

CONCEPT OF ENVIRONMENTALLY CONSCIOUS DESIGN- CLEAN TECHNOLOGY

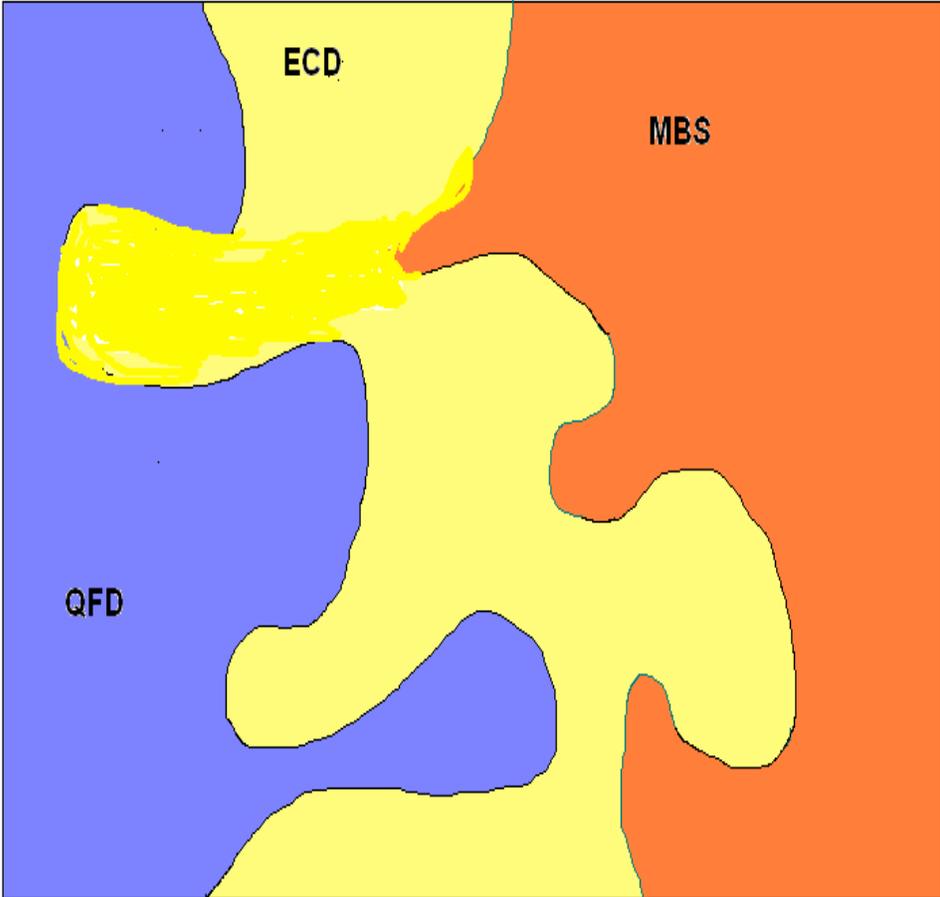
NIMA GROUP structural engineers model the respective structure based on project requirements as defined by the QFD (Quality Function Deployment) team and the environmentally conscious design (ECD) of the ECD team. The modeling type depends on the type of structure. For instance, if it is a tank, it is mostly plate elements for the walls, floor, haunches, and member elements for supports, columns, and stiffeners. In case studies, it was found that for some Auto Industry projects the case study company used U-shaped columns to make a box when welded to the tank wall to maximize effective and economical uses of plates and to keep a clean environment required by PFS (Paint Finishing System) and ECD (Environmentally Conscious) Design.

The accuracy of the finite-element solution is also dependent upon the number and type of elements used to describe a structure. Generally speaking, the accuracy of a solution increases with an increasing number of elements. However, the computation time required to obtain a feasible solution according to the model. We provide an accurate solution using minimal computational resources. The most common sources of errors in FEA are inaccurate assessment of boundary conditions, loads, appropriate analyses techniques, and understanding the mechanism of complexities. During modeling, NIMA Group structural engineers use the same plate elements to make structural members. Sometimes, it is economical and attractive to use the same material throughout a product. In Paint Finishing Systems of Auto Industry most of the process tanks are stainless steel and supports are mild steel. This creates problems of welding of dissimilar materials, corrosion of mild steel, difficulty in cleaning, and unattractive appearance. For most products, the FEA is used for solid modeling. After modeling is complete with the

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approximate geometry set by the QFD team, the ECD team helped to select materials based on LCA (Life Cycle Analysis).

Environmentally conscious design adopted by Nima Group LLC has a good impact on our environment is green living. If we do this, we can keep our environment in check for the next generation. The main objective for living green is to have the planet be ecologically balanced.

We can see how these three methodologies are integrated as depicted below.



INTEGRATED MBS,QFD AND ECD METHODOLOGIES