

THEORY



The stress concentration factor K_t is defined as the ratio of the maximum stress to the average stress in a member under stress. It is given by the equation:

$$K_t = \frac{\sigma_{max}}{\sigma_{avg}}$$

where σ_{max} is the maximum stress and σ_{avg} is the average stress in the member.

The stress concentration factor is a function of the geometry of the member and the type of loading applied.

For a member with a sharp corner or a sudden change in cross-section, the stress concentration factor is high. For a member with a smooth transition, the stress concentration factor is low.

EXPERIMENT

The stress concentration factor was determined for a member with a sharp corner and a member with a smooth transition.

The results are shown in the table below.

Member	Stress Concentration Factor
Sharp corner	2.5
Smooth transition	1.2

It is observed that the stress concentration factor is higher for the member with a sharp corner.