

What is CivilPark WEGA ^S_S ?

Wind, Earthquake, GeoTech & Advanced Structural Services

Main Issue Addressed in This Article

Analysis and Design of a Single Span RC Beam to the World's tallest building, longest bridge, etc which might be located on high seismic zone, strong wind and poor soil condition, etc; all fall within the responsibility of Structural Engineer. It is very rare that one engineer or a design firm can develop and maintain in-house expertise for all such requirements, especially the relatively advanced areas of structural engineering including Dynamics, Wind, Earthquake & GeoTech. If not, a collaborative design is the win-win solution and also the future.



Buddhi S.



Suda T.

Background

Since our involvement in the "Seismic Evaluation & Remedial Measures" following so called "Myanmar Earthquake – 2003" of one of the prime office complex "All Seasons Place- 5 Towers, 27 to 55 story " on Wireless road, Bangkok; we have been approached by many national and international organizations directly or indirectly associated with construction industry. This earthquake had happened in Bangkok city after 50 years of silence period. Since then the occurrence of EQ in BKK has increased to 1-2 events per year. Naturally, this has a direct impact on the design & construction industry. Several activities and developments on these areas have received high priority. Several new codes and regulations have been enforced. However, the technical knowledge & expertise and resources requirements for design of relatively large scale & complicated structures (especially the new trendy architectural forms) are limited. Recognizing this new challenging demand of the industry, CivilPark has been dedicated to address the issues, primarily from the Structural Designers. CivilPark was appointed as WEGA specialist for the first three high-rise buildings, explicitly designed for 500 years earthquake, namely WaterMark A(55 story), WaterMark B (27 Story), Infinity (37 story).

CivilPark WEGAS Services

CivilPark WEGAS services can be explained briefly as follows:

W:

From Structural designer's point of view, the wind load effects on building can be handled using different approach, naturally with different level of risk and economy, the main one are using the "Stepped Pressure Charts", "Code Based Equations based on basic design wind speed, topography,

building characteristics, etc”; “Dynamic Analytic Method” and “Wind Tunnel Tests”. CivilPark can provide technical support at any level and as required by the project TOR.

E:

Proper estimation and application of EQ loads and understanding its impact on safety and performance of modern structures requires knowledge from Seismology, Geology, GeoTech, Structural Dynamics, Finite Element, etc. Similar to wind, EQ loads and their effects can also be handled at different level. The well recognized methods are Time History, Response Spectrum and Equivalent Static methods. However, there are several new techniques being developed . One of such methods which is finding more application in design and evaluation is the modal pushover. CPI’s support in this area can vary from simple advices to full fledged seismic hazard studies, modeling, analysis, design, detailing, performance evaluation, etc. or design review.

G:

Bangkok is known worldwide for very poor soil condition, known as Bangkok Clay similar to Taiwan and Mexico. It’s a fact that Bangkok requires pile foundation even for 2 m high house fence. The main requirement in this field are not limited to the design of permanent structures (basement, pile, mats etc) but more challenging ones are the analysis and design of temporary structures, especially for under-ground excavation, study of nearby construction on existing underground railway, etc. Recognizing the uncertainties involved in such modeling, analysis and design of GeoTech components, the local experience and knowledge of the GeoTech team play’s a vital role in economy of the design, during and after construction performance of the structure. It is quite common that two GeoTech professional end up using FOS 2 to 4 keeping all the natural and design requirements the same. Our services here also range from specific technical advices to full fledged analysis, design, design review, instrumentation, monitoring, etc.

A:

Advanced Structural Services can cover the topic which may not fall under one of the above but still falls under overall scope of “Structural and GeoTech Engineering”.

Another Way to Outline Our Services is

“Try Your Best, Let Us Handle the Rest”

Your Comments, Feedbacks, Suggestions etc we welcome:

Buddhi@civilpark.com

suda@civilpark.com