

A BLOG BASED RISK MANAGEMENT SYSTEM USING SOFT SCHEDULE

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ABSTRACT: To achieve the best performance of a project, uncertainties involved in the building construction process need to be identified in the planning phase of the project. Uncertainties seldom create a positive impact on construction project, but they almost cause delay and increase costs. Therefore, risk management plays a significant role in construction to minimize risk occurred due to uncertainties of a project. Although the importance of the risk management has been known to the construction industry, it is not enough to be developed to meet the demands of the industry. It has not been enough for Systems to control schedule risks for managers in the field. Therefore, a tool is necessary to efficiently control risks. The propose of this study is to invent Schedule Risk Control System Module to prepare for risks in preconstruction phase.

Keywords: Schedule Risk, Schedule Risk Management System, Activity, Blog, Soft Schedule

1. INTRODUCTION

1.1 Background and Objective

At the interior of a country construction work ends to the safety management level performed in the technical view with the discussable, and passive but doesn't still reach the systematic access which systematically analyzes the risk factor which is various in the active point of view with the recognition and analyzing and which strategically deals with kwon, Soun-O(2004). These problems can induce process stability problems such that field managers whose experience is insufficient are agilely unable to correspond to the construction site environment which from time to time changed, and suffering hardship for observing the scheduled construction period. And etc. Recently, the concern about the risk management at the construction project execution process rises. And the possibility of acting as important elements which can determine the success of the whole project according to the development of construction industry in the future is high.

Therefore, the management plan that the prior preparation is possible from the process planning phase is provided and it does in order to compare in construction project in the initial step of project in advance. And it is objective an effect and the management method that it reaches to the whole procedure, a trustworthy is accumulated and the situation where is dependent on an experience and straight pipe of the field manager, and the limited information has to be overcome.

Therefore, in this study, the management strategy of the way to verify about the risk factor and risk factor are presented. And the development of the system which can support the risk management task utilizing the soft process in order to support the risk management task of the on-site staff in charges connected with the process flow in the construction project is developed with an object.

1.2 Range and Method Research

Risk factors as the managed object at this research is limited to risk factors which induce the working term delay and influences on the whole schedule of construction in the construction of the project, is possible to controlled by a builder and should be managed under the builder's responsibility.

Since In the case of the high story construction which has many repeat processes, the occurrence possibility of the working term delay and starting construction delay are higher, we selected high story construction more than 15 floors as virtual project and deduced the process risk factors. Moreover, process by the activity was made in order to develop process risk management system which highly applicable to practical affairs. Accordingly in order to deduce and analyze process risk, and present the plan for reaction , we selected target construction type as the reinforced concrete work in consideration of ripple effect by the process risk in the schedule.

Process risk management system which we hope to develop in this study, is the process risk management supporting tool that field manager whose experience is

-Schedule Risk Definition Phase-

(2) Unnecessary various information providing
 As several projects are progressed, in the activity schedule risk factor and corresponding plan by the component, great quantity of information is able to generate by the newly generated schedule risk factor and the corresponding plan.

Since so many prior preparation of information can weight the confusion to field working-level people in effectually carrying out the schedule risk management task, in order to prevent unnecessary several information offering, development of the management tool which can provide the prior preparation information certainly executed is needed.

Following figure 2 is the picture of providing information in the schedule risk response phase.

Figure 2. Blog based SRMS UI.2



-Schedule Risk Response Phase-

(3) Connection between schedule and schedule risk factors

In the existing schedule risk management system, system is comprised based on the management of the schedule risk factor of connecting with the schedule program.

Management system of the schedule risk factor is adjusted with the position of person in charge of schedule risk management not only the position of the on-site staff, there is a difficulty in managing the schedule risk effectively for working-level people of the real spot.

Needed information for field working-level people is the information which presents the management task in order to prevent schedule risk occurring in advance. The development of the support tool improving the output module about the management task in order to manage the schedule risk connected to real schedule is required for field working-level people.

2.3 Soft schedule management

In Korea, Soft schedule management not managed as standardized like Japan, is schedule table of conference for the selection companies, permission of layout (detail drawing, generalized drawing, and the concrete drawing, and etc.) and various plan making and a series of process about the factory making art to the field import in the factory production among the schedule management in Japan. If it changes to the word used domestically, it can be said to be the engineering schedule concept. Format toward the soft schedule management of the Japanese GENECON is shown in Table 1.

Soft schedule table is as which that manage the items to review and plan before starting construction by the activity, through expressing company selection, preparation and approval of drawings, test, all kinds of the test schedules, the manufacture/ import schedule, and etc. on the schedule table and managing by preparing with the connection like the execution schedule so that

Table 1. Soft Schedule Management at Genecon

| Classification | Soft Schedule | | | | |
|----------------|--|---|---|--|--|
| | Schedule table for the major finishing specification decision (Prepared by designer) | Schedule table for the major detailed specification decision (Prepared by designer) | Master soft schedule table (drawing&plan) (Prepared by Genecon) | Monthly soft schedule table (drawing&plan) (Prepared by Genecon) | Manufacturing schedule table by the each activity (Prepared by Genecon + cooperater) |
| Contents | Decision schedule of Major finishing specification Master schedule it prevents in the design decision delay problem in advance. | detailed soft schedule table (per field example: the housing drawing decision schedule) | schedule for preparing generalized drawing, drawing for starting construction and various plan schedule for manufacturing drawing making by major activity, import | the execution detail drawing, all kinds of the plans, and the major finishing related drawings. Checking schedule of schedule and progress. | placing an order and manufacturing schedule table by each activity (the steel structure / curtainwall / dedusting clean unit, and etc) |

manage the soft progress schedule constructs in order to secure quality and protect no delay of working term. This soft schedule at the Japanese is regarded as the considerably important element schedule. And it is treated as the major schedule table no less with the execution Master Schedule. In Korea, the management is made as the engineering schedule but it has not been activated, and progressed with the sensation of the person experienced.

(1) Necessity of soft schedule management

It is managed about the importance item with the engineering schedule the concept about the soft process in a county. However, the standardized soft schedule is not organized. In addition, the soft schedule of our country seems to be the tendency to very much depend on the know-how of each individual. And the experienced person knows the significance of the soft schedule and manages but there is the difficult side to be managed the standard which all fields are consistent. Because current management method depended on managing by the several experienced person has the risk which problem can be occurred.

Therefore, if the merit of the soft schedule of already mentioning in the above statements is considered, much more active management of soft schedule may be needed in a country.

If each item standard is determined according to the domestic actual conditions and is applied, it is considered to be advantageous much more to the schedule control and quality assurance.

(2) Introduction and standardization of soft schedule management

As mentioned in the above, it is the situation where managed by some managers or execution experienced people unlike the general schedule table about the soft schedule in the case of the domain soft schedule. Therefore, the recognition about the significance of this soft schedule still not standardized is needed and with respect to this the overall normalizing is needed.

If the task standard about the soft schedule is specifically equipped, more effective filed supervision is possible due to share with the experienced person and inexperienced altogether about which the person in charge of site can know when and what task has to be done.

3. Development of schedule risk management system output model

In this chapter, schedule risk management system providing schedule risk management task from soft schedule format is proposed, in order to improve out model of schedule risk management system presented in 2.2

For the purpose of effective project execution, final out format is provided as the forms of weekly schedule table format based on excel around for development of integrated module which schedule management and schedule risk management combined.

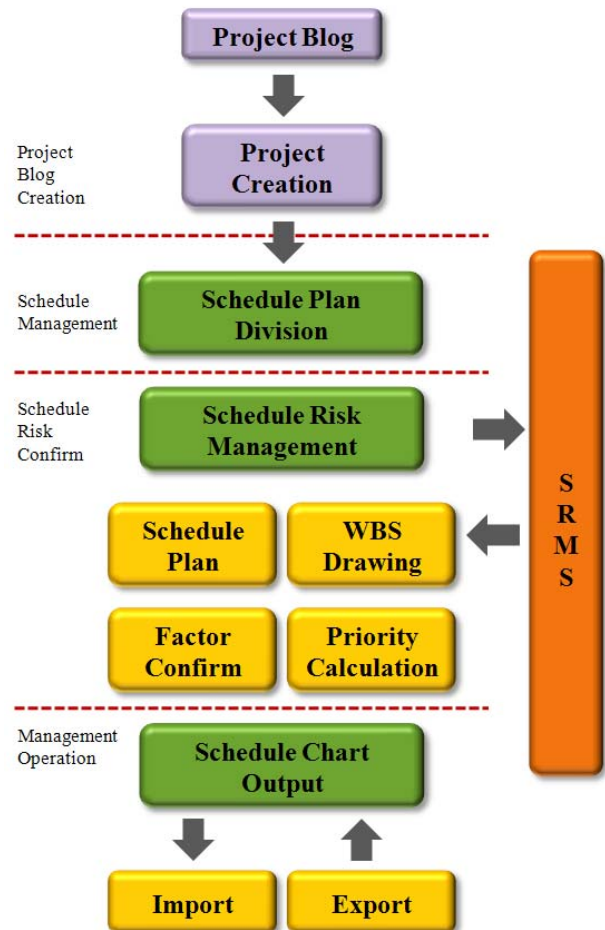
Figure3. Weekly Schedule Risk Management Format

| 구분 | 공종 | 수량 | 인원 | 평주 | | | | | | | 일주 | | | | | | | | | | | | | | | |
|-----------------|----|-----------|-----|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|--|
| | | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | | |
| 주요 공정리스크 관리업무 | | | | <p>1. 1차 현장조사 및 계획 수립 (3.10~3.12)</p> <p>2. 2차 현장조사 및 계획 수립 (3.13~3.15)</p> <p>3. 3차 현장조사 및 계획 수립 (3.16~3.18)</p> <p>4. 4차 현장조사 및 계획 수립 (3.19~3.21)</p> <p>5. 5차 현장조사 및 계획 수립 (3.22~3.24)</p> | | | | | | | | | | | | | | | | | | | | | | |
| 구분 | 총량 | 1,770 TON | 20명 | [Gantt Chart: 3.10 ~ 3.24] | | | | | | | | | | | | | | | | | | | | | | |
| | 비율 | 5,200 TON | 15명 | [Gantt Chart: 3.10 ~ 3.24] | | | | | | | | | | | | | | | | | | | | | | |
| 구분 | 총량 | 1,000 TON | 5명 | [Gantt Chart: 3.10 ~ 3.24] | | | | | | | | | | | | | | | | | | | | | | |
| | 비율 | 1,700 TON | 15명 | [Gantt Chart: 3.10 ~ 3.24] | | | | | | | | | | | | | | | | | | | | | | |
| 담당자별 공정리스크 관리업무 | | | | <p>1. 1차 현장조사 및 계획 수립 (3.10~3.12)</p> <p>2. 2차 현장조사 및 계획 수립 (3.13~3.15)</p> <p>3. 3차 현장조사 및 계획 수립 (3.16~3.18)</p> <p>4. 4차 현장조사 및 계획 수립 (3.19~3.21)</p> <p>5. 5차 현장조사 및 계획 수립 (3.22~3.24)</p> | | | | | | | | | | | | | | | | | | | | | | |

3.1 Development of System output model

The schedule management system for presenting in this research is operating with the function of printing schedule risk management task information connected with the search of the presented schedule management task and analysis. Next figure 4 expresses the schedule management system output process.

Figure4. System Output Process



Moreover, for the development of output module of the schedule risk management system, since information operated on the web have to be sent to the excel based format for the field business users, if as shown in Figure 5, a user outputs the schedule table, the macro is automatically practiced and the schedule risk management task is scheduled like the daytime progress schedule and it is provided as the risk management task.

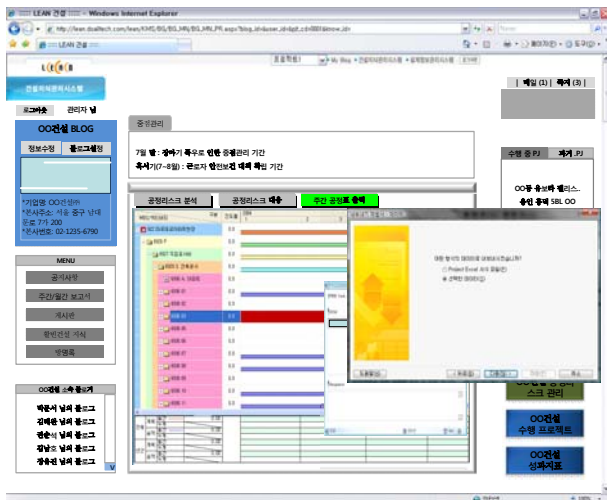
Figure5. Excel File Conversion Macro



3.2 System utilization

(1) Output macro UI

Figure6. File Conversion Macro UI

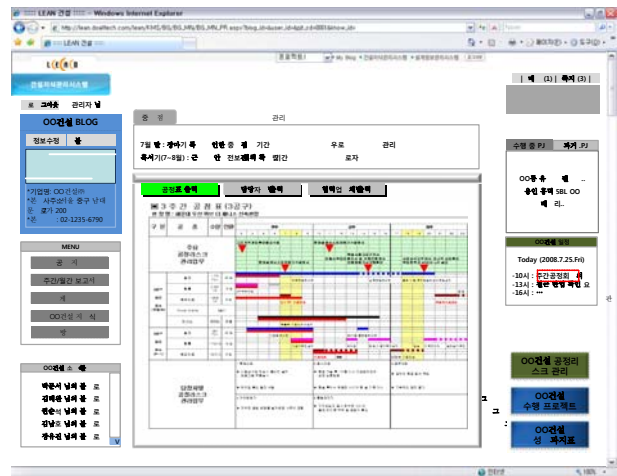


The schedule risk management system of the blog base is managed with the function of the output of the information connected with offering and processing information of the presented schedule risk management task. As shown in Figure 6, if the daytime schedule table output is clicked, macro for converting data on the schedule program through the inside macro to the daytime schedule table format of the Excel base is performed.

(2) UI of Daytime schedule table output

As shown in Figure 7, the daytime schedule table changed into the excel file through a macro is outputted with the major schedule risk management task and utilized as the risk management task review format. And in this process, it is used as tools which integrate the schedule and the schedule risk, and used as the schedule risk management tools which suitable for 3weeks schedule level which used in real-spot schedule meeting.

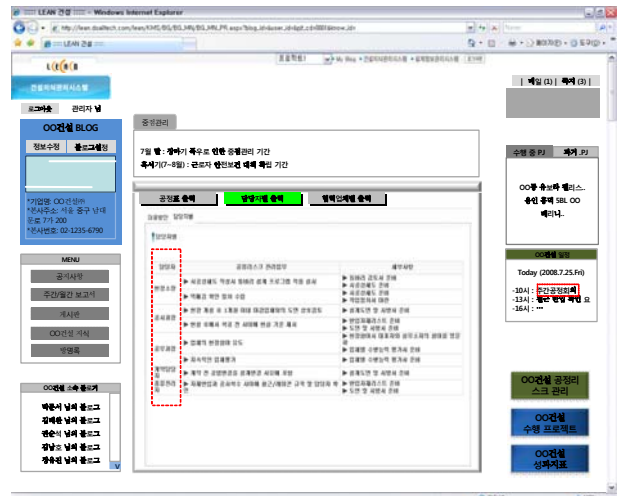
Figure7. Weekly Schedule Output



(3) Output UI by the person in charge

As shown in Figure 8, the schedule risk management task is classified according to the undertaking and used. And it is provided with schedule risk management task, performance point, and the information requested information.

Figure8. Person responsible for response



4. Conclusion

In the existing schedule risk management system, there was a difficulty to field managers effectually managed the schedule risk due to the system operation of the schedule risk administrator putting first. Therefore, we presented the schedule risk management task supporting method based on the daytime schedule in order to develop the system output module which can support the schedule risk management task of field working-level people of the small construction companies in the construction work, and presented offering of schedule risk management task information as the soft schedule format.

We converted information operated on the web to excel and integrated schedule into schedule risk management in order to support the efficient schedule risk management. Results by the described in the above are as follows.

(1) The result of considering and analyzing the schedule risk management in existing literature and researches, the problem of the old system is as follows.

- Using schedule table of Master Schedule level
- Providing unnecessary various information
- Connection with schedule and schedule risk factors

(2) Schedule risk management task reviewing form as soft schedule format was presented in order to effective link with schedule information and the information of schedule risk management task.

(3) The schedule management system for supporting the prior preparation about the schedule risk for field managers and decision making was developed.

(4) The blog base process RISC management system was utilized so that the process RISC management task could be performed. And the process RISC management task output module of the daytime progress schedule based on was presented.

In this, it selected for the development of the schedule risk management system output module of the blog base which the field application possibility is high with reinforced concrete work, and the schedule risk management task was presented. As the occurrence possibility of the factor Which influences on the schedule of public works and other finishing work is input in real construction work. Therefore, analysis of the schedule risk factors reflected the construction content of the other construction activity should be continuously performed. Moreover, the additional research of the classification system of the activity base which the region information is reflected for the development of efficient linkage method with the schedule information of the construction work and schedule information is needed. And the improvement of the system through data expansion about the schedule management task and the continued evaluation are required.

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