OPERATIONAL DELAY FACTORS AT MULTI-STAGES IN THAI BUILDING CONSTRUCTION

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Abstract
This paper presents the results of a survey carried out to investigate the severity index in terms of impact level and occurrence frequency of operational delay factors for high-rise building construction in Thailand. The construction phase is divided into five major stages namely piling, structural, architectural, electrical and mechanical (E&M), and sanitary stages. A process for factor identification was rigorously designed to ensure the comprehensiveness and reliability of the factors in each stage. Respondents were carefully selected from Construction Management (CM) consultants and general contractors with a minimum working experience of ten (10) years in the building construction sector. The delay factors were analysed and ranked according to their severity index. This facilitated the comparison of perceptions of the CM consultants and general contractors on delay factors at each construction stage. The factors were also thoroughly examined to determine the critical factors at each stage. It is expected that the critical factors identified in this survey would serve as a warning light to prevent operational delay factors in the building construction sector in the future.

Keywords
CM consultant, construction stages, contractors, high-rise building, operational delay factors, Thai construction industry

INTRODUCTION

The construction industry has been extensively recognised for its contribution to the national economic growth, especially in developing countries where the industry has widespread direct and indirect relationships with many industries. In Thailand, within the period of high GDP growth rate from 1988 to 1996, investment in the construction industries had increased progressively as shown in Figure 1. The growth rate of the industry increased dramatically from 2.98 billion US Dollars to 7.94 billion US Dollars (BOT 2000). Several construction projects from both the private and public sectors were initiated, particularly in Bangkok and its vicinity to serve the high demand for an increase in improved facilities and social amenities. Due to this need for improved living standards and also the increase in business activities, many commercial and residential buildings were constructed during the period. This is illustrated in Figure 2 where the Apartments and Condominiums shot up from 36,744 units in 1992 to 67,941 units in 1994 (BOT 2000). This rather large number of new units was maintained until the economic crisis in Thailand in July 1997. During the economic boom, slow delivery of the building project to the market by general contractors was an apparent problem. Thus, it is imperative to capture the source of delay in order to acquire adequate knowledge and develop guidelines for a preventive mechanism, which would in turn accelerate the overall delivery of construction projects.