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The Civil Engineering Information System
Using Administrative Ability of Electronic Filing Tool

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1. INTRODUCTION

Recently, everyone has recognized that information(info) is very important for the successful management of a construction work. The needs of a site engineer to get engineering info quickly has increased due to various, high engineering techniqu and remarkable improvement of HARD WARE for info.

Herein we would like to propose THE CIVIL ENGINEERING INFORMATION SYSTEM which has been studied and developed in our company.

2. THE SORT OF INFORMATION AND NEEDS OF THE USER

The Info is composed of many types and will require many man-hours to make a data base (DB). This is classfied into INSIDE INFO and OUTSIDE INFO in the company. Most of the INSIDE INFO will occur at the construction site. It is suggested that engineering info of INSIDE INFO be arranged first. Other info including OUTSIDE INFO should follow. The site, supporting and sales staff would be expected as users of this system.

OUTSIDE INFO would run into astronomical numbers, therefore we have to consider the extent of them according to the level and scale of the company. Useful info is indicated by the ratio of user satisfaction. We surveyed the needs of the users. Table-1 shows the required info of the site engineers:

Table-1 Requrement of engineers

① Rough knowledge of new engineering methods
② Cause and measure of the trouble under construction
③ Example for the temporary structure not to be planned as normal
④ Data of explanation to the officer for change orders
⑤ Example of the simple calculation and examination of engineering
⑥ Example of the execution plan

3. FILING AND REFERRING SYSTEM USING THE ABILITY OF AN ELECTRONIC FILING TOOL

Existing documents are enough for this system but new documents shouldn't be made, so that it it is easy to get the cooperation of the site engineers. The existing data in our company is as

Table-2. Everything is bulky and irregular form.

Table-2 Existing data in our company

※ On each project
① Book record in host computer
② Execution plan
③ Blue print of design
④ Meeting data for starting time of the project
⑤ Meeting data for examination of the project
⑥ Report of the completed project
⑦ Photograph
※ On special project
⑧ Report of the investigation for engineering

Much space and time would be required if we controled these info without any tool. The new electoronic filing tool (EFT) has a good ability for filing and referring. The EFT gives us processed info if we register the items for referring in advance. Examples of available project name lists are classified as follows;① Kind of construction, ② Responsible branch, ③ Construction amount, ④ Construction term, ⑤ Site location. It's also possible to get the above tables under a few conditions at the same time. This info are very useful for knowing the career of our company. However, what site engineers want to get are more technical details. An "INDEX OF ENGINEERING METHOD" system was devised as Fig. 1.
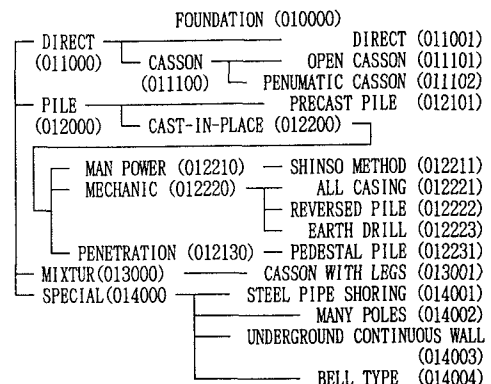

Fig. 1 A example of "INDEX OF ENGINEERING METHOD

This classifies engineering methods from higher to lower ranks systematically. A user can find his desired object by watching the EFT screen. Each word is assigned a number as shown in Fig.1. When the extent of number is chosen, the desired info of the class appears. This cabinet also links INSIDE INFO to OUTSIDE INFO.

4. THE CORRECTING AND OPENING SYSTEM OF THE INFO
1) Establishment of the Committee of Civil Engineering Info and Flow of Information

The top of the company should recognize that the resouces of info are important. It is necessary to arrange a chain of command for correct-

ing the info from each division and sites automatically. The Committee of Civil Engineering Info (CCEI)was established for this system. The chairman of this committee is the director of The Civil Works section. The correcting and supplying of work is done by the info chife(IC) of the head office and each branch. The making of the DB would be done at only the head office. All data would be checked by the IC of the head office in order to prevent doubling, misplacement and confusion of index ing. The copy of this DB would be sent to the each branch regularly. The referring would be done by the IC of each branch using EFT.
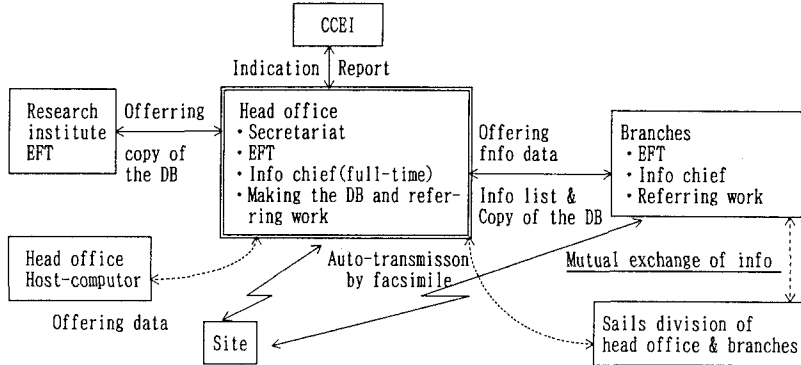
Fig.-2 shows the organization of this system.

Fig.2 Organization of this sysyem

2)The Correcting of The Info Data

The basic data of each project would be taken out of the host-computer. The report of completed project would be added to the basic data. Tere is much important info during a construction at each site. Example of these reports are examination of construction, indications from superviser, a kind of catalog, etc. These data would be given by representatives of the projects. One more info source is from special projects. A letter of request for investigation on the noted matter would be sent from — chairman of the CCEI to the representative. These data would be registered as soon as possible after the noted construction is completed.

5. P.R. AND CONFIRMATION OF EFFECT
1) Public Relations

If a bottom-up system would be expected, publicity could be important. Whenever there is a chance to explain about this system, cooperation and explanation of the basic concept should be done. It is also important that progress of the system, and the importance of info is announced in the regular publication.

The most important thing is to continue to educate the idea through "Personal Know How should

be Company's Know How ".
2) Confirmation of Effect

It is difficalt to know what degree user satisfaction will be. we have to wait for the evaluation by the users. When we begin to use this system, we are going to survey the follows;① The details of request, ② Possible/impossible to offer info, ③ The ratio of satisfaction. As the result, we have to know the fault and effective site of the system.

Old info must be useless. If some data is not refered to so much, the IC have to decide to remove it from the EFT. This tool shows us the times and the date of referring.

6. CONCLUSION
Due to system shortage, input and output of data can not happen at the same time. As a result, input time should be kept to a minimum. Most items for the referring are in the host-computer, so that we developed the SOFT WARE to take in the data from it directly. Now we are studying how to determine contents of the filed info quickly, how to know the summaries of OUTSIDE INFO, how to connect the system to the info company's supply system.

Our final aim of this system is to be effective for not only the site engineer but also the cmpany president.