

Atiwat Booncharoen 2009: Method and Software for Scheduling Repetitive Construction :  
A Case of Multiple Working Teams. Master of Engineering (Civil Engineering), Major  
Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor:  
Assistant Professor Suneerat Kusulasai, Ph.D. 151 pages.

Due to new construction technology nowadays, many contractors have changed their work patterns in order to increase their productivity. Therefore, a work pattern, which is similar to the production system in manufacturing, is an alternative for this purpose. Some examples of the projects which adopt this idea include housing development projects, pipeline projects and highway projects. However, current methods and software for scheduling repetitive construction projects have certain limitations. For example, they are developed for a case of one working crew with fixed productivity and work quantity. In addition, the work schedules are presented in terms of working days, instead of calendar date. Therefore, their applications are quite limited.

This research applied the ordinary concept, Repetitive Scheduling Method (RSM), to develop the concept of drawing a working plan. When an activity is performed by multiple working teams, It is found that, for certain cases, the locations of control points vary depending on duration, units of work and the number of working teams. The variety and complexity of the working plan drawing may easily cause confusion. Therefore, this research proposes a method of finding the activity's starting date by checking the relationship of activities unit by unit. So it can be applied in all possible cases developing a work schedule of many activities and construction units by hand can cause some errors. Then software for scheduling repetitive construction projects with multiple working teams is developed. This software allows a user to have more than pattern of repetitive construction where activities and work quantity of each unit can be slightly different. Work crews can have different productivity. Work schedules are presented in calendar dates. Moreover, by linking with database, the program can record the schedule of each project for future benefits. Last but not least, a case study of software implementation is also described.

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