COMPARISON OF PORTAL FRAMES OF UB SECTIONS WITH THE LATTICE GIRDER PORTAL FRAMES.

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Portal frame structures are very popular in industrial buildings due to their pleasing appearance and shorter construction period. In Sri Lanka too, steel construction is increasingly being used for single storey buildings. Basically there are two types of steel portal frames adopted in Sri Lanka; these are called Prefabricated and pre-engineered portal frames.

Although the portal frame is inherently pleasing to the eye, given a well proportioned and detailed design, and less in cost for providing controlled environments, industrial connotation, together with increased service requirements has encouraged the use of lattice trusses for the roof structures. The structural forms both in the simple form fixed column bases and as portal frames with moment resisting connections between the tops of columns are used for long span structures.

Although it is widely used, portal frame may not be the best solution for large span single story buildings. Lattice girders are successfully used for medium size spans. However it is not widely used for large span buildings in Sri Lanka.

The construction industry here has many years of experience and necessary skills on fabricating truss or lattice type structures. Even though skilled and unskilled labor involvement is high, it will not reflect crucially on ultimate cost of the structure as the labor cost is less here in Sri Lanka, compared to European countries. Therefore in Sri Lanka lattice girder construction for large span buildings may be more cost effective. The main objective of this research is to compare the portal frames formed with lattice girders with the conventional portal frames with Universal Beam sections for different span ranges and compare them in same spans, in the context of optimum cost and space requirements.