

Application of Mobile Aluminium Light Structure Housing System in Sustainable Building Process

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Abstract : In China, rapid urbanization needs more and more buildings constructed for the growing population in cities. With the help of the methodology which contains investigation, contrastive analysis, design based on component with BIM and experiment before real construction, this research based on mobile light structure system, trying to the sustainable problems partly in present China by systematic study. The system cannot replace the permanent heavy structure completely. So the goal is the improvement of the whole building system by the addition of light structure. This house system uses modularized envelopes and standardized connections, which are pre-fabricated and assembled in factories and transported like containers. Aluminum is used as the structural material in this system, and inorganic thermal insulation material used in the envelope, which have high fireproof properties. The relationship between manufactory and construction of the system is progressive hierarchy. They exist as First Industrial, Second Industrial, Third Industrial and Site Assembly Stage. It could maximize the land usage capacity by fully exploit the area where normal permanent architecture can't take advantage of. Not only the building system itself especially the thermal isolated materials used and active solar photovoltaic system equipped can save energy, but also the way of product development is sustainable.

Keywords : aluminum house, light Structure, rapid assembly, repeat construction

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