1. A plate carrying a 5000* load is to be welded to a rigid support. Determine a suitable weld to support this load. Use E60 electrodes.

Minimum weld size is $\frac{3}{16}$" due to thickness of thicker part.

**N.T.S.**

**Trial 1:**

\[
Aw = b + 2d = (6" + 2(3")) = 12\
\]

\[
f = \frac{V}{Aw} = \frac{5000^*}{12} = 417^*/\text{in.}
\]

Allowable force per inch of leg = 9600^*/\text{in.} for E60 electrodes (Table 20-3, pg 785)

\[
Weld size, w = \frac{9600^*/\text{in.}}{417^*/\text{in.}} = 0.043
\]

Use $\frac{3}{16}$" weld on 3 sides.

**Trial 2:**

\[
Aw = 2b = 2(6"
\]

\[
f = \frac{V}{Aw} = \frac{5000^*}{12} = 417^*/\text{in.}
\]

\[
W = \frac{9600^*/\text{in.}}{417^*/\text{in.}} = 0.043
\]

Use $\frac{3}{16}$" weld on 2 sides.

**Trial 3:**

\[
Aw = 2b = 2(3"
\]

\[
f = \frac{5000^*}{6\text{in.}} = 833^*/\text{in.}
\]

\[
W = \frac{9600^*/\text{in.}}{833^*/\text{in.}} = 0.086
\]

Use $\frac{3}{16}$" weld, 3" long, on 2 sides.

Less weld... use this one.