**CHIMNEY DESIGN BY USING SAP2000**

**ABSTRACT**

The chimney is a system for venting hot flue gases or smoke from a boiler or furnace to the outside atmosphere. They are typically almost vertical to ensure that the hot flue gases flow smoothly, drawing air into the combustion through the chimney effect. It is essential to determine the wind, seismic and temperature demands of chimney structures to prevent structural problems which lead to collapse of the structure. This study focused the effect of wind load, earthquake load as well as temperature effects on reinforced concrete (RC) chimneys. Wind analysis was carried out by along wind effects by using the Simplified method and seismic analysis by time history analysis for different heights varying from 275m to 400m with three different radius-thickness ratios and for different longitudinal sections such as tapered and partially tapered by using the software SAP2000v19. Analyses were conducted to study the variation of displacement and shell stress for the wind analysis, peak displacement for the seismic analysis and temperature effects. The results indicated that as the radius-thickness ratio increases the displacement values were decreasing. The RC chimney with more height and the partially tapered section will be critical compared to fully tapered chimney for the wind, seismic and temperature effects and fully tapered chimney structure exhibiting minimum displacement.

**Keywords— RC Chimney, Wind Analysis, Seismic Analysis, Temperature effects and SAP2000v19.**