

Self-Weight Reduction of Tall Structures by Taper Cladding System

Authors : Divya Dharshini Omprakash, Anjali Subramani

Abstract : Most of the tall structures are constructed using shear walls and tube systems in the recent decades. This makes the structure heavy and less resistant to lateral effects as the height of the structure goes up. This paper aims in the reduction of self-weight in tall structures by the use of Taper Cladding System (TCS) and also enumerates the construction techniques used in TCS. TCS has a tapering clad either fixed at the top or bottom of the structural core at the tapered end. This system eliminates the use of RC structural elements on the exterior of the structure and uses fewer columns only on the interior part to take up the gravity loads in order to reduce the self-weight of the structure. The self-weight reduction by TCS is 50% more compared to the present structural systems. The lateral loads on the hull will be taken care of by the tapered steel frame. Analysis were done to study the structural behaviour of taper clad buildings subjected to lateral loads. TCS has a great impact in the construction of tall structures in seismic and dense urban areas. An effective construction management can be done by the use of Taper Cladding System. In this paper, sustainability, design considerations and implications of the system has also been discussed.

Keywords : Lateral Loads Resistance, reduction of self-weight, sustainable, taper clads

Conference Title : ICSBAE 2016 : International Conference on Sustainable Building and Architectural Engineering

Conference Location : Paris, France

Conference Dates : May 16-17, 2016