

Importance of Activity Relationship Chart while designing a layout for an industry

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Abstract:- This analysis is focused on the proximity of the departments on the shop floor and on the operation connection map. The operation relationship chart plays an important role in the design of a facility layout for any form of industry, whether it is manufacturing, chemical or connected to any field. Department relationship is the basis for every company to run the smooth output relationship chart Event relationship chart is constructed by defining departmental relationships. To design this chart, it is important first to define the closeness rating between each pair of departments, then to give some codes to the reasons behind the closeness rating, and then to generate the activity relationship chart on the basis of those codes and ranking.

Keywords: closeness rating; layout; industry; relationship

1. Introduction

Facility layout preparation is organizing the equipment on the shop floor necessary to get the full production from them. Such facilities will offer me computers, staff, rooms etc. All the tools available must be correctly laid out on the shop floor to boost efficiency. 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. Machine layout is an optimal design on the shop floor with departments or machines . 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 . Activity relationship chart based on closeness rating is generated by, finding the closeness between departments and also the reason behind that closeness .

In the proposed work 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.

2. 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. These are represented with the help of a chart, that is 'Activity Relationship Chart'. The relationship is represented with some ratings, called closeness rating. The relationship between activities and resources needs to be established to establish an activity connection map. You may obtain this information through surveys / interviews. Throughout the survey, business employees are asked to decide from when and when they are going to collect their jobs after they finish their job. The findings of these inquiries are collected into a table of operation relationships. The

relationship diagram shows the entities are related to other entities and also assesses the significance of their proximity, as shown in Table 1.

Table 1: closeness 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 .

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. A E is second, and most, if not all, E is the focus of the layout, an I is third, and should be satisfied as many as possible, without losing A, E or X scores. O grades are always fourth, and after A, E, X, or I grades should be fulfilled. When designing the interface, U ratings can be ignored. So, A and X > E > I > O > U, where > means "more or greater than"

Rule of thumb:

There should be very few partnerships A and X. (no more than 5% of the A and X similarity ratings).

The E does not reach 10 percent; To be an I just 15 percent;

To be an O not more than 20 percent; This means that approximately 50 percent of the ties are U.

There is always reason behind the closeness rating between activities. It may be any reason, like flow of materials, contact necessary, etc. some such reasons are shown in table 2.

Table 2: Reasons behind the Closeness Rating

| code | Reasons |
|------|----------------------------|
| 1 | Flow of material |
| 2 | Ease of supervision |
| 3 | Common personal |
| 4 | Contact necessary |
| 5 | Noise and disturbance |
| 6 | Similar type of equipments |

3. Method To Construct Relationship Chart

The main steps are given below:

1. Label the partnership map for all departments.
2. Interviews or enquiries should be undertaken with people from individual departments on the partnership map as well as management in all departments.
3. Set criteria for the proximity and record the criteria as the cause of the relationship values in the table.
4. Set the value and the explanations for the value for all department pairs then Give an opportunity to analyze and address changes in the graph in the creation of the relationship map.

Figure 1 shows description and figure 2 shows a example of REL Chart.

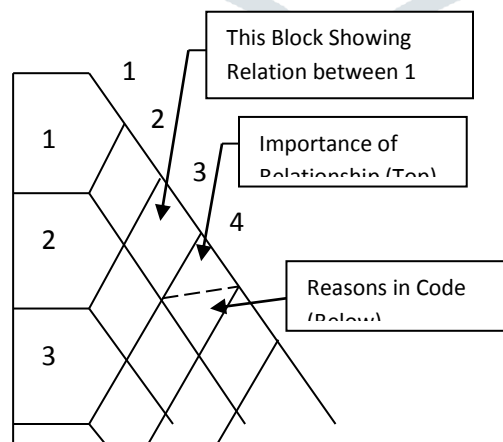


Figure 1: Activity Relationship Chart Description

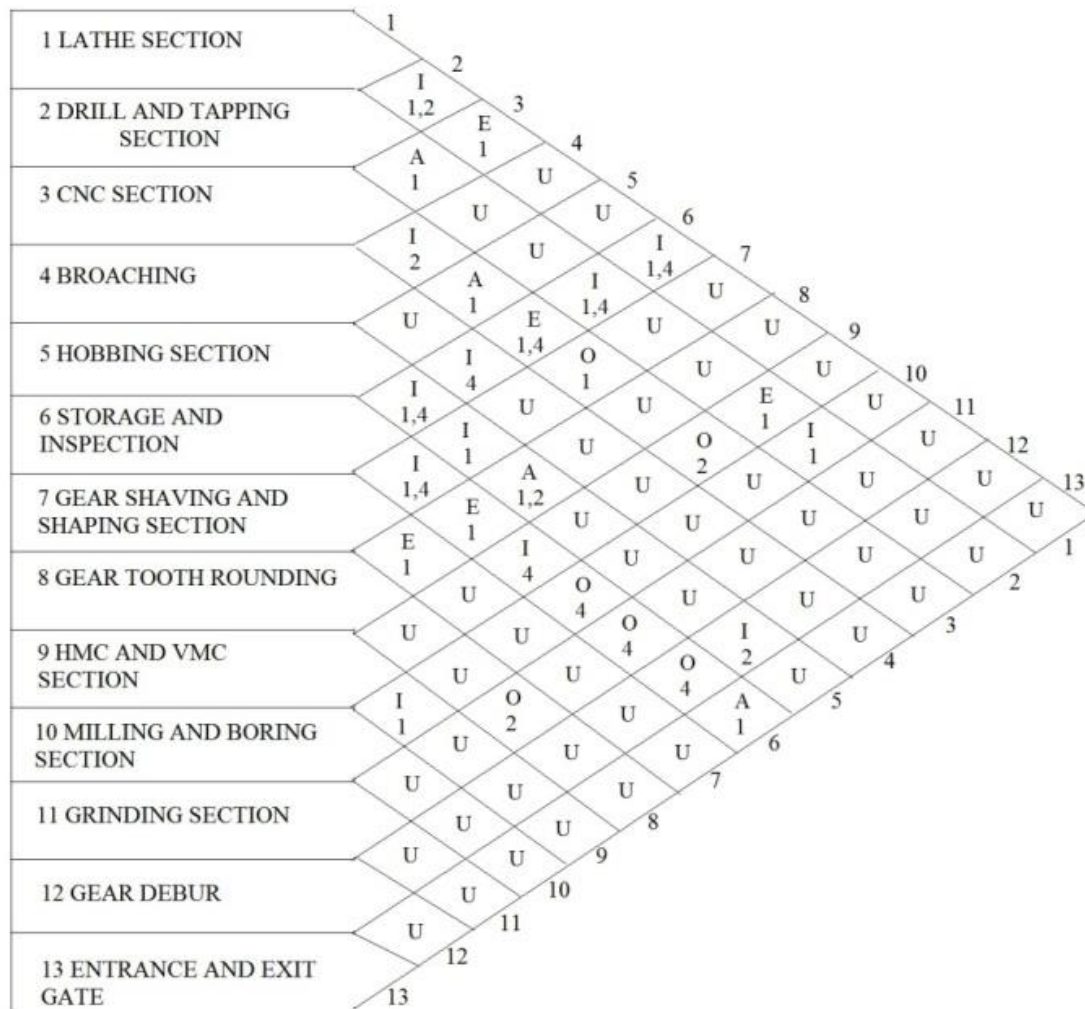


Figure 2: Activity Relationship Chart

4. Conclusions

In this proposed work author discusses about Activity Relationship Chart based on closeness rating and also about a simple method of constructing the chart. This diagram is a very important instrument for the creation of a concept for any industry, so it must be consider very carefully while designing the layout. Role of 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.

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