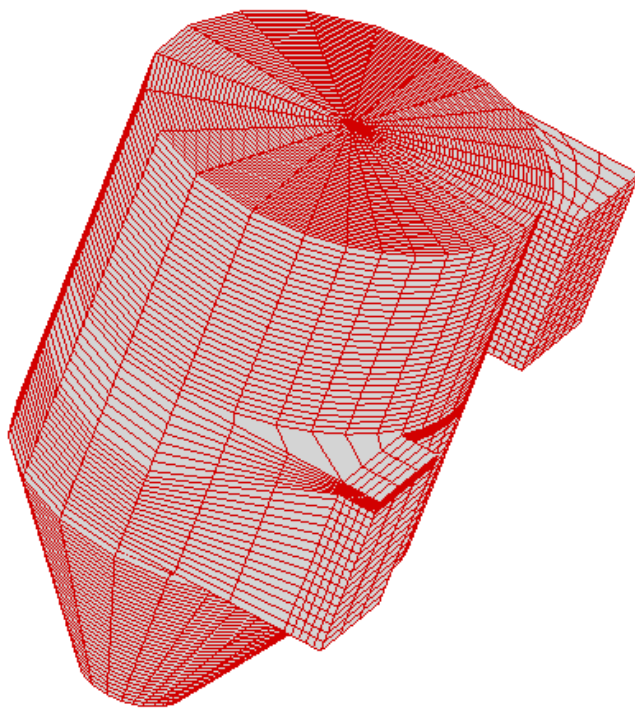
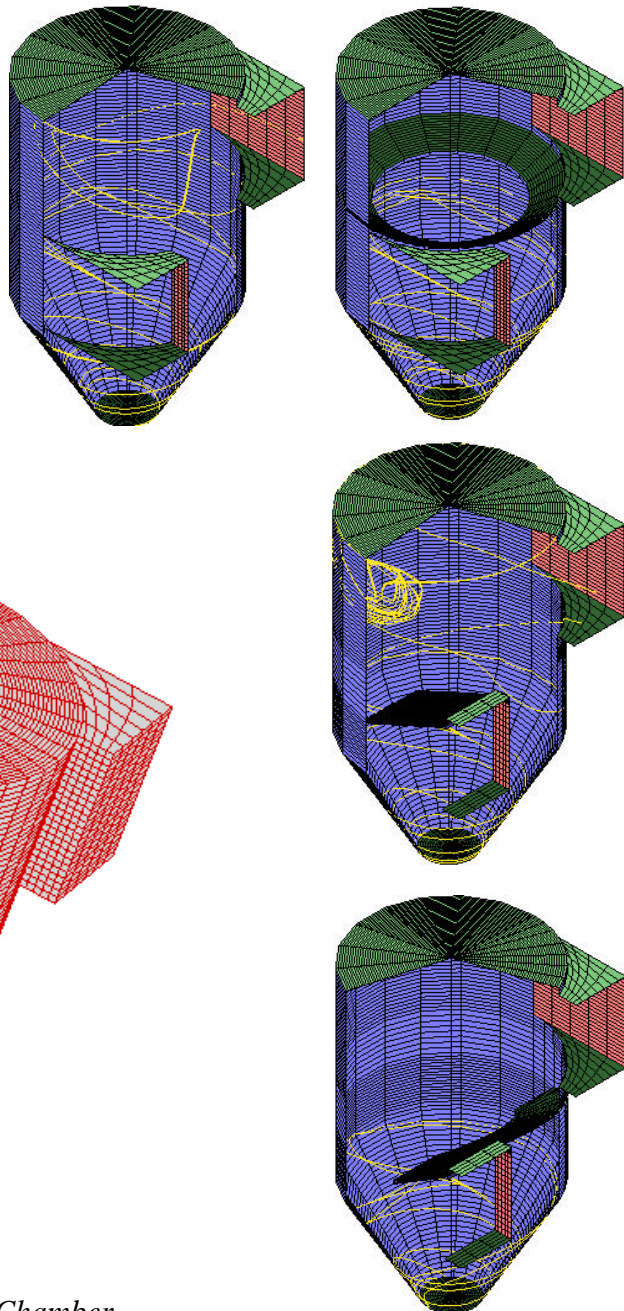


## Design Analysis and Optimisation of Particle Collection Chamber

The primary aim of the mathematical study is to increase the collection efficiency of a dropout chamber. Number of design modifications have been suggested by client which in turn have been modelled and analysed to order to evaluate their collection efficiencies. The predictions have shown that all the suggested modifications have contributed to an increase in the collection efficiency of the dropout chamber. However, operational difficulties have been observed in one or two modifications, which make them unpractical and may cause some problems in the future. The selected design has raised the collection efficiency from the current level of 60% to the desirable one of 98%. A final design modification has been agreed upon and all aspects of flow aerodynamics and particle trajectories have been analysed.



*Grid arrangements of the Dropout Chamber*



*Particle trajectories inside the Dropout Chamber*