

FACILITY DESIGN & ARCHITECTURAL CONSIDERATION

Hotel design is an interactive process bringing together the skills and expertise of owners, managers, Architects, builders and a host of others to conceive and construct a building that meets a variety of Travel and business objectives. The people involved in designing and constructing the hotels are:-

- a) Owner
- b) Consultant
- c) Architect and others

Owner Sees as a real estate and investment a hotel opportunity.

Expect to meet the strategic goal and a hotel revenue earner.

Architect involves For development and design. Others

A proper communication and coordination between all the above is a must though the onus to accomplish the project is on Architect but the owner must spell out clearly the need of creating a particular design to suit his philosophy of service and must explain why the need is:

Design must be such that:

- i) suits the investment available.
- ii) easy to maintain.
- iii) must have sufficient circulation area.
- iv) it provides proper flow of work.

A project may be initiated in two ways:

- a) A site exists in a particular location and the study is conducted to explore the feasibility for development as a hotel.
- b) It is considered that a particular town or area offers opportunity and it is studied in order to confirm this or otherwise.

Whatever the starting point happens to be, the methodology remains the same which is to study the market feasibility. The feasibility should include the P.P.P.P. i.e.

- Physical facilities
- Place
- Price
- Promotion

The Feasibility Report must cover:

1. **L.A.E. (Local area evaluation):** Analysis of the economic vitality of the city or region. Describe the suitability of the project site for a hotel.
2. **L.M.A. (Local Market analysis):** Assess the present demand and future growth of several market segments. Identify the existing properties and their probable growth.
3. **P.F. (Proposed Facilities):** Propose a balance of guest room and revenue generating public facilities (Restaurant and lounges, function area, recreating facilities). Assess competitive position of the property).
4. **F.A. (Financial analysis):** Estimate income and expenses for a hotel over a five year period to show its potential cost flow after fixed charges.

Development process: The development process starts with.

PRE-DESIGN PHASE which includes the following activities:-

- i) Establish project objective.
- ii) Assemble development team.
- iii) Commission feasibility study.
- iv) Establish project budget and schedule.
- v) Investigate potential financing and negotiate joint ventures.

(Action by Owner/Developer)

- vi) Conduct market study and prepare financial analysis.

vii) Recommend Architect, establish design and operating criteria.

(Action by consultant)

viii) Analyse site.

ix) Prepare initial conceptual design.

x) Review programme and Budget.

(Action by Architect)

The space allocation program.

Among the many tasks of the development team is to establish a space allocation program. The allocation of space among the principal functions in a hotel varies from property to property. The most obvious difference among properties is the ratio of guest room space to public space and support area space. This varies from 90% in budget hotels and many motels to 50% - 65% in large commercial hotels.

Architectural Consideration will include the Site Design and the Design Phase.

Site Design – The Architect is responsible for site planning, analysis of site, its constraints and opportunities. Before firming up design, the Architect must consider:-

- i) **Visibility and Accessibility:** Consider road access and surrounding street patterns.
- ii) **Surface Conditions:** Analyse terrain, vegetation, existing buildings and roads and environmental constraints.
- iii) **Sub Surface Condition:** Confirm location and underground utilities, height of the water table, bearing capacity of the soil, existence of environmental hazards.
- iv) **Regulatory restriction:** Height restrictions, parking requirements, Highway restrictions etc.
- v) **Site Character:** Describe qualities of the site such as surrounding uses and views.
- vi) **Orientation:** for Sunlight.
- vii) **Adaptability:** Potential for future development

DESIGN PHASE: Commences with the preparation of schematic design (set of alternate plans) and establish design directions considering the space allocation programme. Provide design team with approvals. Establish design schedule, Freeze structural drawings and specification of finishes etc.

While working for design, it is important to consider:-

1. Site Benefit: Potential sites needs to be considered in relation to the main tourist and service attraction. View influences the plan from, compensatory attraction (garden view, recreational focuses) should be provided for disadvantages rooms. The orientation of sun, shade and prevailing winds will affect building design.
2. Traffic Analysis: An analysis of traffic flows is necessary to identify:-
 - a) Counter flows of traffic.
 - b) Restrictions on new entries to the highway and
 - c) Condition relating to signage on highway
3. Density and Height: The density and massing of building is dictated by location, land costs and local regulation.
4. Circulations: The movement and guests, non-resident visitors, staff and supplies in a hotel tend to flow distinct, circulatory patterns. Where practical, guest, supply and staff circulation be kept separate.
5. Guest Room Plans: Guest room may be arranged in rows or one on both sides, of the corridor forming a slab plan or stacked around the circulation core of a tower structure, which are explained as under:-
 - a) Slab Plan: Can be double loaded slab or a single loaded slab. In double loaded slab the rooms are laid out on both sides of the corridor whereas in single loaded slab, the rooms are only on one side of the corridor. Double loaded corridors are most efficient so far as space

utilization is concerned and work out to be more cost effective and economical.

- b) Atrium designs: These are internal corridors overlooking the central space which may be open or sub-divided by mezzanine extensions to increase utilization. Elevators extending through the atrium are invariably transparent. The guest rooms are arranged in a single loaded corridor.
- c) Tower Structure: The rooms are spread over around a central core which enable the guest rooms to be cantilevered, propped or suspended around the sides. The proportion of space taken up in circulation, including corridors on each floor, is high and tower structures are generally used for high rise buildings where the advantages of view justify the higher costs.

FLOW OF MATERIALS

The third letter of our Key to unlocking layout planning problems is R (Routing). Routing means how an item is made - its process. The process is established essentially by selecting the operations and sequences that will best produce P and Q wanted in the optimum operating T - although many other consideration be involved in the determination.

The routing yields the basic data for analyzing the flow of materials. But before utilizing the routing handed him, the planner should recall the meaning little word why, the business end of our key. The routing should be examined and proved reasonably right; it should be restudied when the planner feels it can be improved.

The standard word - simplification check originally developed by Allan H.Mogensen - and discussed in all industrial engineering text is handbooks - is especially applicable. Mogensen's check challenges each step in the process routing with these words.

1. Eliminate - Is the operation necessary, or can it be eliminated ?
2. Combine - Can it be combined with some other operation or action ?
3. Change sequence, place, or person - Can these be changed or rearranged ?
4. Improve details - Can the method of performing the operation or action or its equipment be improved ?

Flow of Materials - Heart of Many Layouts

The analysis of materials flow involves of determining the most effective sequences of moving materials through the necessary steps of the process involved and the intensity or magnitude of these moves. An effective flow means that materials move progressively through the process. Always advancing toward completing and without excessive detours or back-tracking (counter flow).

Flow-of-Materials analysis is the heart of layout planning wherever movement of the materials is a major portion of the process. This is especially true when materials are large, heavy, or many in quantity or when transport of handling costs are high compared with costs of operation, storage, or inspection. In extreme cases of this kind, the desired flow is developed and then diagrammed directly. The space requirements are hung on the flow diagram. Little investigation of supporting services and made, and no activity relationship chart is constructed. The services and other than flow relationships are simply picked up as part of the Modifying Considerations.

Analyzing materials flow, therefore, is one of the primary steps every layout planner should understand and know how to do.

Factors that Affect the Flow Pattern

- Number of parts in each product
- Number of operations on each part
- Sequence of operations in each part
- Number of subassemblies
- Number of units to be produced
- Product versus process type layout

- Desired flexibility
- Locations of service areas
- The building

Determining Method of Flow Analysis

There are several different methods of analyzing flow of materials. Part of the problem of course is knowing which method to use for a given project. The P-Q chart can be used as a guide, for the method of flow analysis varies with the volume and variety of the items being produced.

1. For one or a few standardized products or items, use operation process chart or some similar flow chart.
2. For several products or items, use multi-product process chart, if assembly and disassembly are not involved.
3. For many products of items (a) Combine them into logical groups and analyze as 1 or 2 above; or (b) Select or sample products or items and apply 1 or 2 above.
4. For very many diversified products or items, use the from-to-chart.

Flow Analysis Information

- **Assembly Chart**
- **Operations Process Chart**
- **Flow Process Chart**
- **Multi-Product Process Chart**
- **Flow Diagram**
- **From-To Chart**

Assembly Chart

It is an analog model of the assembly process. Circles with a single link denote basic components, circles with several links denote assembly operations/subassemblies, and squares represent inspection operations. The easiest method to constructing an assembly chart is to begin with the

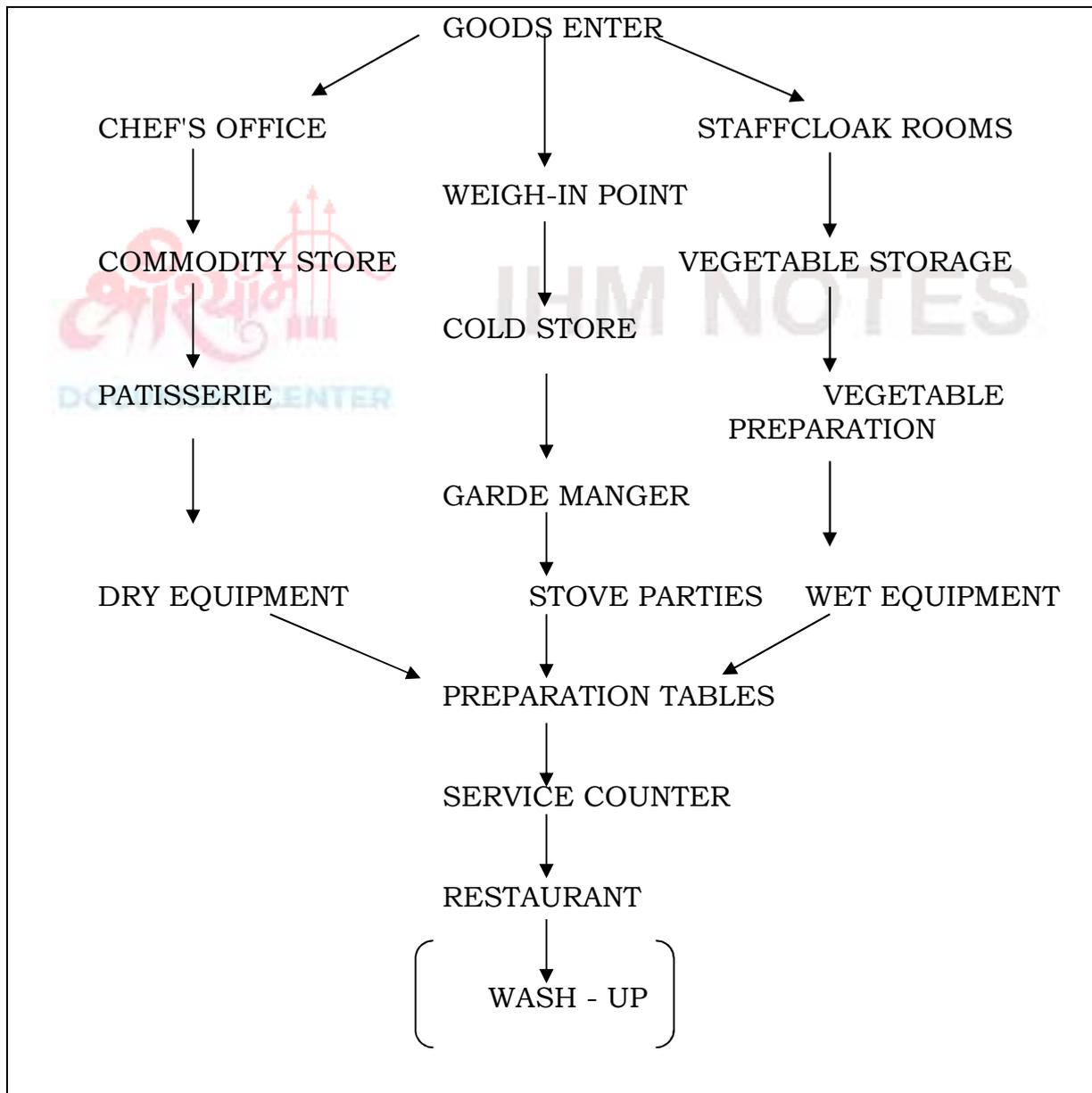
original product and to trace the product disassembly back to its basic components.

Flow Process Chart

This chart uses circles for operations, arrows for transports, squares for inspections, triangles for storage, and the letter D for delays. Vertical lines connect these symbols in the sequence they are performed.

Flow Diagram

It depicts the probable movement of materials in the floor plant. The movement is represented by a line in the plant drawing



Work flow diagram. A well-planned layout depends largely on the following requirements, which, if properly provided for, establish good basic kitchen conditions: incoming supplies and raw materials (checking and weighing); food storage; food preparation; cooking; serving area arrangements; pan-washing arrangements; crockery and cutlery wash-up. From Fuller, Professional Kitchen Management

From-To Chart. This chart is a matrix that contains numbers representing a measure (units, unit loads, etc.) of the material flow between machines, departments, buildings, etc.

To/From	Stores	Press	Cutlery	Weld	Lathe	Mill	Drill	Paint	Assembly	Warehouse	Total
Stores		500	100	200							800
Press					300	200					500
Cutlery					200	100					300
Weld			200								200
Lathe						300	200				500
Mill							100				100
Drill								100	100		200
Paint										500	500
Assembly											
Warehouse											
TOTAL	800	500	300	200	500	500	300	200	200	500	4000

Flow Pattern.: Flow between Departments

- Flow between departments is a criterion often used to evaluate flow within a facility.
- Flow typically is a combination of the basic horizontal flow patterns shown below. An important consideration in combining the flow patterns is the location of the entrance (receiving department) and exit (shipping department).

A Relationship (REL) Chart is constructed as follows:

1. List all departments on the relationship chart.
2. Conduct interviews of surveys with persons from each department listed on the relationship chart and with the management responsible for all departments.
3. Define the criteria for assigning closeness relationships and itemize and record the criteria as the reasons for relationship values on the relationship chart.
4. Establish the relationship value and the reason for the value for all pairs of departments.
5. Allow everyone having input to the development of the relationship chart to have an opportunity to evaluate and discuss changes in the chart.

Code	Reason	Rating	Definition
1	Frequency of use high	A	Absolutely Necessary
2	Frequency of use medium	E	Especially Important
3	Frequency of use low	I	Important
4	Information flow high	O	Ordinary Closeness OK
5	Information flow medium	U	Unimportant
6	Information flow low	X	Undesirable
