Table 8-2  Gross and Cracked Moment of Inertia of Rectangular and Flanged Section

<table>
<thead>
<tr>
<th>Gross Section</th>
<th>Cracked Transformed Section</th>
<th>Gross and Cracked Moment of Inertia</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="https://example.com/image1.png" alt="Image of Gross Section" /></td>
<td><img src="https://example.com/image2.png" alt="Image of Cracked Transformed Section" /></td>
<td><img src="https://example.com/image3.png" alt="Image of Gross and Cracked Moment of Inertia" /></td>
</tr>
</tbody>
</table>

\[
n = \frac{E_s}{E_c}
\]

\[
B = \frac{b}{(nA_s)}
\]

\[
l_g = \frac{bh^3}{12}
\]

Without compression steel

\[
kd = \left(\sqrt{2dB} + 1 - 1\right)/B
\]

\[
l_{cr} = bk^3d^3/3 + nA_s(d - kd)^2
\]

With compression steel

\[
r = \frac{(n-1)A_s'/nA_s}{nA_s}
\]

\[
k_d = \left[\sqrt{2dB(1+rd'/d)} + (1+r)^2 - (1+r)\right]/B
\]

\[
l_{cr} = bk^3d^3/3 + nA_s(d - kd)^2 + (n-1)A_s'(kd - d')^2
\]