

Building Planning

A review of the articles: Articulated Funiculator: The Sky Subway (Elevator World August 2013) and Time for a Change (Elevator World October 2013).

After my comments on the first mentioned article in September, Elevator World suggested a review of both articles, because the systems and planning of efficient Vertical Transportation Systems continues to be an elusive problem. I gladly accept this challenge because the planning of tall buildings presents a fascinating range of problems.

The first article describes a bold concept for integration of a paternoster-type system in the structural elements of tall buildings. I have read this paper with great interest because it describes in great detail a complicated and ingenious construction. I regret to say that it is my view that this concept is not viable. The high rates of acceleration and deceleration (a 1 g environment) and the high speeds envisaged in this article are impossible propositions. The mechanical complications of the proposed system are probably an engineering nightmare. Moreover a single high-speed train means zero transportation in case of failure.

The second article criticizes the lack of elevator innovation since their early beginnings. I do emphasize with this concern. The elevator industry has done a lot of research and development in the field of elevator technology, but has neglected the problems of the application of their products, i.e. the planning, functionality, and efficiency of groups of elevators. Particularly the development of group controls did not receive adequate attention. I have referred to these problems in other articles and will herein limit my reaction to the ideas of the second article.

I fully agree that the hoistways of groups with "single box" cars occupy a huge amount of building space. Also the conclusion of the article, that all structural loads must be put at the building perimeter, is undoubtedly correct. However their suggestion: "to put the architectural and structural programs first, then design the Vertical Transportation Systems to fit" is very wrong. To design a 200 floor structure may be easy, but what to do, if afterwards, you do not find a satisfactory solution for moving 15000 building users. The main purpose of a tall building is not its structure; its purpose is to provide floor space for working and/or living; i.e. to serve people. These people must be able to go IN and OUT very quickly.

For the efficient use of floor areas groups of local elevators should be positioned in central locations. The use of hoistways as structural elements was in the past a practical solution that did not affect group operations. However, structural designs may well have caused undesirable restrictions for group configurations.

Express elevators to Sky Lobbies can and probably should be positioned at the perimeter of tall buildings. As a matter of fact they can probably be distributed over the perimeter, because intelligent controls will always guide each passenger to the nearest next departing car by means of direct communication via mobile phones.

Integration of 6 or more triple-deck express elevators in the structural elements at the perimeter will be a good solution for moving large numbers of passengers to and from sky lobbies, for example on levels 100 and 200. From the perimeter of a sky lobby it is easy and attractive to provide short walkways to the central positions of local groups. For further thoughts about sky lobbies please refer to Chapter 12: Express elevators to Sky Lobbies of my book that is published on website: elevatorgroupcontrols.com.

Planning local groups: In the past the greatest problem for the planning of efficient local groups was the lack of know-how in respect of the theoretical performance potential of groups. The discovery of the inherent relativity of group characteristics has solved this problem because it has made the performance potential of groups transparent. Presently intelligent destination group controls will enable any group to deliver its specific best possible performance under all traffic conditions.

The configuration of groups define their performance potential, i.e. the planning of local groups is now an exact process that enables contractual guarantees for group service qualities. Intelligent controls also enable the minimizing of space- and energy requirements. My article In the January issue of Elevator World outlines their basic potential, but not yet the limits of that potential.

I hope the authors of the articles under review feel encouraged by this reaction because all of us including architects and consultants should motivate the elevator industry to give more attention to the planning and efficiency of their products in tall buildings. Your articles have encouraged the writer to formulate his thoughts on this topic.

I thank Elevator World for their interest in my work and the publication of my articles. This has brought thousands of visitors to my website but amazingly few reactions. Anyway nobody has denied the inherent relativity of group characteristics or the innovation potential of intelligent group controls.

Author's bio

The author of this article, Pieter J. de Groot, has many years of elevator contracting experience in Hong Kong and other cities in the Far East and Australia. In 1972 he was appointed Schindler Area Manager for Asia-Pacific. In this capacity he initiated and managed the formation of Jardine Schindler (Far East) Holdings SA (1974) and Schindler Lifts (Australia) Pty Ltd (1980). His involvement in the planning of many tall buildings caused a profound interest in the theoretical performance potential of groups. In 1975 de Groot met Mr. Leo Weiser Port the person who invented destination group controls and realized the first such group in Sydney, Australia during the late 1960's. De Groot noticed that this type of control should enable optimal group performance. After this meeting he promoted the re-incarnation of destination group controls. Several years later the Schindler group successfully re-introduced destination controls on the basis of modern technology. After retirement from Schindler de Groot decided to do his own research concerning the theoretical performance potential of groups and discovered the inherent relativity of group characteristics. This discovery enabled him to design intelligent destination group controls. He is the author of the book "The planning and performance of groups of elevators" that is published on his website: elevatorgroupcontrols.com.