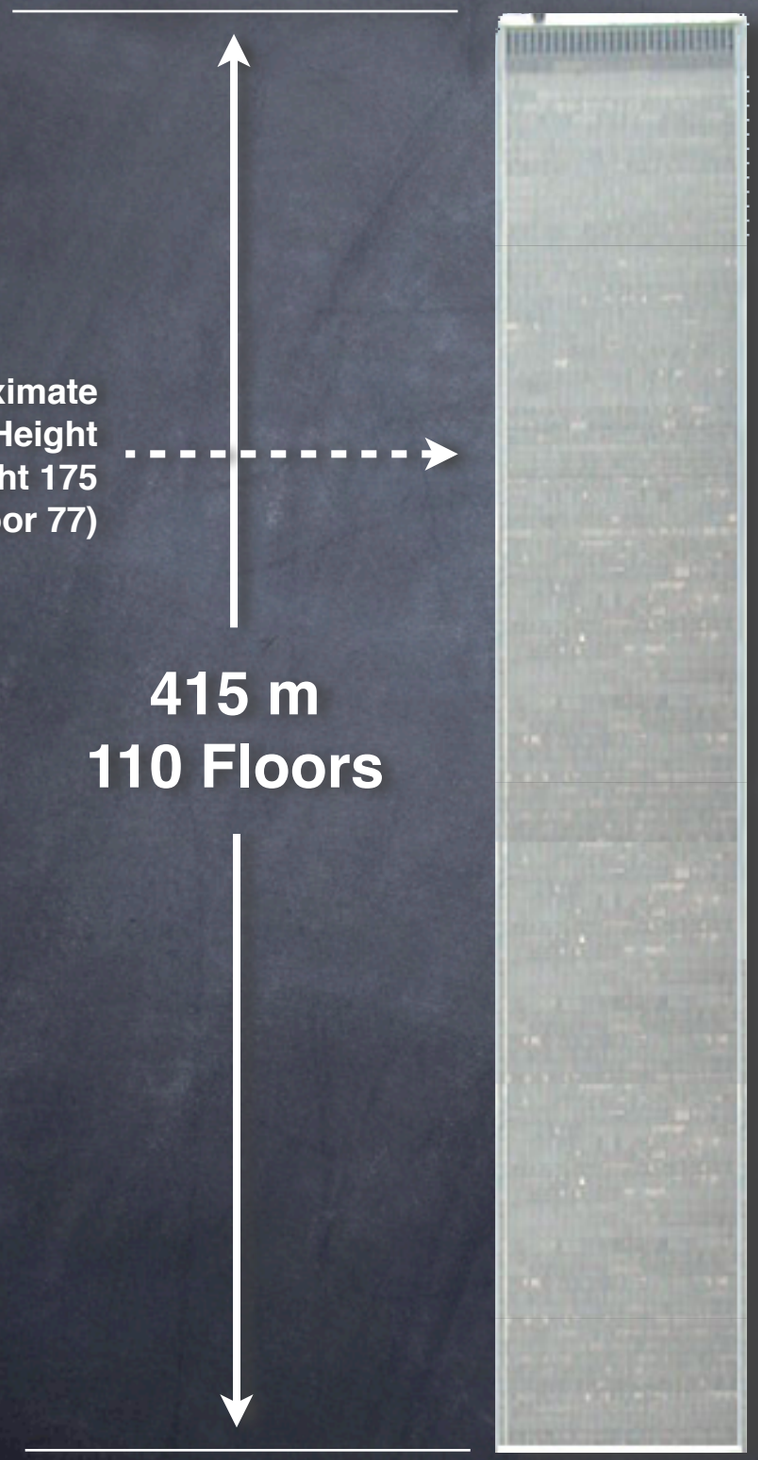
-0.228t² + 19.3t - 353.4 = 0

Quadratic Equation: $ax^2 + bx + c = 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

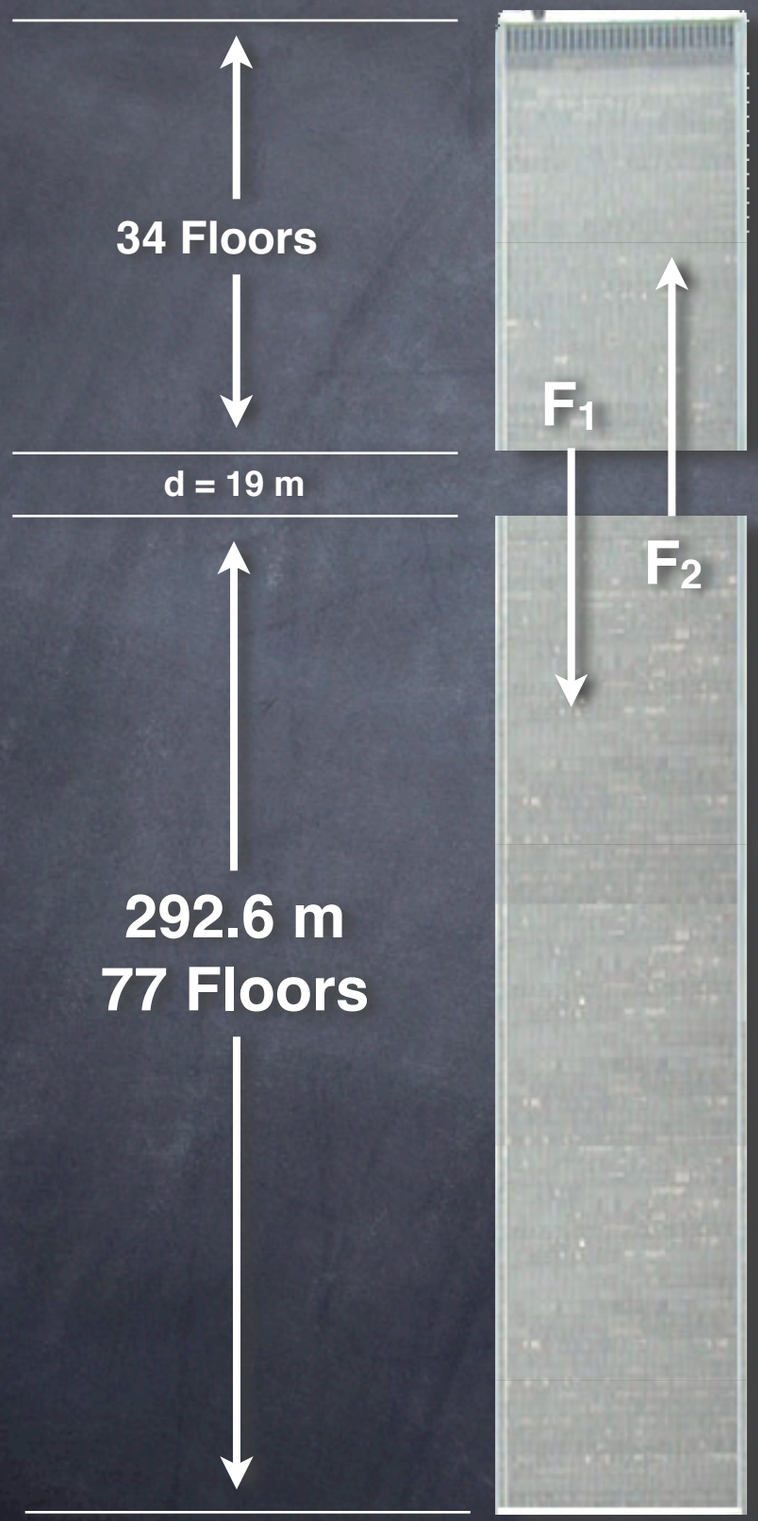
t = 26.79 s

WTC2, South Tower



WTC2 Loaded Mass	450,000,000 kg
WTC2 Loaded Floor Mass	4,100,000 kg
WTC2 Floor Height	3.8 m
Height Of 5 Impacted Floors	19 m
Height Of Lowest Damaged Floor (77)	292.6 m
Number Of Floors Above Impact	34 floors

WTC2, South Tower



$v^2 = v_0^2 + 2ad$

$v^2 = 0 + 2 \cdot 9.81\ m/s^2 \cdot 19\ m$

$v = 19.3\ m/s$

$F = ma$

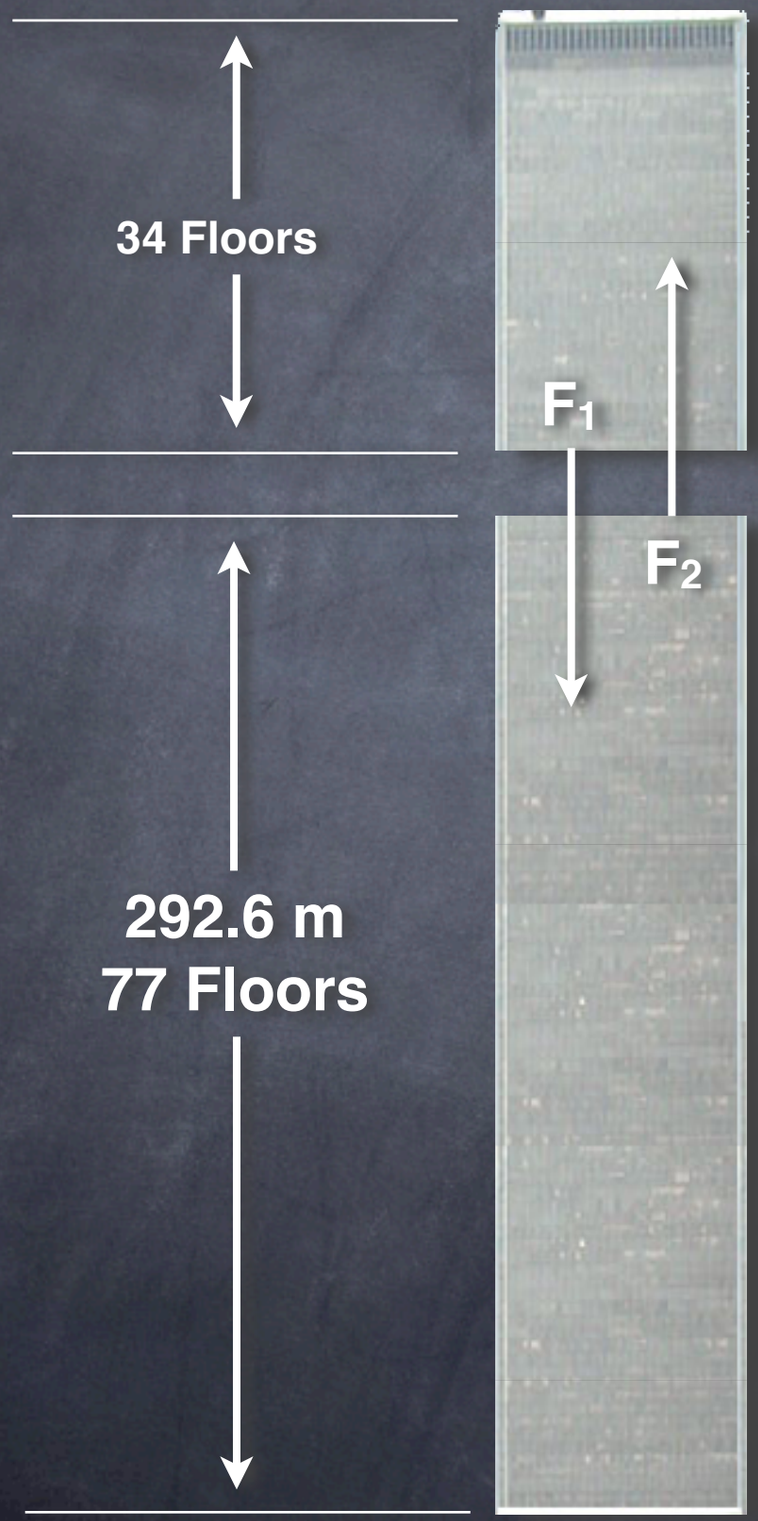
$F_1 = mg = 34 \cdot 4{,}100{,}000\ kg \cdot 9.81\ m/s^2$

$F_1 = 1{,}367{,}514{,}000\ N$

$F_2 = (m + m_s)g = 34 \cdot 4{,}500{,}000\ kg \cdot 9.81\ m/s^2$

$F_2 = -1{,}500{,}930{,}000\ N$

WTC2, South Tower



$F_1 = 1{,}367{,}514{,}000\ N$

$F_2 = -1{,}500{,}930{,}000\ N$

$$\Sigma F = \Sigma m \cdot \Sigma a$$

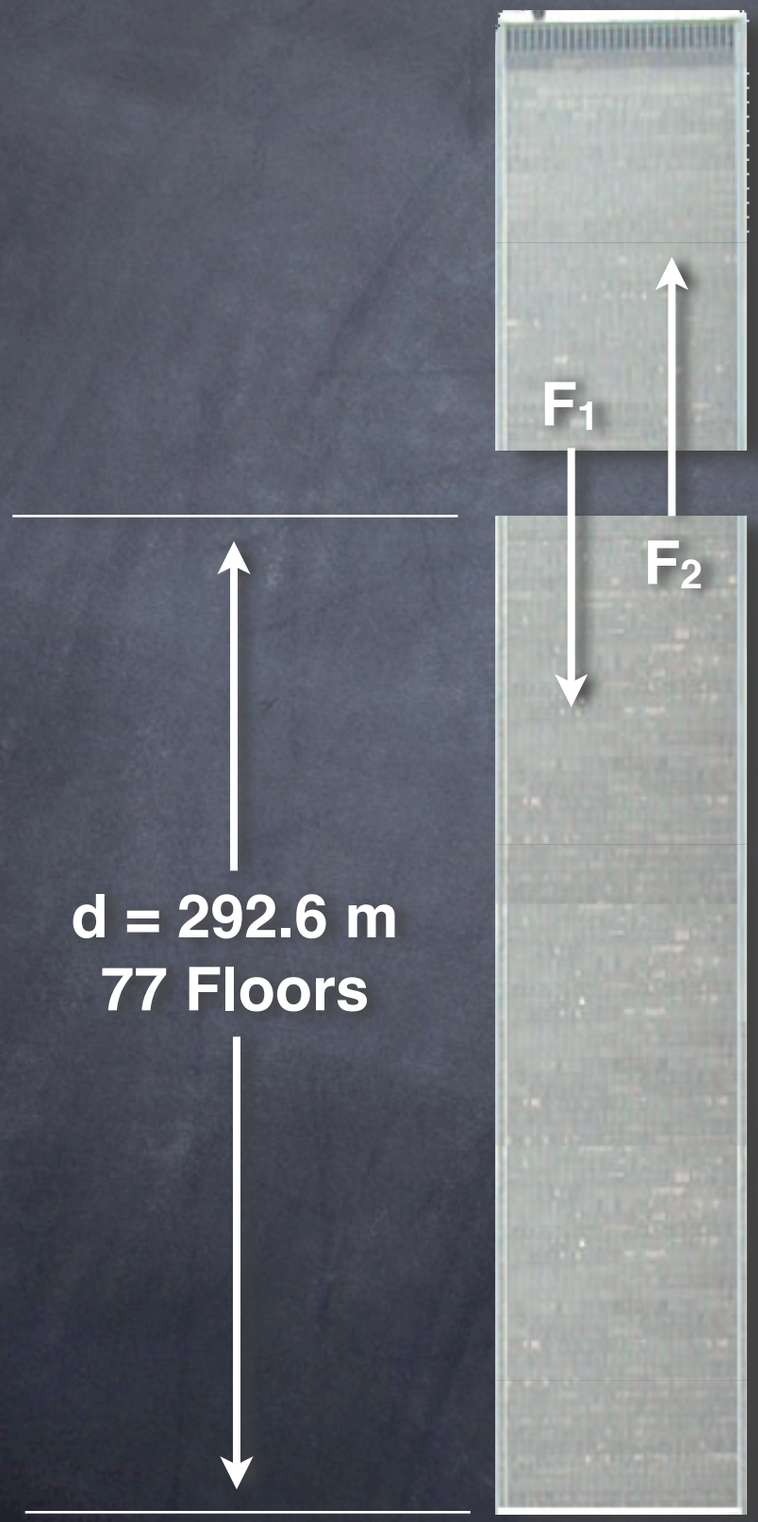
$$\Sigma a = \frac{\Sigma F}{\Sigma m}$$

$$\Sigma a = \frac{1{,}367{,}514{,}000\ N - 1{,}500{,}930{,}000\ N}{34 \cdot (4{,}500{,}000\ kg + 4{,}100{,}000\ kg)}$$

$$\Sigma a = -0.456\ m/s^2$$

$$a_0 = 0$$

$$a = -0.456\ m/s^2$$



$d = 292.6\ m$

$v_0 = 19.3\ m/s$

$a = -0.456\ m/s^2$

$d = v_0t + .5at^2$

$292.6\ m = 19.3\ m/s \cdot t + .5 \cdot -0.456\ m/s^2 \cdot t^2$

$292.6 = 19.3t - 0.228t^2$

$-0.228t^2 + 19.3t - 292.6 = 0$

Quadratic Equation: $ax^2 + bx + c = 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$t = 19.78\ s$