

AN OVERVIEW ON CONSTRUCTION OF DAIRY PLANTS BUILDINGS

[For Processed Branded Milk & Normal Bye-products]

Processing dairy products is a huge agro-based industry. While Dairy plants are also categorized as industrial buildings, the similarity between any other industrial building (shed-type factory constructions) and a dairy building ends here. Dairy buildings are very specialized 'Food-processing units' where the ingredient processed being milk, which has self-life of just a few hours, if untreated. Thus, from raw milk reception to delivery of processed milk and its bye-products has lot of challenges related to maintaining food-grade hygiene within the buildings, maintaining controlled room environments, heating, cooling, washing, sterilization in the process activity and temperature-controlled storage facilities, cold store ware-housing, dispatch facilities, etc.

The above points need to be addressed in building design and construction master plan. Along with building design other activities like machinery and equipment installations, process piping, other building services, light and ventilation aspects, creating comfortable working environments on shop-floors, etc., also comes in picture the function and aesthetics. Planning requirements have to look at future expansion with respect to maximizing the utility-areas & services blocks.

It is thus, the performance of these buildings in addressing the above issues, which play a key role in the success of the product. Due to the process requirements the structures are normally long-span, tall or double-heighted floors and heavy industrial loading or extra heavy loadings which pose a technical challenge to construct.

The Dairy buildings have to be HACCP & ISO compliant from planning stage itself.

Though process consultants for machinery & equipment are appointed on priority, owners do not take the building planning & construction process earnestly, as the importance of a good building infrastructure is only realized by the owners after the building is completed. At that point, it is too late, since lacunae in construction cannot be satisfactorily rectified when the plant becomes operational.

Also, there are not many architects who are conversant with the language of dairy planning and its requirements. Many-a-times, even the Civil Contractors appointed by owners are generally not specialist in 'dairy' typology of building constructions and rely on their

experiences in other industrial works, which is actually an eye-wash, unless they are not exposed to intricacies of loading & finishing requirements in dairy constructions.

Dairy projects are relatively complicated and require lot of interactive inputs between the key-players such as project promoters, product-planners, process-consultants, architects, structural consultants, electrical consultants, HVAC agencies, plumbing and sanitary engineers, fire-safety experts, dairy-equipment vendors, hygiene consultants, other specialist and thus co-ordination amongst these key-players before, during and post-construction is essential in order to achieve success in the project.

Considering that the raw-material i.e. milk, being a perishable liquid and constant washing or cleaning requirements, any construction material prone to corrosion, deterioration or decay are not considered suitable for construction of the dairy processing units. Thus, use of mild-steel or wood may become absolutely unsuitable. RCC construction in this industry has been traditionally used, however now a days we also design 'composite-structures' for dairies.

There are many causes observed for project delays in dairy industry, upsetting the start date of commercial operations and affecting the Cost of Capital. On the overall, construction takes only about 1/4th of the entire project cost, whereas it probably consumes 4 times more time, than machinery installation. Whereas the dairy plant machinery consumes 75% of the cost and is installed in 1/4th of the entire project time. Hence it is but obvious, that focus has to be on correct planning and right construction methods and accurate installation of equipments, its testing, trial runs & commissioning which may help reducing the overall 'Timeline'.

With regards,

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