• \( A \): area of each plate
• \( d \): distance between plates
• \( Q \): magnitude of charge on inside surface of each plate

Charge per unit area (magnitude) on each plate: \( \sigma = \frac{Q}{A} \)

Uniform electric field between plates:
\[
E = \frac{\sigma}{\epsilon_0} = \frac{Q}{\epsilon_0 A}
\]

Voltage between plates:
\[
V \equiv V_+ - V_- = Ed = \frac{Qd}{\epsilon_0 A}
\]

Capacitance for parallel-plate geometry:
\[
C \equiv \frac{Q}{V} = \frac{\epsilon_0 A}{d}
\]