

INDU 421: Facilities Design and Material Handling Systems

Assignment 10

- 1- Three machines should be located in a facility shop floor along an aisle. They should be placed in a way so that their shorter sides (widths) are always facing the aisle. The dimensions of the machines are given below. The minimal necessary distance between them is 5 ft. Also you will find the information on material flow per day between the machines. Assume that the material handling cost per unit distance is the same for all the material transfers in the facility and that the pick-up/delivery stations are located along the aisle at the midpoint of the machines' edges. Determine the machine arrangement in the facility. Calculate Relative Placement Cost (RPC) for each alternative.

Machine dimensions:

Machine	M1	M2	M3
Dimensions (ft)	5x5	6x6	7x7

Flow-between matrix:

	M1	M2	M3
M1	-	100	200
M2		-	150
M3			-

- 2- Three classes of products (A, B, and C) are to be stored in the warehouse depicted in the figure below. Product storage requirements are 15 bays for A, 5 bays for B, and 16 bays for C. Fifty percent of the shipment has to go through dock 1, and the other shipments are evenly distributed between docks 2 and 3. All products require the same number of trips from/to storage (dock) per day. Design the warehouse layout.

