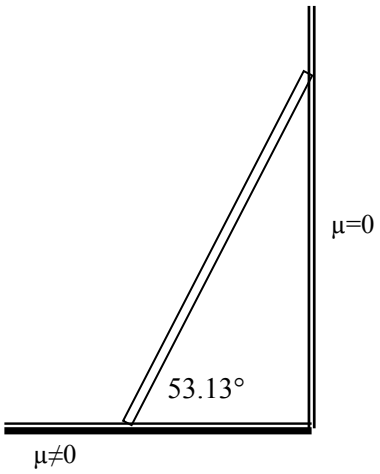
W4.05

STATIC EQUILIBRIUM – Ladders KEY

$\Sigma F = 0$ & $\Sigma \tau = 0$

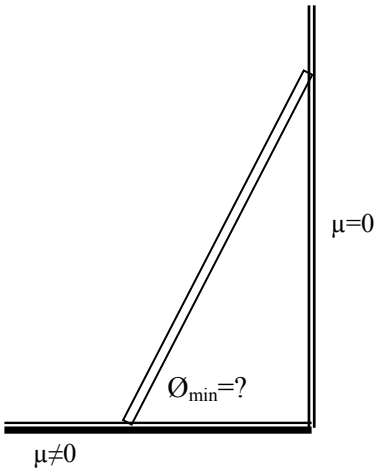
Note: all walls are frictionless ($\mu=0$) and all floors are rough ($\mu\neq0$), unless otherwise indicated.

[1] A 10 meter long ladder leans against the wall as shown. If the ladder weighs 100 N, what is μ_{min}?



$\mu = 0.375$

[2] A 10 meter long ladder leans against the wall as shown. If the ladder weighs 200 N and there is just enough frictional force to allow a 800 N person to climb to the top safely, what is $ø_{min}$? Note: $\mu_{Floor}=0.675$.



$Ø_{min} = 53.13°$