In this study, the effect of shot peening on mechanical and physical properties of AA1050 and AA2024 aluminum alloys has been investigated. The shot media S230, S330 and S460 have been selected. It has been observed that shot peening has no significant effect on the ultimate tensile and yield strength besides leads to reduction of electrical conductivity for the AA2024 material. Shot peening with S330 shot media shown decrease in thermal conductivity compared to S230 and S460 ones. Exposure time raises the surface roughness of both AA1050 and AA2024 and the increase in surface roughness is more sensitive for AA1050. Shot peened AA1050 has been investigated via metallographic examinations to reveal the severity of plastic deformation. The shot media size directly affect the plastic deformation zone under the surface. In addition, as exposure time is increased, thickness of the layer undergoing plastic deformation is also increased. Grain refinement has also been observed in the layer due to excessive plastic deformation.