The present research studies experimentally the effect of the ratio of the centurial hollow on the average of laminar convective heat transfer and the thermal gradation of the thermal boundary layer of three square flat plates. An experimental set-up was made for this purpose containing basically three uniformly Aluminum flat plates of a centurial hollow representing (0.25,0.5,0.75) of the entire surface area of each plate. Each of the three plates were heated by a constant heat flux for a rang of Rayleigh number of ($5.62 \times 10^5 \leq Ra \leq 1.67 \times 10^6$).The study showed that increasing the hollow ratio causes to increase the average of convective heat transfer by increasing the average Nusselt number, and the increasing average from a ratio to another decreases by the increases of the hollow ratio. The increasing between the two surfaces at (m=0.25&m=0.5) reached (39.6%) and for (m=0.5&m=0.75) was less than that and reached (29.2%).The increase average between the biggest and smallest hollow ratio was (78%).The study also showed that the maximum thermal gradation was on the out side edge of the plates and increases with the increase of Rayleigh number and the hollow ratio.