FORMULAS FOR POOL CAPACITY

L = length  \hspace{5mm} W = width  \hspace{5mm} V = volume  \hspace{5mm} D = depth
r = radius (half of the diameter of a circle)
\pi = (pi) 3.14 (a factor used in calculations with circles)

SURFACE AREA
- Rectangular pool = L x W
- Circular pool = r² x \pi
- Right triangle = (L x W) ÷ 2

AVERAGE DEPTH
- For constant slope: \[D \text{ (minimum)} + D \text{ (maximum)} \] ÷ 2 = AVERAGE DEPTH
- Note: For multi-depth pools calculate the volume in sections of constant slope and add them together.

CUBIC FEET OF VOLUME (surface area times average depth)
- Rectangular pool \( V = L x W x D \)
- Circular pool \( V = r^2 x \pi x D \)

POOL GALLONAGE IN CUBIC FEET (cubic foot of water = 7.5 gallons)
- Rectangular pool gallons = L x W x D x 7.5
- Circular pool gallons = \( r^2 x \pi x D \times 7.5 \)

FLOW RATE/TURNOVER RATES

SPAS: Required turnover every 30 minutes therefore required flow rate is:
\[ \frac{\text{Gallons}}{30 \text{ minutes}} = \text{minimum (min) flow rate in gallons per minute (gpm)} \]

LIMITED USE POOLS: Required turnover at least every 8 hours (8 x 60 min = 480 min)
\[ \frac{\text{Gallons}}{480 \text{ minutes}} = \text{min flow rate in gpm} \]

GENERAL USE, LTD USE OVER 2000 SQ FT SURFACE AREA AND ATHLETIC CLUB POOLS: Required turnover at least every 6 hours (6 x 60 min = 360 min)
\[ \frac{\text{Gallons}}{360 \text{ minutes}} = \text{min flow rate in gpm} \]