

Method to Generate Activity Relationship Chart in Facility Layout Problems

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Abstract:- This paper address about activity relationship chart which is based on closeness of the departments on shop floor. Activity relationship chart plays an important role while designing a facility layout for any kind of industry, whether it is manufacturing, chemical or related to any field. Relationship among departments is the base for any industry to run the smooth production Activity relationship chart is designed by identifying the relationships between departments. For designing this chart, first need to define closeness rating among each pair of departments, after then some codes are given to the reasons behind the closeness rating, and then on the basis of these codes and rating the activity relationship chart is generated.

Keywords: activity relationship chart; closeness; plant layout; relationship; closeness rating.

I. INTRODUCTION

Facility layout planning is the arrangement of available facilities on shop floor to get the maximum output from them. These facilities may me machines, workers, rooms, etc.[1]. All the available resources must be properly laid out on shop floor for getting enhanced production [2-4].Activity relationship chart is base for designing any type of plant layout. Layout design of industry is very important, and it directly affects the productivity . Plant layout is the arrangement of the departments or machines on the shop floor in an efficient way [5-8]. Therefore it should design in a proper manner to take maximum use of resources, and activity relationship is the base for designing it. This chart must be design very carefully to generate an effective plant layout [9-10]. Activity relationship chart based on closeness rating is generated by, finding the closeness between departments and also the reason behind that closeness [11].

In this paper, activity relationship chart based on closeness rating is discussed and also a simple method to generate it, in a effective way. First the activity relationship, then the closeness rating and after then the method of generating activity relationship chart with some tables and figure for a clear understanding.

II. ACTIVITY RELATIONSHIP CHART (REL Chart)

Activity relationship means the relation between the activities on the shop floor of any industry. Activities may be machines, departments, offices, storage, etc of the industry. The relation between activities may be important, unimportant or some time undesirable [12]. These are

represented with the help of a chart, that is ‘Activity Relationship Chart’. The relationship is represented with some ratings, called closeness rating [13]. For generating activity relationship chart, it requires identification of the relationship between activities and resources [14]. This information can be obtained from survey/interviews. In the survey, employee of industry are asked, to identify where/who they will receive their work from and the destination of their work after completion. The results of these surveys are compiled into an activity relationship chart. The relationship chart displays which entities are related to others and it also rates the importance of the closeness between them, closeness rating are shown in the table 1,

TABLE 1: CLOSNESS RATING

Rating	Closeness
A	Absolutely necessary
E	Especially important
I	Important
O	Ordinary closeness
U	Unimportant
X	Undesirable

if departments having A – relation, it means that, it Absolutely Necessary to put these closer to each on the shop floor, E – Relation means, it is Especially Important to put these closer, if possible, after putting the A - relation departments. I and O Relations shows Important and Ordinary closeness, It will be consider after E relationship. U and X Relations shows Unimportant and Undesirable relation respectively [15].

Closeness ratings present an ordered preference for closeness. Most important rankings are A rating and X rating, hence any layout must satisfy these two ratings. An E rating

thumb for closeness rating also helps to generate the ratings between departments. This relationship chart can be constructed for any type of industry. The method will be same for constructing this chart. Every industrial engineer must know about the method to generate this chart.

V. REFERENCES

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