

Special Research Study Title	Comparative Study on Design of Billboard Structures Using Allowable Strength Design (ANSI/AISC 360-10) with Allowable Stress Design (AISC ASD-89)
Special Research Study Credits	6
Candidate	Mr. Nopparuj Kanchanatrithos
Special Research Study Advisor	Asst. Prof. Dr. Aphinat Ashakul
Program	Master of Engineering
Field of Study	Civil Engineering Technology
Department	Civil Engineering
Faculty	Engineering
Academic Year	2013

Abstract

This research is aimed to study the difference between the design of the billboard structure by using Allowable Strength Design (ANSI/AISC 360-10) method in conjunction with the wind load in DPT Standard 1311-50 and that by using Allowable Stress Design (AISC ASD-89) in conjunction with the wind load in the Ministerial Regulation No. 6 B.E. 2527 (1984). Wind load is an important factor for the design of billboard structure. Ministerial Regulation No. 6 B.E. 2527 (1984) specifies wind load based on the building height only, whereas the newly developed DPT Standard 1311-50 for wind loading calculation considers the wind speed zoning, surrounding terrain, building shape, dynamic properties, including the specified wind load criteria on miscellaneous structures such as large billboards. The study focuses on large billboard height of 30 meters located in all region of Thailand. The size of the billboard model is similar to the actual size of the billboard used, with two types of structures: a single and a double columns. The results show that, when using Allowable Stress Design (AISC ASD-89) in conjunction with the Ministerial Regulation No. 6, the sizes of truss members and thickness of built-up columns are smaller than those resulting from using Allowable Strength Design (ANSI/AISC 360-10) in conjunction with the DPT Standard in all cases. It is also found that when design using Allowable Strength Design (ANSI/AISC 360-10) in conjunction with the DPT Standard, the sizes of truss members and thicknesses of built-up columns have direct correlation with the wind speed zoning and wind direction act on billboard structure.

Keywords : Wind effects on Billboard Structures / ANSI/AISC 360-10 / AISC ASD-89