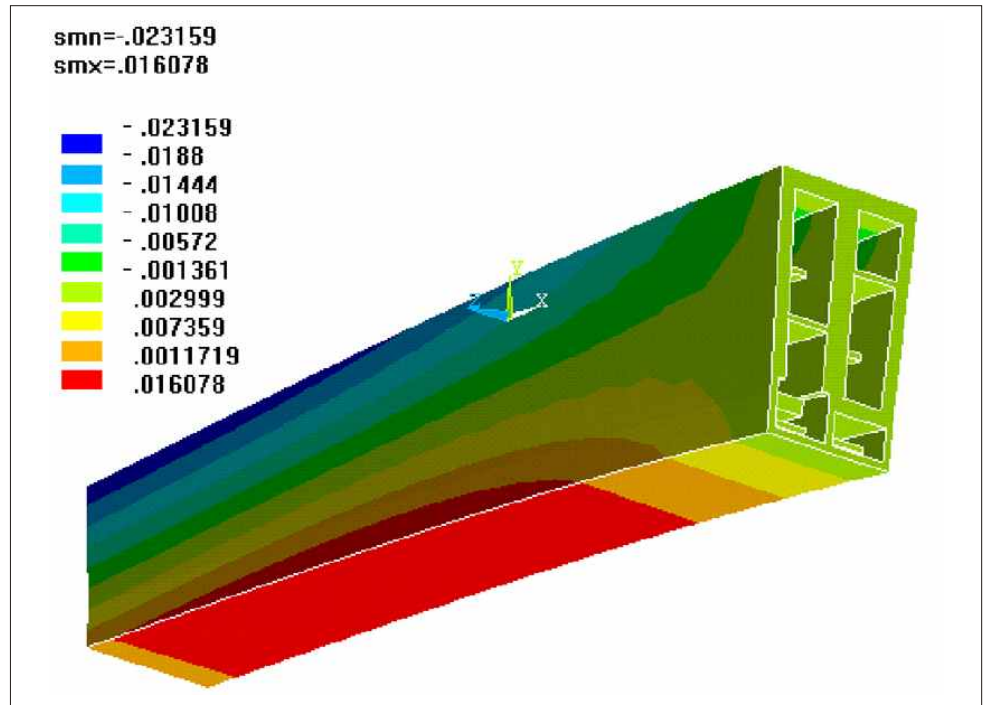


Finite Element Analysis of supporting Finger in Energy Optimizing Furnace (EOF)



Client : Steel Rolling Industry

Description : Energy optimizing furnace as the name implies optimizes the available flue gas energy to preheat the scrap material which is used to produce the iron billets in steel rolling industry. The pre-heat of scrap is done inside the furnace with the help of supporting finger. The objective of this paper is to analyze the supporting finger for its probable frequent failure using finite element analysis.

Analysis : The present work on this finger is to focus the failure mode for puncturing the bottom of supporting finger in short intervals. A static structural finite element technique is incorporated here to optimize the design against the influencing parameters such as scrap load as well as thermal load due to furnace. The structural analysis is carried out for the deformation, stress distribution of the finger and thermal analysis for the temperature distribution. From the finite element analysis we can obtain the information of finger for redesign and optimization of supporting finger.

