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LDG: Lateral Design Graph

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Introduction

LDG is an Excel macro to design for lateral wind and seismic loads based on ASCE 7 and the IBC (International Building Code). e objective of LDG is to provide numerical tables and optional graphs to visualize lateral design data. e graphs reinforce important informed intuition regarding force, shear and overturn moment distribution. LDG requests user input of building size as well as wind and seismic data. Building data includes x-width, y-length, number of stories, story heights, and dead load. e data may be equal or variable for all stories. LDG also requests wind and seismic importance factors, wind speed, exposure- and gust-factors, etc. for wind design, R-factors, Sfactors, etc. for seismic design. For clarity, seismic data is beige and wind data green. Based on the user input LDG provides numeric table and optional graphs deQLQJ for each level lateral force, shear and overturn moment. For wind load LDG provides data in both X- and Ydirections. e graphs may be displayed on the Excel input screen or on a separate Excel screen. e attached screen includes seismic force Fs, shear Vs, overturn moment Ms and wind graphs in X-direction, force Fwx shear Vwx and overturn moment Mwx. e rst column of the wind table provides the wind pressure in psf. LDG includes a separate tutorial to introduce the LDG featuresWhen it comes to primary oil, the iron and steel industry consumes the majority of fossil fuels, with coking coal accounting for the majority of energy consumption. Coal provides three quarters of the energy used in the iron and steel industry in 2017. (IEA, 2019).To follow the recent trend of risk management, the construction firms venturing into overseas markets are recommended to hold a global view to identify systemic risks rather than just project-only risks. Some professional reports have forecast ERM to grow in the construction industry.

Furthermore, owing to a large number of energy losses, global steel production's real resource efficiency is just 32.9 percent. With the increasingly increasing cost of primary oil, it is critical to increase energy efficiency in the iron and steel industry in order to minimise fossil fuel consumption and global CO_2 emissions. To minimise the use of primary energy in steel plants, a variety of energy-saving technologies and steps are used.

In the iron and steel industry, these possible changes include composition management of incoming energy flows, modification of energy-related processes, and utilisation of outgoing flows. Various researches have partly achieved better energy consumption over the past decades, but the overall efficiency has not been significantly increased. Energy-saving technologies will continue to be relevant in the iron and steel industry in the future. These technologies should be tailored based on a mass network in order to reduce energy demands in the iron and steel industry.

Compared with the traditional approach, ERM enables companies to shift the focus of the risk management function from primarily defensive to increasingly offensive and strategic and provides a new way to improve PRM in construction firms. Given the complexity and diversity of the risks, construction firms have been seen as prime candidates for ERM adoption.