

CHALLENGES OF DESIGN  
OF RECENT TALL CHIMNEYS  
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India has been striving to alleviate the electric power crisis, recently aggravated due to the economic boom in the country. Out of the two major sources of power, i.e. Hydel Power and Thermal Power, the latter has become more popular due to its adaptability towards larger production capability. Thermal power is obtained through burning coal, which is required to operate the steam boilers. When burnt, the coal produces polluting gases that need to be discharged at an elevation high enough to dilute the pollution and to keep it within acceptable limits at ground level. An adequately designed tall chimney serves this purpose. As the pollution norms have become stringent with time, the chimney heights have gone up progressively from 100m to 150m to 220m to 275m. This is represented well in the chimneys designed over the years by the authors, **Fig. 1**. In most thermal power plants, 275m tall concrete chimneys have now become the standard norm. It may be worthwhile mentioning here that a bi-product of burning of coal is fly ash, which is produced in the process line between boiler and chimney. This fly ash is extracted using electrostatic precipitators, which incidentally can be used in blended cement and as mineral admixture in concrete.

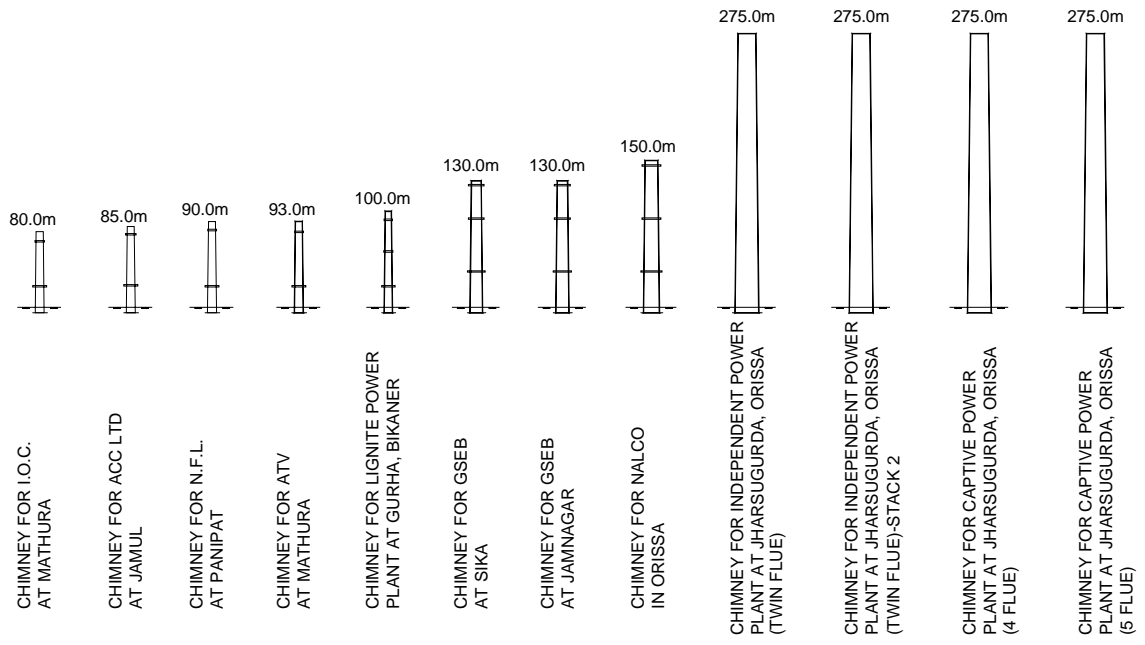


FIG 1: Tall Structure