The relevant text for the word 'stress' is:

The objective of this paper is to explain t he flexibility characteristics,   
elemental forces & displacements and als o stress intensification factor (SIF) refe rring to this code and ensuring that they   
are kept in the allowable limits as per the standards at different load conditions such as HYDROSTATIC, SUSTAINED,   
OPERATING and EXPERIMENTAL Cases.

INTRODUCTION   
Pipe Design mainly depends upon stress analysis.

Process piping and power piping are typically checked by pipe stress engineers   
to verify that the routing, nozzle loads, hangers, and supports are properly placed and selected such that allowable pipe stress is   
not exceeded under different loads such as sustained loads, operating loads, pressure testing loads, etc.

This evaluation is usu ally performed with   
the assistance o f a specialized finite element pipe stress analysis computer program CAESER -II.

This   
software make use of Finite Element Methods to carry out stress analysis in order to find the sorted code stresses, code   
compliance stresses, element forces and moments in coordinates and displacement at all nodes in the piping layout in differen t   
cases such as HYDROSTATI C, SUSTAINED, OPERATING and EXPERIMENTAL Cases.

Both these create stress problems.

Stress analysis   
determines the forces exerted in the pipe, anchor points, restraints in piping system, stress induced in pipe must be checked   
against the allowable limits as per the respective codes and standards.

 As per allowable load at connection s find the stress and compensate the effect of place supports & loops if required.

The bending stress acting on the two different planes can be combined; consequently the combined bending stress 𝑆𝑏 acting on   
the longitudinal direction is given by   
 𝑆𝑏 = √(IiMi)2+(IoMo)2/𝑍   
Where   
 𝑀𝑖 and M0, are the inner a nd outer plane bending moments.

 𝑖𝑖 and 𝑖𝑜 are respectively the inner and outer plane stress intensification factors.

The flexibility analysis is done by the comparison between the combined effect of multidimensional tensions and the allowable   
stress.

3 c odes use the Tresca criterion to obtain the combined tension effect 𝑆, also called expansion stress:   
 𝑆𝐸 =√Sb2+4St2   
According to the ASME B31.

PIPING SOFTWARE   
Piping stress analysis is a vital part of the Industrial plants condition assessment.

At present, there are many software’s f or piping   
stress analysis, viz.

In this paper, piping stress   
analysis is carried out using CAESER -II software.

The result provide displacements, stresses, loads, stress intensification factor   
(SIF), etc.

5) COADE Pipe stress Analysis notes   
6) Gaurav Bhende, Girish Tembhare, “Stress Intensification and Flexib ility in Pipe Stress Analysis”, International Journal of   
Modern Engineering Research, Vol.

The relevant text for the word 'fatigue' is:

Failure of piping from overstress / fatigue.