University of Salahaddin
College of engineering
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Building plans

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Building plans [Site developments]

Site benefits

Potential sites need to be considered in relation to the main tourist and service attractions.

In a resort area, views, distance and frontage to the beach or waterfront and surroundings are key factors.

In towns, proximity to parks, rivers, prime shopping streets, historic areas and entertainment are important. The status of the district and surroundings is particularly critical for luxury hotels.

Building plans [Site developments]

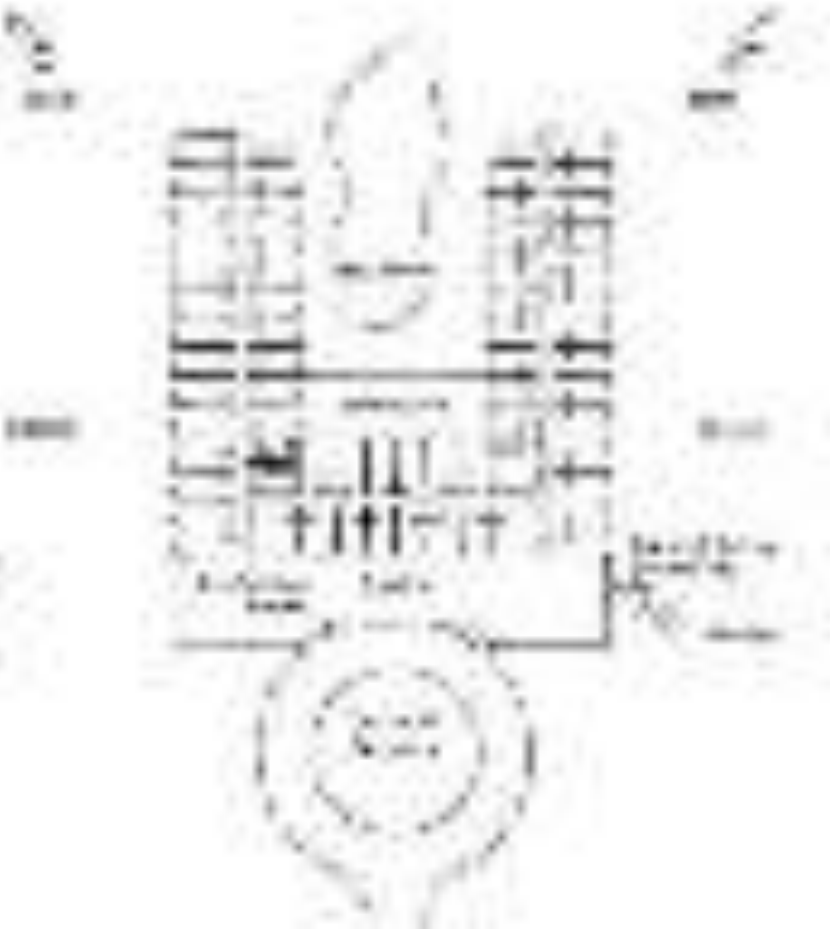
Site benefits

The views influence the plan form , compensatory attractions (garden views, recreational focuses) should be provided for disadvantaged rooms.

The orientation to sun , shade and prevailing winds will affect building design as well as the location and screening of swimming pools, recreational areas and terraces.

Building plans [Site developments]

Relationship to view



Building plans [Site developments]

Sheraton Waikiki

Guestrooms in the Sheraton Waikiki occupy 25 floors in two curving wings overlooking the beach. The lobby floor extends into the podium between the guestroom wings with the second floor accommodating extensive ballroom and convention areas.
Architects: Wimberly, Whisenand , Al lison, Tong and Goo

Sheraton Waikiki

Building plans [Site developments]

Crest Hotel

Sensitivity in design This four-star Forte Crest Hotel with 116 bedrooms and extensive public facilities commands a unique location alongside Exeter Cathedral.

Building plans [Site developments]

Environmental and planning constraints

Development may be restricted by town and country planning and zoning conditions.

More specific protection is given to existing listed buildings and surroundings through preservation orders and conservation area controls.

In sensitive areas, environmental impact assessment and amenity conservation studies may be required to demonstrate that appropriate safeguards have been incorporated in the development.

Building plans [Site developments]

Traffic analysis

An analysis of traffic flows (including main origins and destinations) is necessary to identify the nature and volume of transient users.

Planned changes in road systems and junctions must also be examined.

For transient use, the optimum location is adjacent to a major junction or terminus.

Budget accommodation can be sited near garage service stations and roadside cafes for higher visibility and convenience.

Building plans [Site developments]

Example of access and parking for suburban hotel

Key

1- Junction to highway.
2- main entrance.
3-exit and secondary access to parking and service area.
4-vision lines.
5-low boundary fence indicative gateway.
6-signs elevators
7-parking –car park space (2.5-5.5)m (Europe).
8-Hotel entrance.
9-banquet entrance.
10-Service yard.
Access road 6.0 m wide increasing to 7.0 m along hotel front

Building plans [Site developments]

Servicing

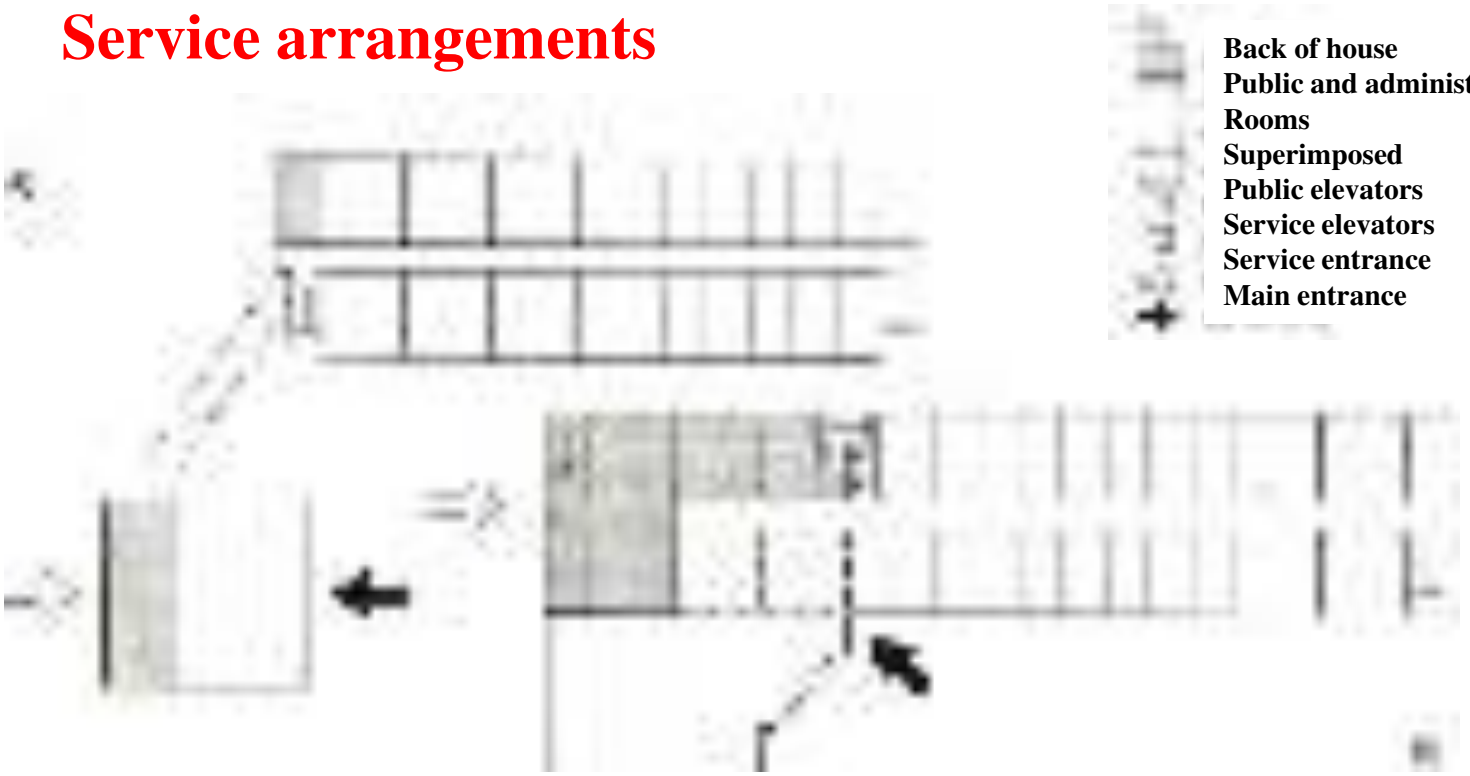
Separate access routes must be provided for guests and operation services.

The service road and goods entry point determine the location for back-of-house and internal servicing circulations.

Basement loading dock and car parking areas require extensive ramping and maneuvering areas.

Building plans [Site developments]

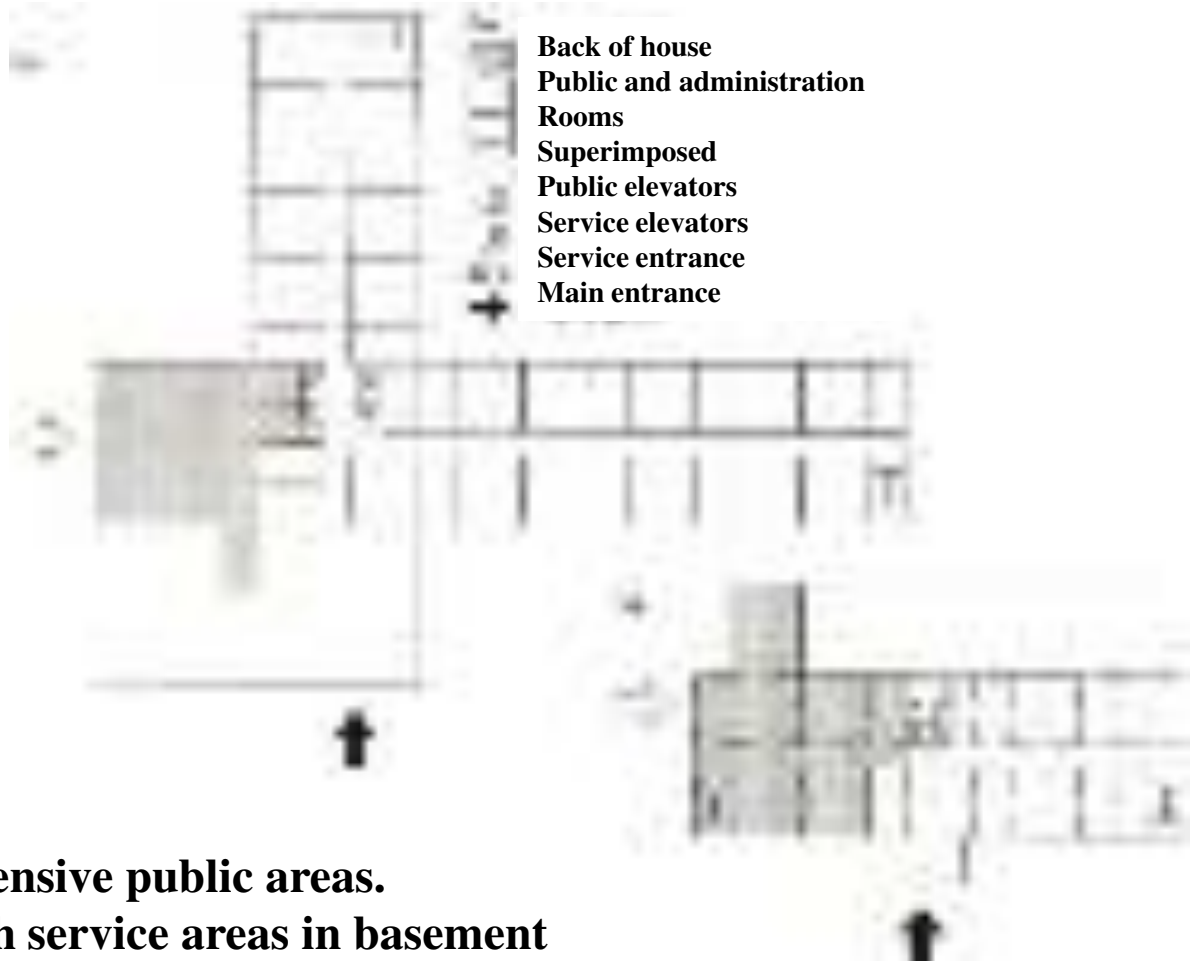
Service arrangements



(a) Separated buildings (lodges, motels, resorts) ; (b) mid-tariff hotels with limited public areas.

Building plans [Site developments]

Service arrangements



(c) hotels with more extensive public areas.

(d) multistory hotels with service areas in basement

Building plans [Site developments]

Land costs

Costs of land and development affect the area of site and concentration of building. High land costs generally call to high-density multistory buildings with basement construction even though the unit building costs may be 10-20% higher.

As a proportion of overall development costs for hotels, land purchase generally represents about:-

5% for undeveloped rural areas

10% for suburban and provincial towns

15% to 20% for prime city locations.

Land costs for motels are often 10 to 20% of the total.

Depending on policy, the land may be leased to reduce capital outlay.

Building plans [Site developments]

Density and height

The development density and massing of buildings is dictated largely by location, land costs and planning conditions. Plot ratios (expressing aggregate of gross floor area /net area of site) used in many European cities and towns broadly range over:

1:1 in sensitive residential districts, 2:1 in mixed urban areas,

2.5:1 in shopping streets rising to 3.5:1 and 5:1 in more concentrated commercial districts like central London and Paris.

Plot ratios of 4:1 have been adopted in some of the resorts in Spain with a balance of public open space in promenades and gardens.

Height and set-back conditions may also apply to protect the character of the surroundings and restrict intrusion , including existing covenants and rights protected by easements.

Building plans [Site developments]

Land areas

Typical minimum land areas for 3-4 star hotel development are shown in Table

Type of hotel	Site	Hectares	Acres
100 room, 2-3 storey	Motor hotel	1.0	2.5
200 room 3-4 storey	Urban, suburban	1.6	4.0
200 room 4-6 storey	City centre	0.8	2.0

Building plans [Site developments]

Land areas

Land areas need to be more extensive to accommodate recreational and landscaping needs, as shown in Table

Type of hotel	m2	sq ft
Open air swimming pool (+ children's pool and bar)	750	2.5
Tennis courts (4)	2700	4.0
Indoor riding stables	450	2.0
Club house	400	
	ha	acres
Golf course 9 holes	(14-20)	35-50
Golf course 18 holes	(28-40)ha	70-100

Building plans [Site developments]

Future extensions

The initial stage in establishing a hotel is difficult and expensive.

Uncertainties arise from possible changes in the economy and markets and the costs of financing large projects and setting up operations are relatively high.

One approach is to provide for a phased expansion of the hotel as future Demand increases by ensuring that there is space on site and infrastructure capacity to allow for extensions.

As a rule, extensions are comparatively profitable and can be designed to serve known requirements.

Building plans [Site developments]

Future extensions

Guestroom wings may be added, utilizing existing public space capacity, and additional facilities provided (residential suites, conférence centre, liseur club, etc.).

Future extensions may be provided within the site, by options on further land purchase or by acquisition of other properties (temporarily used for other purposes).

The timing of such extensions is critical and must be planned with other renovation works.

Building plans [Operational considerations]

Circulations

The movements of guests, non-resident visitors, staff and supplies in a hotel tend to follow distinct circulatory patterns. These establish functional relationships between the areas which are associated in providing particular services.

In planning layouts it is essential to identify the sequence of steps normally involved in the various hotel operations - both in the ' front –of house‘ and 'back-of-house' - and the points at which staff services will interface with guest areas (operational flow diagrams).

Building plans [Operational considerations]

Where practical, guest, supply and staff circulations are kept separate

1. **to avoid disturbances, delay and possible annoyance of guests**
2. **to enable the service areas to be purposely planned for efficiency**
3. **to facilitate control, supervision and security.**

It is particularly important to avoid service circulations crossing busy or conspicuous public areas.

In larger hotels some separation of guest and non-resident visitors is also desirable for control and security reasons.

This will influence the siting of the front desk and elevators to the guest floors of the hotel.

Building plans [Operational considerations]

Public access

Depending on the scale and location of the building, several alternative arrangements may be used:-

1. **Secondary entrances for restaurants attracting outside custom, to the foyer of the ballroom and function room suite and for the recreational club users, apart from the main hotel reception. Secondary car and taxi access may also be required.**
2. **Communal lobby or atrium area giving access to multiple facilities. The lobby may provide a spectacular design. Clear sign posting at the entrance and successive points of separation within the lobby is essential.**

Convenient routes will also need to be provided direct to the lobby from car parking areas.

Building plans [Operational considerations]

Public access

Separate public and service access routes

Conditions	Options
Single access from highway	Hotel road elevated to prominent entrance
(Basement)	Service road ramped down to basement Hotel road direct to conspicuous entrance and car park
(Ground level)	Service road branched off and screened
Separate access from highway	Hotel road from main street or highway Service road from side street

Building plans [Operational considerations]

External circulation

As a rule separate public and service access roads are provided.

Where a common entrance from the highway is necessary because of Traffic or site restrictions, the two routes need to be distinctly identified.

In every case clear street and on-site sign posting is essential particularly when shared access or basement car parking is involved.

Traffic generation and parking

Large hotels are major traffic generators and this is often cited as an argument against the development of hotels in residential districts or congested town centers.

Traffic flow predictions are required for cars and taxis used by guests, non-resident visitors and employees. They are also needed for coach

Building plans [Operational considerations]

and bus parking for tour and conference groups as well as employees and for the goods and service vehicles.

The assessment of traffic flows and parking requirements involves a series of calculations using standard formulae for trip generation or computer simulation of the patterns of arrivals and departures .

This pattern of movement is fairly typical of business users. In the example, 104 car spaces would be required for hotel guests (1:3 rooms).

Evening functions require 24 additional spaces. This could involve

increasing the size of the car park or making arrangements to use an alternative park nearby. Local functions and banquets tend to occur at weekends when the hotel demand is lower. Conventions are mainly residential.

Registration, checkout and baggage handling The same patterns of arrival and departure apply to registration and checkout requirements.

Building plans [Operational considerations]

Notes: (a) Ratios depend on location and class of hotel, for example:-

Conditions	Model split Cars	Model split Taxis	Persons/Vehicle Average
City centre hotel	0.5	0.4	0.1
Suburban hotel	0.9	0.1	0.1

(b)Coaches, buses and public transport: may be high near airport terminals or in tourist hotels.

Urban planning standards are often based on 1 coach parking bay:200 rooms

Building plans [Operational considerations]

Typical car park ratios (a)

users	Motor hotel (b) Suburban hotel	City centre hotel (a)
Guest rooms	1:1	1:3
Restaurant seats	1:5 to 1:2 (d)	1:10 (e)
Conference seats	1:5	1:10
Resident staff	1:1	1:1
Non-resident staff	1:3	-

Notes

(a) 1 car space: number of rooms, seats, staff.
(b) Overal1 ratio usually 1:2 spaces per guestroom.
(c) Depends on planning conditions and alternative car parks.
(d) l :2 for independent restaurant.
(e) For regular non-residential use of restaurant and conference rooms.

Building plans [Operational considerations]

Surface parking

users	European (m)	American (ft)
Individual parking bay	2.5×5.0	9' 2"×19'0'
10% larger bays (a)	2.8×6.0	10' 0"×22'6'
2% for disabled (b)	3.3×6.0	10' 0"×22'6'
Car park areas	m2	sqft
Parking at 90°	18.8	285
Parking at 45° (c)	22.1	345
Overall area with access and landscaping	21-23	320-360

Notes

(a) higher grade hotels.

(b) Suitably located and marked.

(c) May be reduced by interspacing

Building plans [Operational considerations]

Basement car parking

Basement car parking is expensive and the structural module for column spacing may be dictated by the guestroom dimensions.

The width of three parking bays, 7.5 m (27'6 ") equates to two 3.65 m (13' 6") rooms and wall thickness.

An overall area of 25- 30 m_2 per car (380-460 sqft) is generally required with a minimum headroom of 2.05 m (7'0 ").

10 percent or more larger bays a re provided for limousines and disabled users.

The cost ratio of completely underground parking, under buildings, with mechanical ventilation, sprinklers and two passenger lifts, is 13.0 x surface parking on tar macadam and up to 1.5 x an equivalent multistory car park with feature cladding and pitched roof.

Building plans [Operational considerations]

Taxi ranks

High-grade hotels in city centers and urban surroundings require waiting bays for taxis, additional to the vehicle circulation lanes .

Coaches

Most large hotels need some provision for coach waiting and parking (for conference and tour groups, airport transfers, staff transport).
A minimum requirement is normally 1 parking bay per 200 rooms.
Coaches require larger maneuvering space, wider access roads and high clearances. It is often preferable to allow coach waiting and setting down at a side entrance with luggage storage and transfer facilities adjacent.
Typical dimensions of a coach or bus are 12.0x2.5m (European) or 45' x 9' (US). A turning circle of 26 m (compared with 10 m for cars) is usually required together with a wide-swept area for overhang clearances.

Building plans [Operational considerations]

External circulation: public

Circulation routes to the entrance must be carefully planned, clearly signposted and well illuminated.

Key considerations are:-

- prominence of hotel entrance (the approach may be elevated)
- convenient access for pedestrians and for setting down passengers
- wide pedestrian forecourt clear of traffic - 3.5 to 4.5 m (11'6" to 15'0") for a large hotel
- one-way approach to entrance with roundabout circulation
- width in front of entrance increased to at least 2 lanes for setting down passengers and bypassing
- taxi and cab bays, routes for coaches and emergency access
- canopy to shelter and identify entrance
- signage and illumination.

Building plans [Operational considerations]

External circulation: supplies and services[Vehicle access]

Space requirements for the delivery of supplies and removal of refuse and trash depend on the size of the hotel, frequency of vehicle movements and location.

The city centers vehicle access, maneuvering and loading areas may need to be enclosed within the building envelope.

Basement construction is particularly difficult because of the limits on ramping (10%) and high headroom clearances required [or trucks and service vehicles (minimum 4.5 m increasing to 4.75 m on slopes).

In other situations, enclosure may be limited to the loading dock itself - if necessary with a canopy extension over vehicle bays.

Typical dimensions for truck movements need to be checked against vehicle characteristics Access will be required for large furniture pantechnicons, refrigerated trucks, refuse vehicles and fire-tenders - in addition to local delivery trucks.

Building plans [Operational considerations]

Loading docks

Hotel		Loading dock receiving/refuse storage area(m2)	Vehicle docking bays (a)
Gross floor area(m2)	Room		
5000	2.5×5.0	60	1
10000	2.8×6.0	100	2
25000	3.3×6.0	250	3

Note: (a) A minimum of two vehicle spaces is usually specified. Alternative waiting space may be permitted.

Building plans [Internal planning]

Planning framework

Hotel planning is affected by four main considerations:-

- **Location: site areas, aspects, surroundings, access requirements**
- **Scale: numbers of rooms, range of facilities, space allocations**
- **Massing: concentration of building. structural design, circulations**
- **Operation: guest requirements, standards, service arrangements.**

The first three are dependent on the information provided by marketing and site surveys.

Operational requirements take into account service needs and layout efficiency.

Building plans [Internal planning]

Spatial requirements[Public rooms]

Large spaces: open planned to allow change of function or arrangement.

May need to be column-free (ballrooms, convention halls).

Usually at or near ground level (public access and control).

Individually designed. External views may be important (vistas, recreational focus). Close to support areas (foyers, kitchens, equipment stores).

Spatial requirements[guest rooms]

Compact units with standardized fittings and modular dimensions (room layout options within design module).

Repetitive arrangement from floor to floor.

External views important and influence arrangement of floor plans.

Circulation and fire escape requirements may determine number of rooms per floor.

Servicing arrangement incorporated (engineering ducts, housekeeping and room service provisions).

Building plans [Internal planning]

Spatial requirements[Service and support areas]

Areas usually specified for support areas large plant, kitchens, laundries.

Most can be adapted to spaces available.

May need to be near rooms requiring service (kitchens, housekeeping) or near delivery area (stores, plant).

Require separate access and circulation.

Risk of noise or disturbance affecting other areas.

These spatial requirements have a strong influence on the types of structure used in Hotel building.

Building plans [Internal planning]

Locations

For reasons of convenience, merchandising and control, the main public areas invariably need to be located at or near street level.

Those service areas which are closely associated (front office, kitchens, bar stores) need to be adjacent.

To provide segregation from public activities, quietness, elevated views and greater security, guestrooms are usually on floors at higher levels.

Exceptions include:

- Multilevel public facilities where the lobby extends over several storeys as in some atrium designs.
- Restaurant or bars at roof level (sometimes with a revolving floor platform) to take advantage of the views.

Building plans [Internal planning]

Locations

- Hotels occupying the upper floors over stores, office, etc. with exclusive elevators direct to the main lobby.
- On steeply sloping sites, the public areas may be more conveniently located at the point of entry above lower guestrooms.
- Resort, villages and pavillon arrangements where the public buildings are separate from accommodation.

High-level public facilities require additional elevators or escalators and provisions for evacuation by stairs.

Vertical separation of public facilities also increases the space required for satellite kitchens and stores and service circulation.

Building plans [Internal planning]

Structural implications

The plan area occupied by the public areas and their support services is generally larger than that of a multistory guestroom block.

To reduce structural and servicing complications of superimposed arrangements particularly over areas which need to be column-free (ballrooms, banquet halls), four main options are possible:

- **Podium extensions of lower floors to accommodate the larger public rooms.**
- **Atrium or courtyard arrangements fully or partly enclosing open-plan spaces.**
- **Vertical separation with separate structural blocks as in pavilion hotels, village groupings and guestroom extension wings.**
- **Horizontal separation using bridging structures to form an intermediary services floor.**

Building plans [Internal planning]

Structural implications

In multistory hotels, layout planning in both public and support areas is affected by the methods of support and drainage given to the guestroom floors above.

The numbers of columns in the guestroom structure may be reduced by central positioning on the use of structural crosswalks and/or spine walls with.

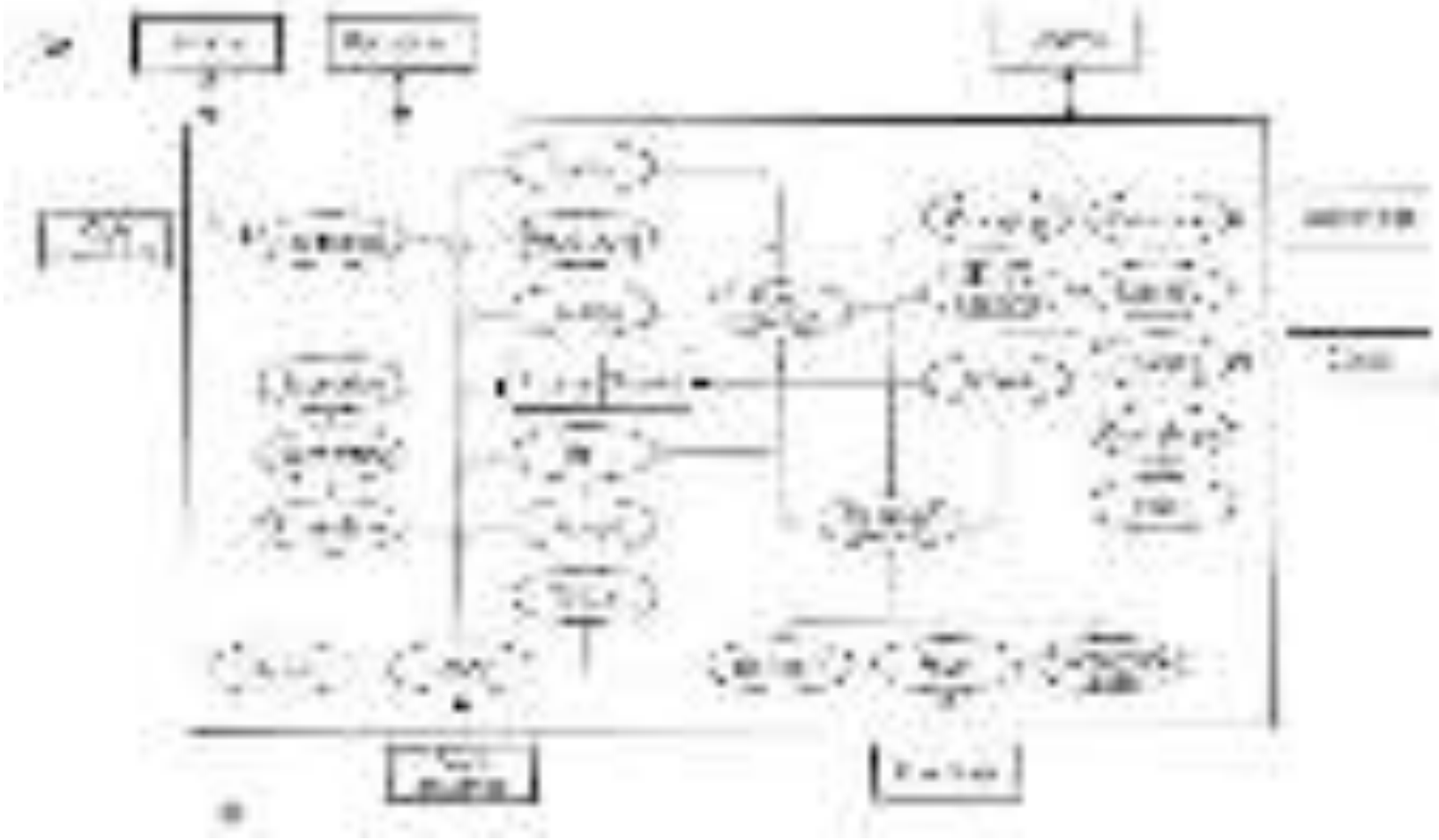
Larger span clearances may be provided by deep beams acting as bridging structures.

The beams may also serve to support structural units suspended below in addition to those built above, to house engineering plans for the public areas as well as terminal and transfer facilities for the ducted services from the rooms, and may be cantilevered out to permit unobstructed sheet facades or overhang other areas.

Outside the plan area covered by guestrooms, public spaces can be relatively unobstructed and lightweight roof structures are generally used.

Building plans [Internal planning]

Functional relationships

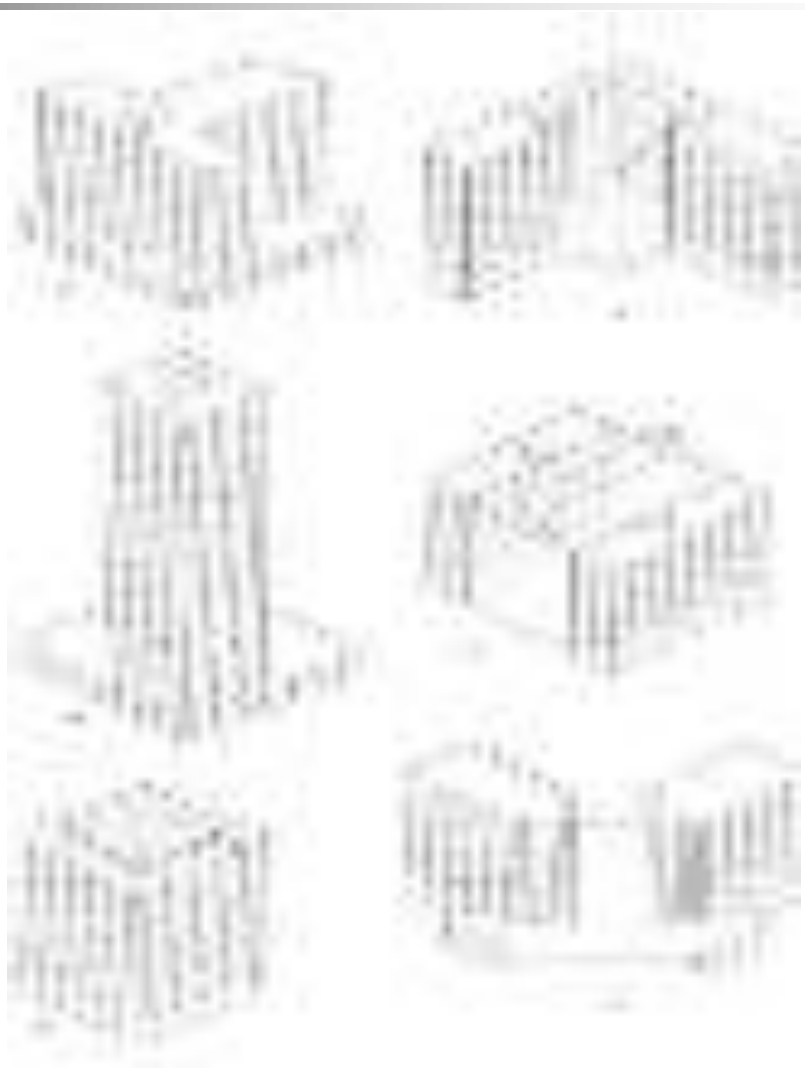


Building plans [Internal planning]

space allocations

Building plans [Internal planning]

Structural relationships



Building plans [Internal planning]

Westown Motor Hotel, New Plymouth, New Zealand

Key
1- **Public bar**
2-3- Lounge bar
4 -**Kitchen**
5 -Staff
6 -**Conference**
7- Dining room
8-Adminhlration
9- Guest lounge
10,12.13,14- Guest blocks
11- Swimming pool
15- Changing room

Building plans [Internal planning]

Mayapada Meridien Hotel, Jakarta, Indonesia

Building plans [Internal planning]

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Building plans [Internal planning]

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Building plans [Internal planning]

Yokohama Grand Inter-Continental Hotel
Forming part of the vast Pacifico Yokohama water front development

(b) Entrance lobby

Building plans [Internal planning]

Yokohama Grand Inter-Continental Hotel

Building plans [Internal planning]

Yokohama Grand Inter-Continental Hotel

Building plans [Internal planning]

Yokohama Grand Inter-Continental Hotel

Building plans [Internal planning]

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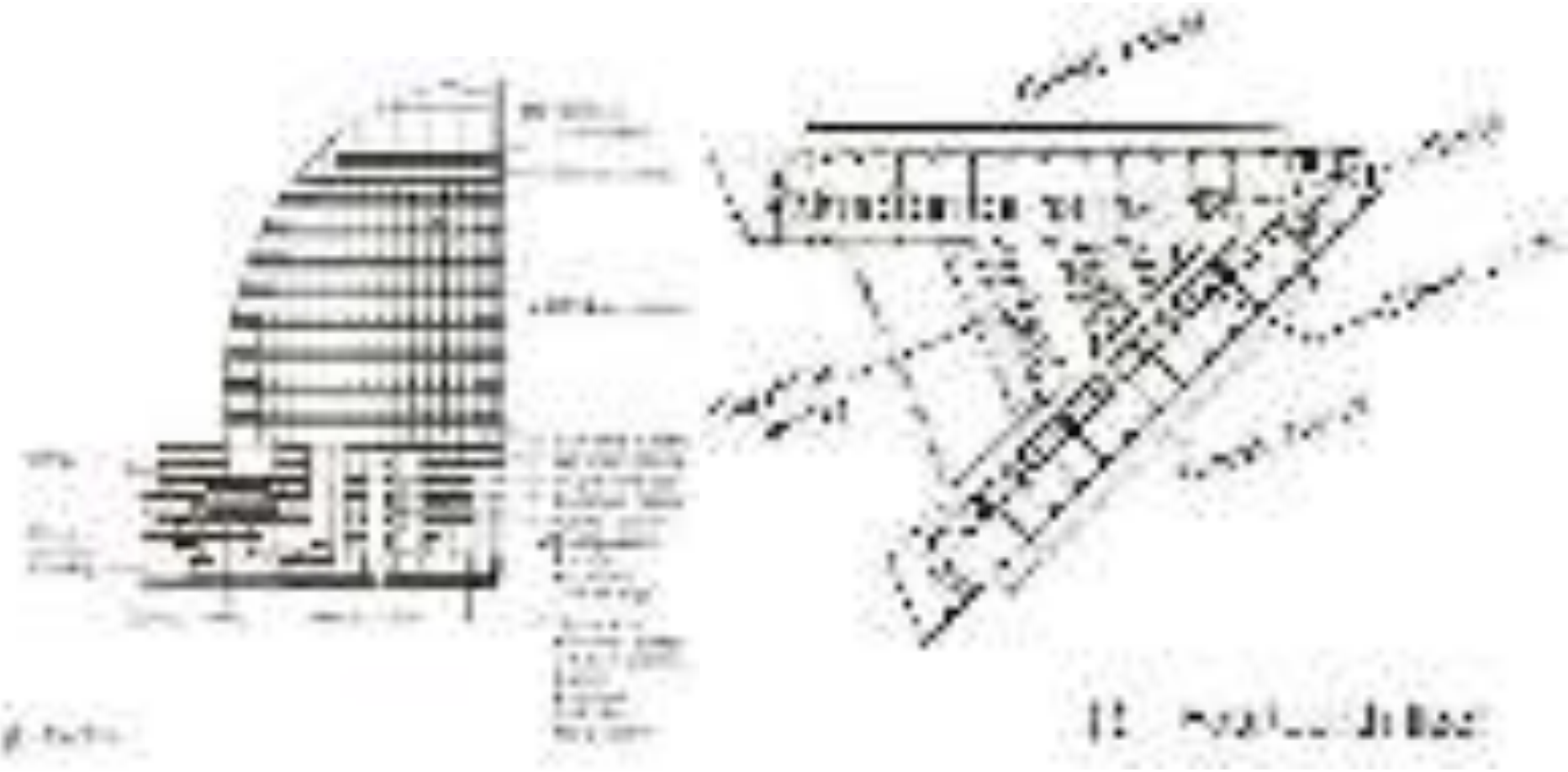
Building plans [Internal planning]

Yokohama Grand Inter-Continental Hotel



Building plans [Internal planning]

Stratford- on-Avon Hilton
Layout of public and service areas at ground floor level.

Building plans [Internal planning]

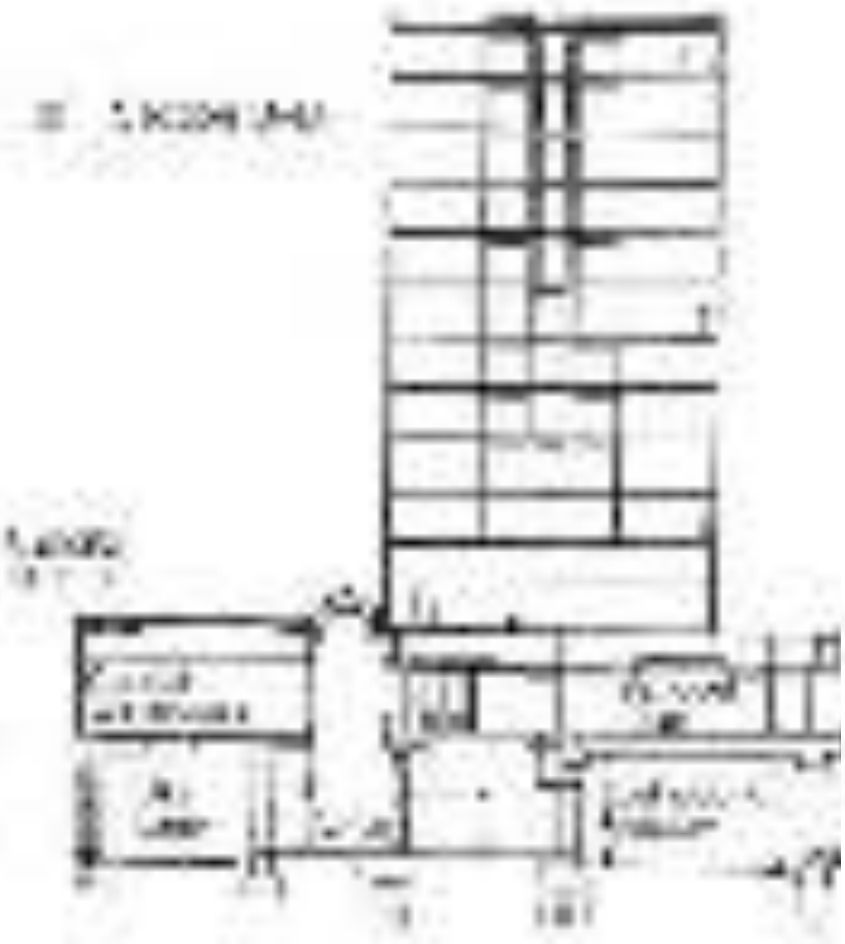
Hyatt Regency Hotel. Kansas City, USA

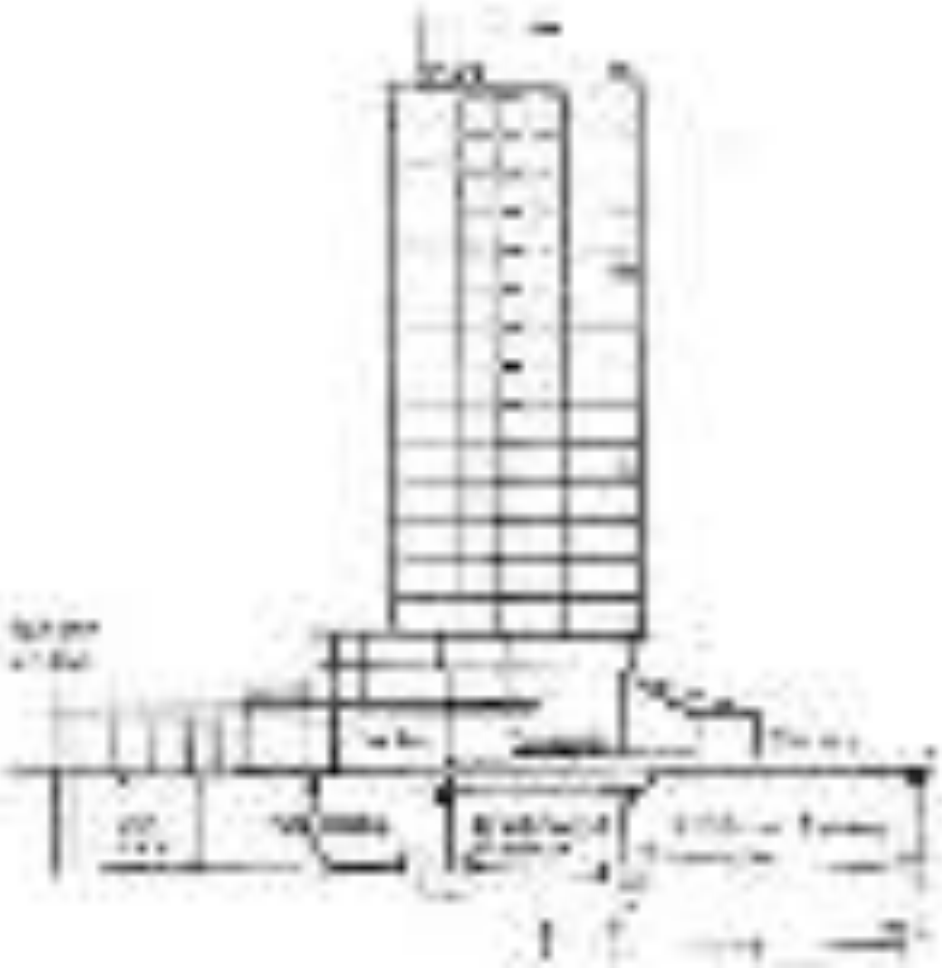
Building plans [Internal planning]

Hotel Nikko, Darling Harbour, Australia

Building plans [Internal planning]

Hotel Nikko, Darling Harbour, Australia





Building plans [Internal planning]

Guestroom plans: multistory buildings

Guestrooms may be arranged in rows or one on both sides of a corridor forming a slab plan or stacked around the circulation core of a tower structure.

Slab plans

A linear layout is used for most guest room plans with staircase cores at or near each end of the corridor. The main vertical circulation is usually central and determined by the positions of the elevators. Double loaded corridors with rooms on both sides are most efficient:-

- high net usage of floor space (gross factor: 0.25)
- reduced corridor lengths (for guests and housekeeping)
- structural design and compact engineering services.

As a rule the corridor is central but may be offset in some wings to provide different room formats.

Building plans [Internal planning]

Slab plans

Single loaded internal corridors are used when there are site limitations, (space, aspect, legal restrictions) , in terracing down steep slopes and for short linkages. External sheltered corridors are sometimes adopted in pavilion style hotels and budget designs for one- or two story buildings.

Atrium designs

These use internal corridors overlooking the central space which may be open or Subdivided by mezzanine extensions to increase utilization.

Elevators extending through the atrium are invariably transparent for spectacular effect and may be adjacent to the corridor or linked by bridging where there are dimensional changes. Typically guestrooms are arranged around all sides to facilitate room access, servicing and evacuation. In some cases large areas of glazed wall may be included to improve light penetration and open views to the interior.

Building plans [Internal planning]

Atrium designs

The floor space utilization of single loaded corridors is low but can be increased by the use of suites of rooms at right angles to the corridor.

Special provisions are required for smoke evacuation and fire protection of the Exposed corridors and separate exits to staircases must be provided.

Atriums may be used in urban areas and hostile climates to create an attractive Internal environment which can be dynamic and spectacular.

The interest created in circulation counters the use of long isolating corridors. To Increase space utilization atriums may be extended by guestroom wings of slab construction .

Building plans [Internal planning]

Tower structures

Structural use of the central circulation service core in tower buildings enables the Guestrooms 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 primarily used for high-rise buildings where the advantages of views and prominence justify the higher costs involved (unit rates increased by 20% or more).

Intensive use of elevators is involved in circulation and servicing (including rooftop restaurant-bar provisions) and special elevators are required for emergency and fire fighting access in addition to protected stairs.

Rooms arranged around the perimeter may be in various configurations with Optimum ratios of twelve to twenty-four rooms per floor.

Building plans [Internal planning]

Floor plans of slab, atrium and tower structures

Notes :

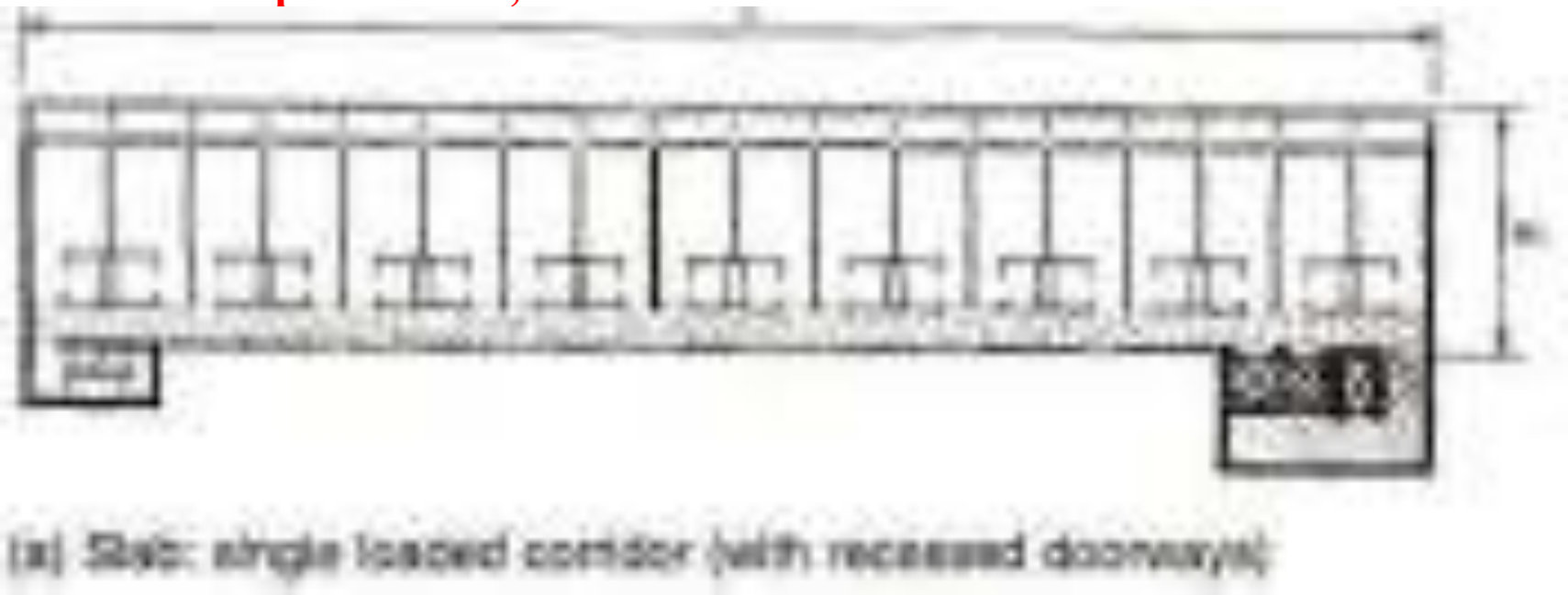
(a) Length depends on the permitted travel distance and locations of end and central stairs. The figures are based on London (m) and US (ft) maxima.

(b) Based on typical room widths.

(c) Optimum number of rooms.

Building plans [Internal planning]

Floor plans of slab, atrium and tower structures

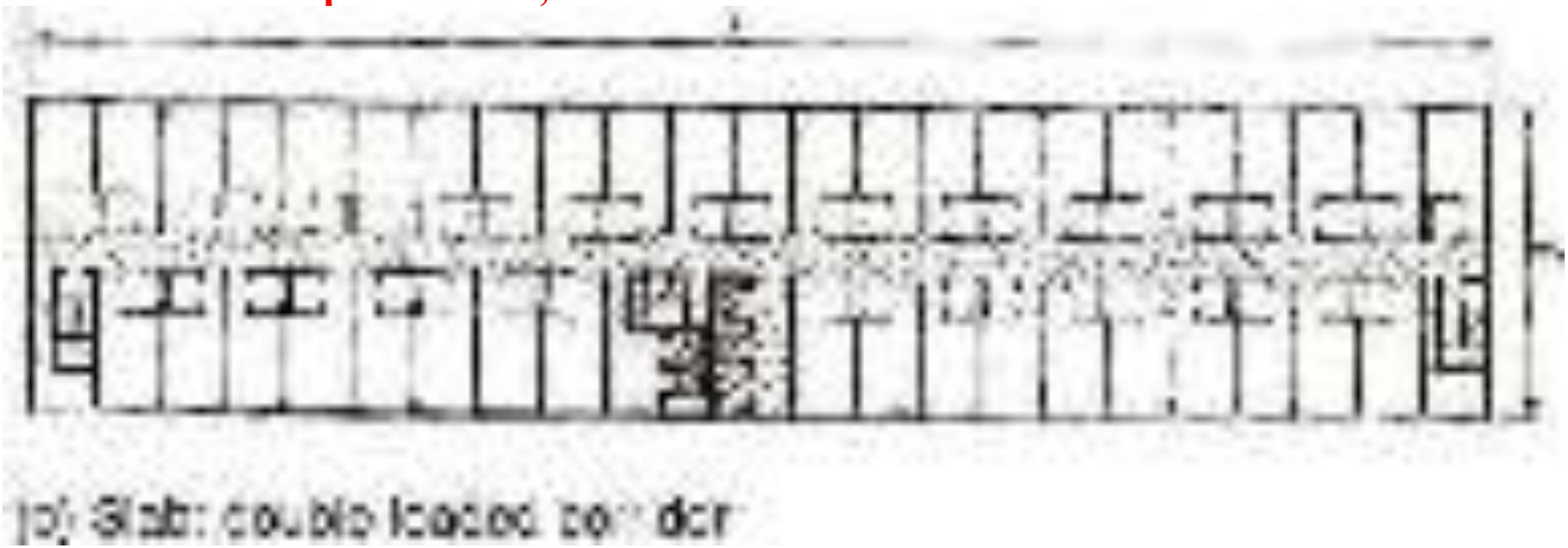


(a) Slab: single loaded corridor (with recessed doorways)

Dimensions	Notes
L_1 Up to 60 m (195')«)	Where aspect limited to one side
W_1Budget 7.9 m (26')	or for short linking sections and
Midgrade 9.1 m (30')	inline suites (corridor lighting)
High-grade 10.8 m (36')	Low space utilization
15-18 rooms/floor (b)	Internal gross factor 33-36%.

Building plans [Internal planning]

Floor plans of slab, atrium and tower structures



(a) Slab: double loaded corridor

Dimensions	Notes
L_2 65-120 m (195-300') (a) W_2 Budget 13.7 m (45') Midgrade 16.3 m (53') High grade 19.7 m (65') 44-56 rooms/floor (b)	Efficient use of floor space Corridors may extend 7.5 m(35') beyond end staircase (a) Internal gross factor 22-25%.

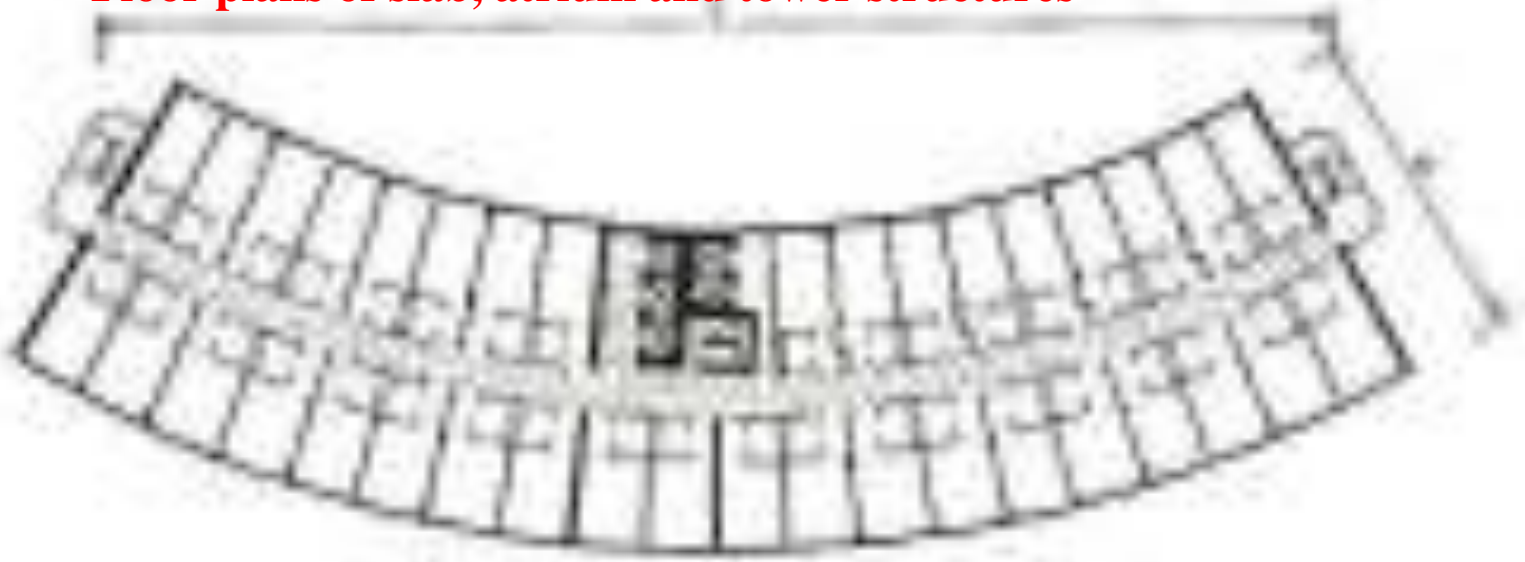
Building plans [Internal planning]

Floor plans of slab, atrium and tower structures

Dimensions	Notes
L3 Up to 120 m (300‘) (a) W3 Budget 21 .2 m (70') Midgrade 24.8 m (81') High grade 27.2 m (89') 44-56 rooms/floor (a)	Similar with overlap housing the elevator core and service areas. Dictates the location of main and service elevators. Internal gross factor 23-26%.

Building plans [Internal planning]

Floor plans of slab, atrium and tower structures

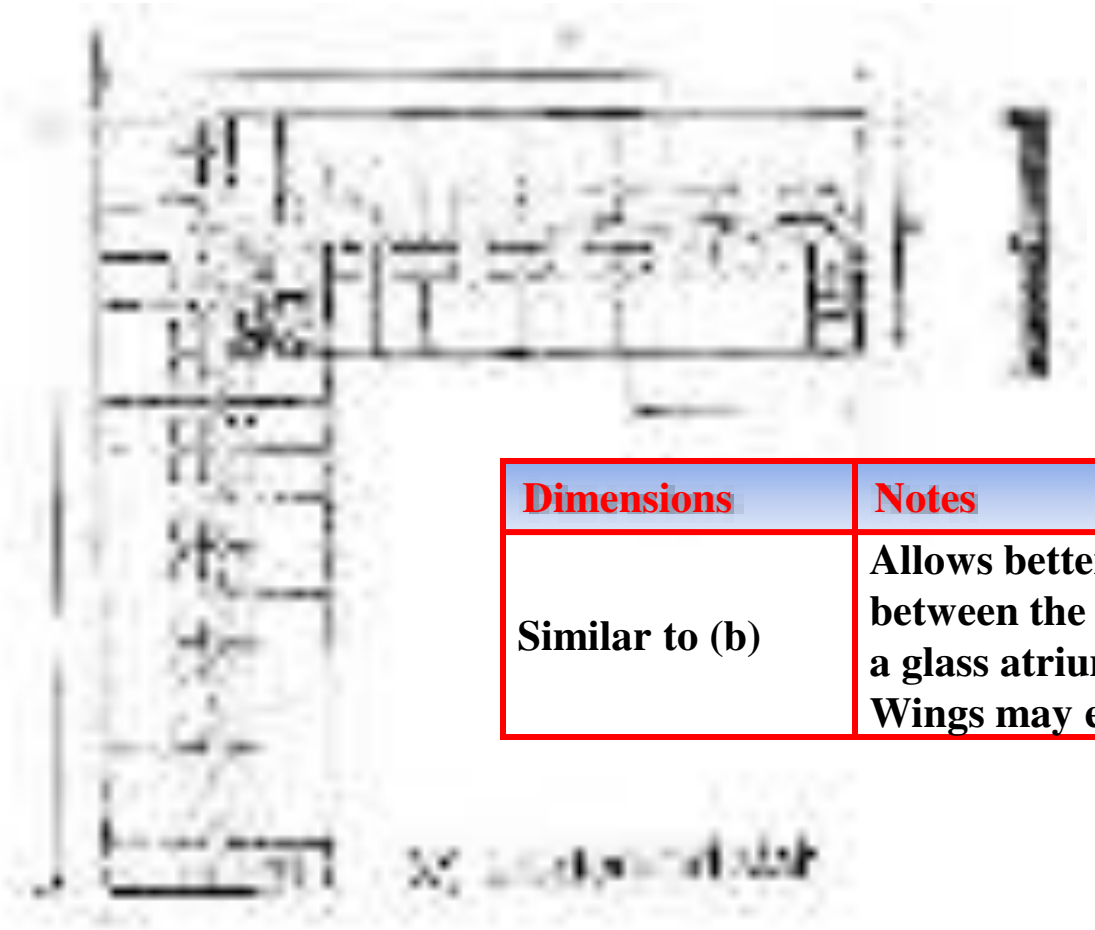


(d) Curved or segmented slab (with indented closets)

Dimensions	Notes
Mid-dimensions similar to (b)	Rooms on inner radius difficult to plan with restricted bathroom widths. Minimum practical radius 30 m (100').

Building plans [Internal planning]

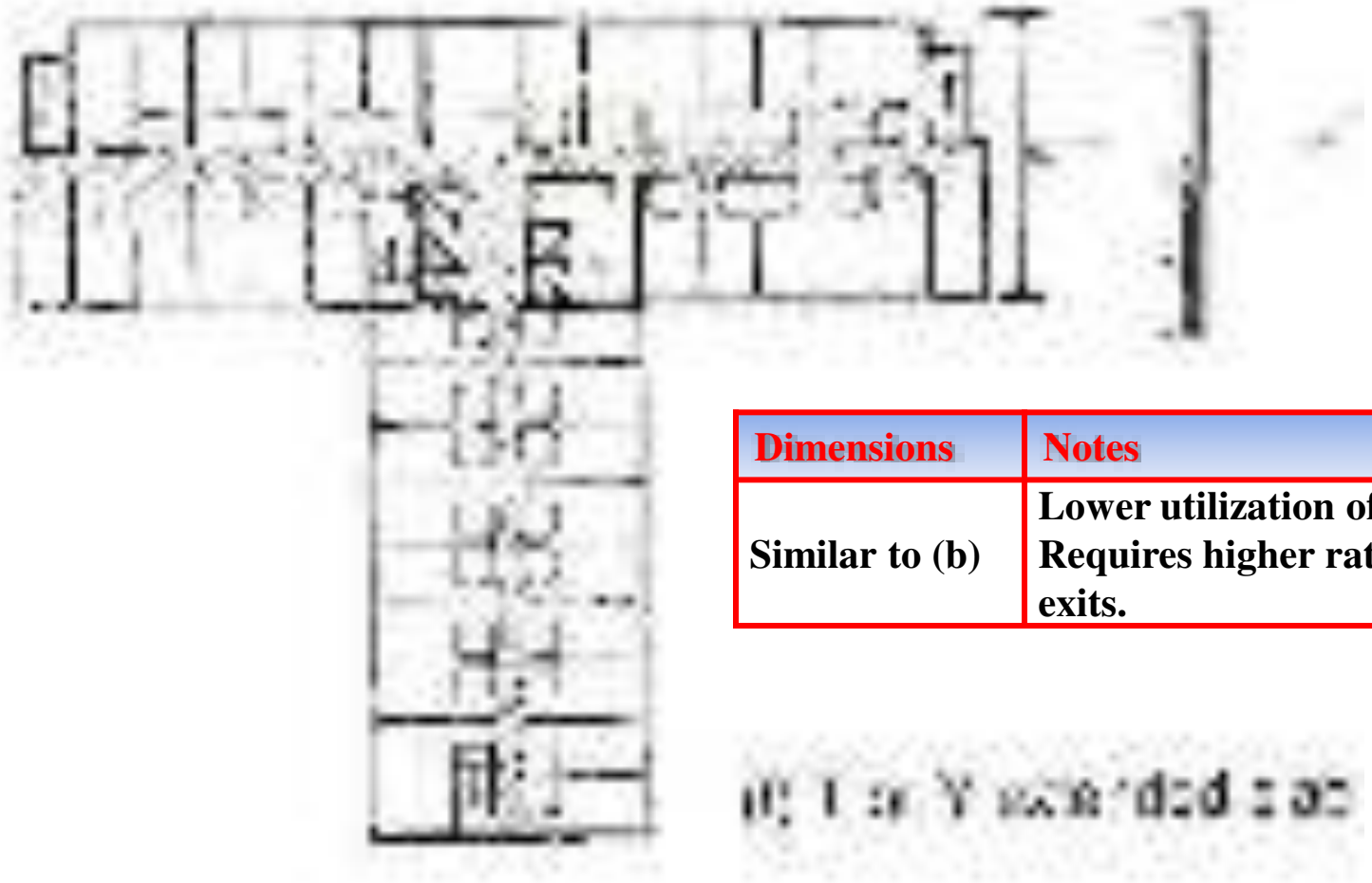
Floor plans of slab, atrium and tower structures



Dimensions	Notes
Similar to (b)	Allows better utilization of site. The space between the wings may be partially enclosed with a glass atrium. Wings may extend round to form a quadrangle.

Building plans [Internal planning]

Floor plans of slab, atrium and tower structures



Dimensions	Notes
Similar to (b)	Lower utilization of perimeter. Requires higher ratio of staircase exits.

Building plans [Internal planning]

Floor plans of slab, atrium and tower structures

Dimensions	Notes
24-40 rooms/floor (c) L 30-34 m 45-49 m (98-112') (1 48-160')	Atrium creates large interior space with controlled environment, allows open corridors, transparent elevators and natural lighting to central public spaces. Utilization of floor areas is low but may be increased by the use of in-line suites or wing extensions (as shown). HVAC design , fire control, smoke removal/pressure ventilation and evacuation routes require detailed consideration.

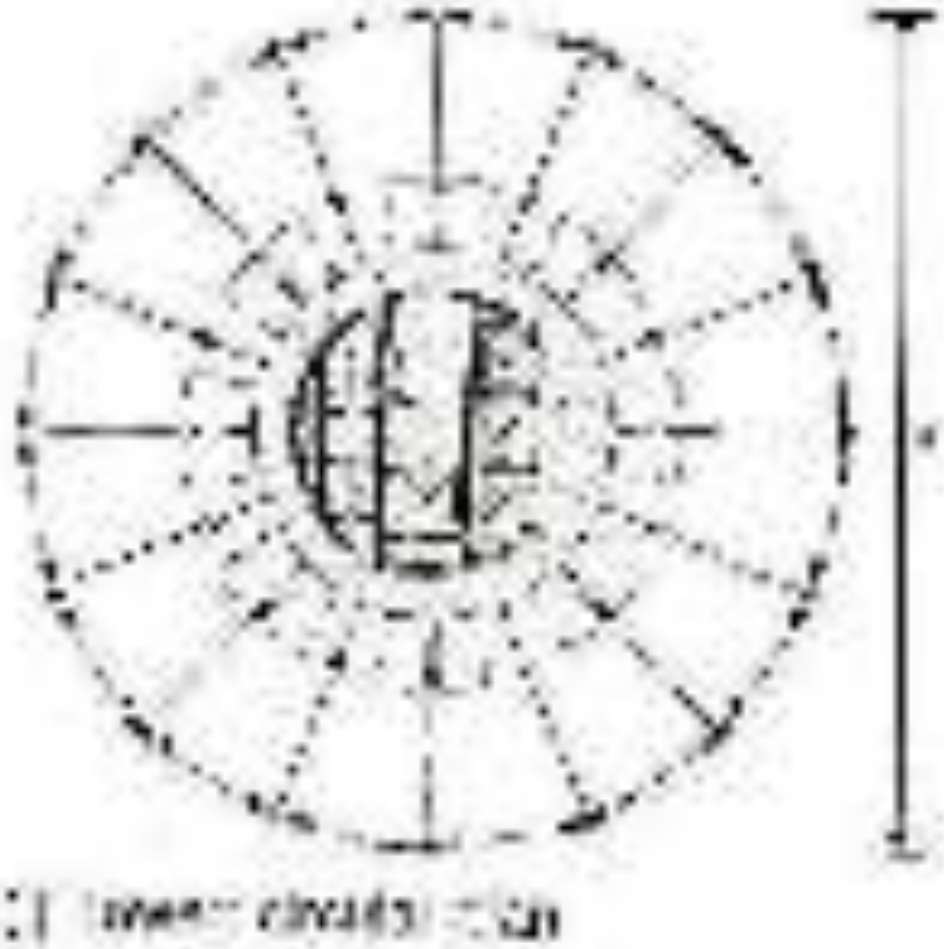
Building plans [Internal planning]

Floor plans of slab, atrium and tower structures

Dimensions	Notes
16- 24 rooms/floor (c) L 26-28 m 34-36 m (85-92') (112-118')	Towers require large core structures with single loaded corridors. Space utilization is higher with 16-24 rooms/floor. Internal gross factor 34-36%. With rectangular plans corridor extensions are usually required to corner rooms.

Building plans [Internal planning]

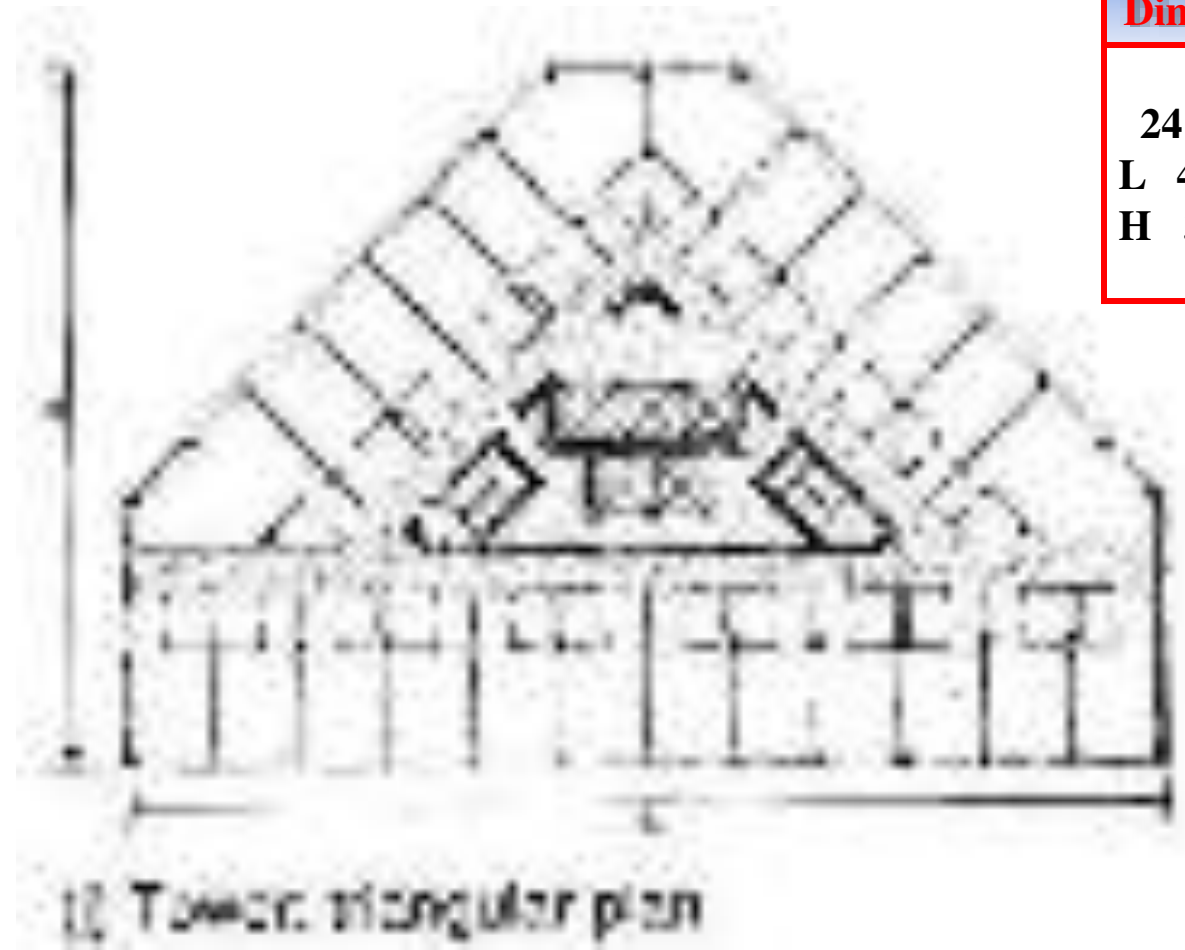
Floor plans of slab, atrium and tower structures



Dimensions	Notes
16-24 rooms/floor (c) 031 -33 m 39-41 m (102-108') (128-134')	Circular or segmented plans are more efficient but give narrow room entrances and bathrooms.

Building plans [Internal planning]

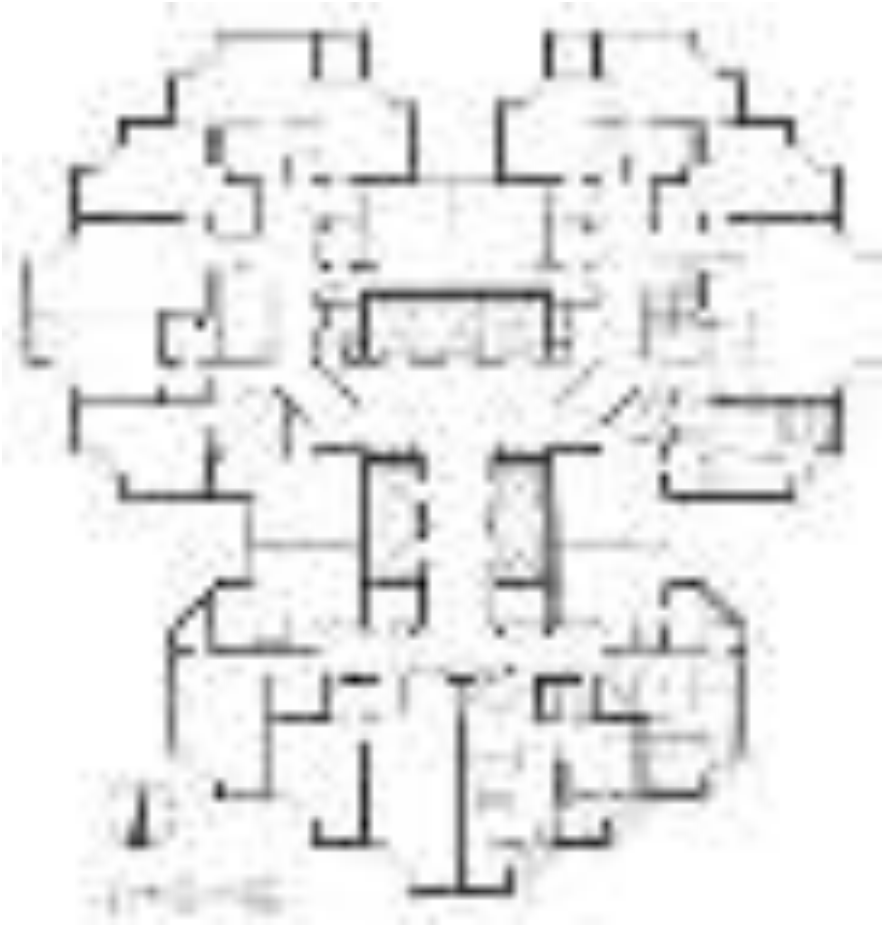
Floor plans of slab, atrium and tower structures



Dimensions	Notes
24 rooms/floor L 43 m (141') H 30 m (98')	Triangular plan shapes allow more room variations but a triangular core is usually less efficient.

Building plans [Internal planning]

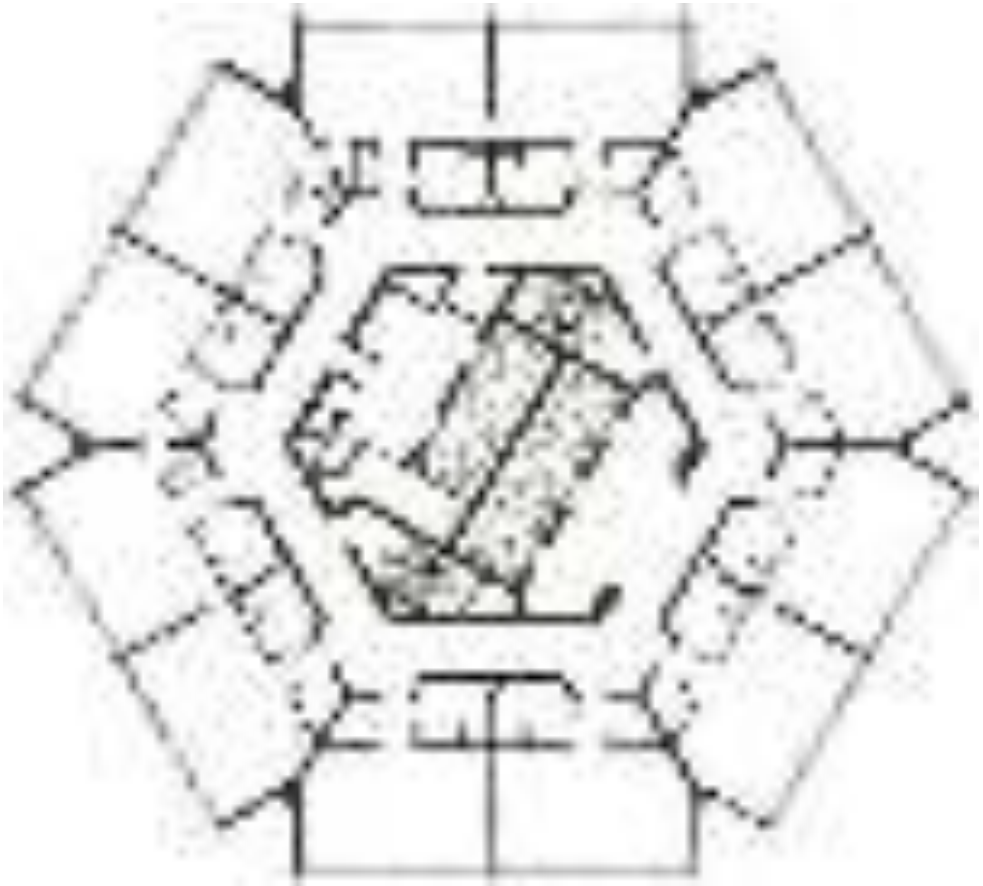
Jerusalem Hilton



Vertical emphasis provided by three towers clustered around a central services core, each of the towers terminating at a different height. Guestrooms grouped around central circulation cores.

Building plans [Internal planning]

Inn on the Park, Toronto, Hexagonal tower structure



Building plans [Internal planning]

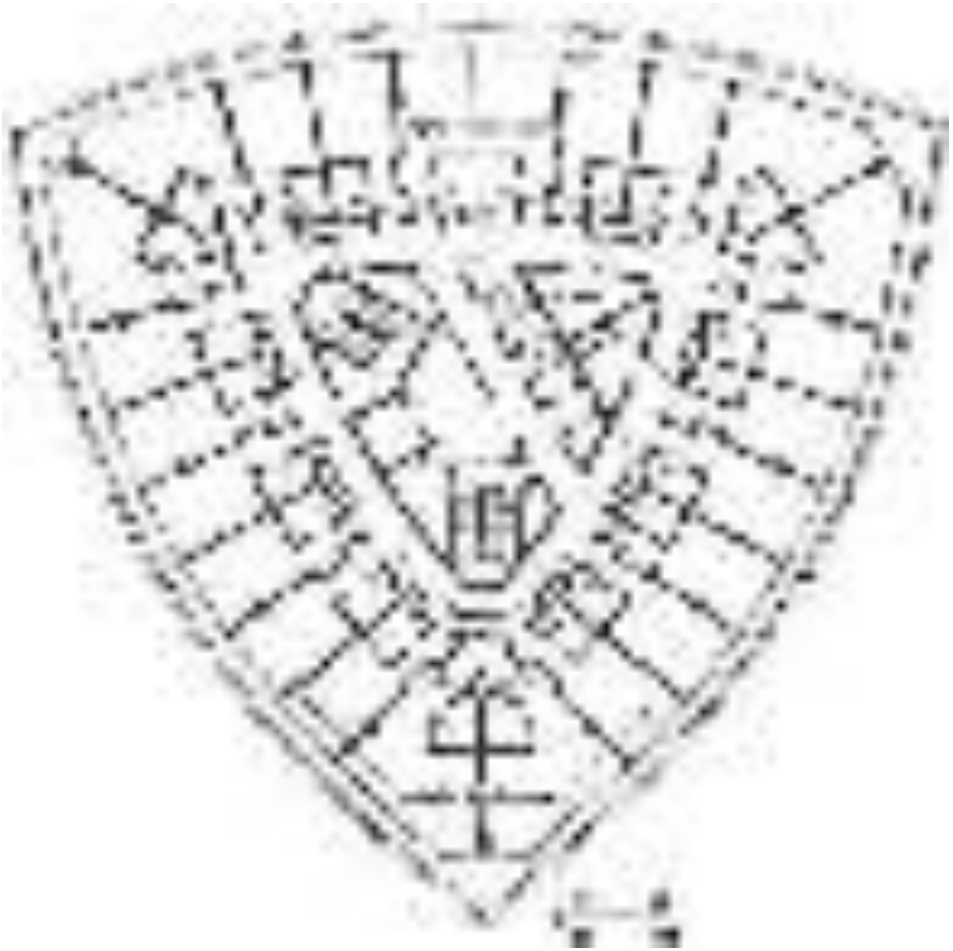
Four Seasons Hotel, Vancouver

The hotel is an integral part of the vast Pacific Center complex .

Key
1- Main corridor
2-Service corridor
3-Housekeeping
4- Ducts
5- Firefighters' elevator
6- Guestroom
7- Suite

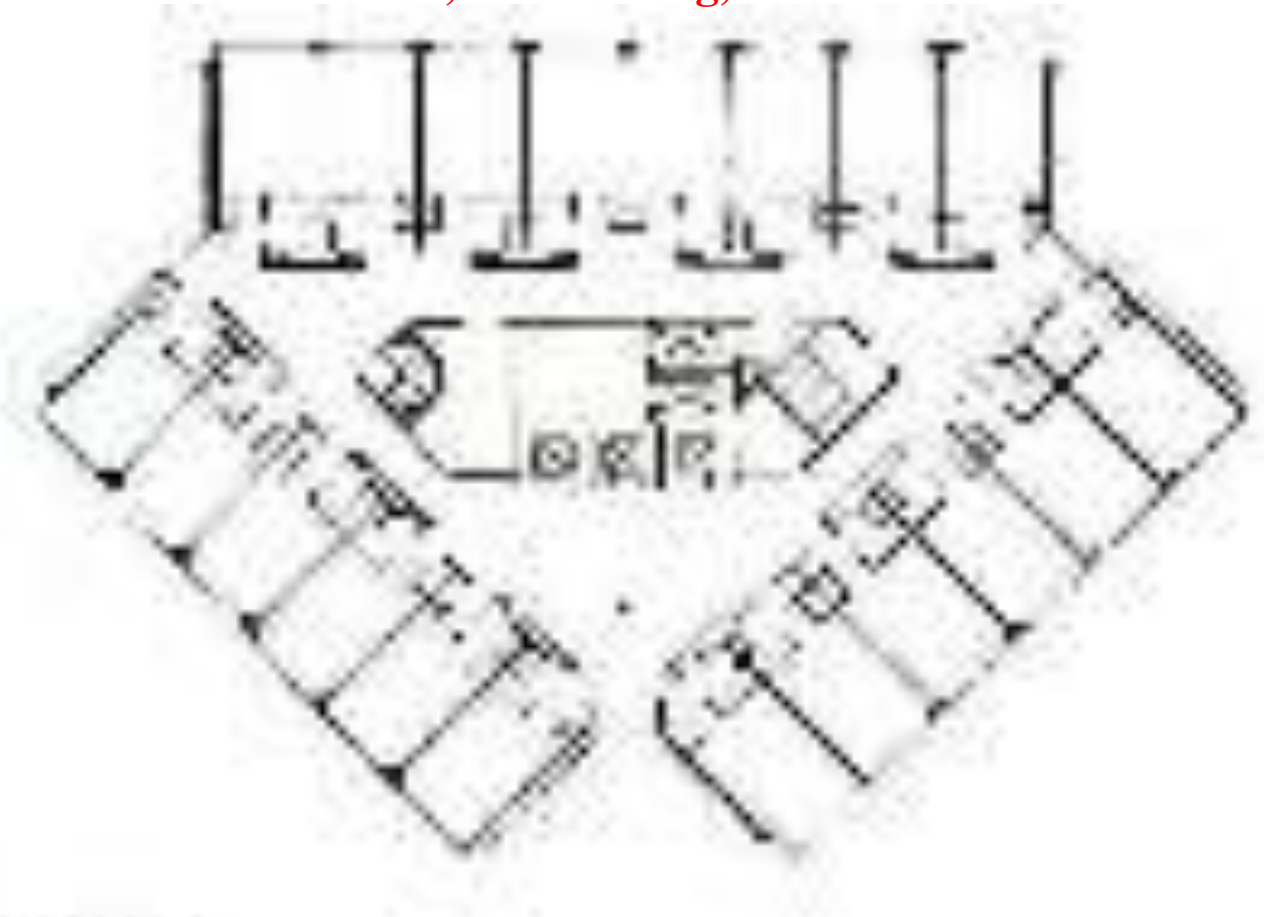
Building plans [Internal planning]

Atlantic Hotel. Liverpool - Lift slab system of construction



Building plans [Internal planning]

Sara Hotel Gothia, Gothenburg, Sweden



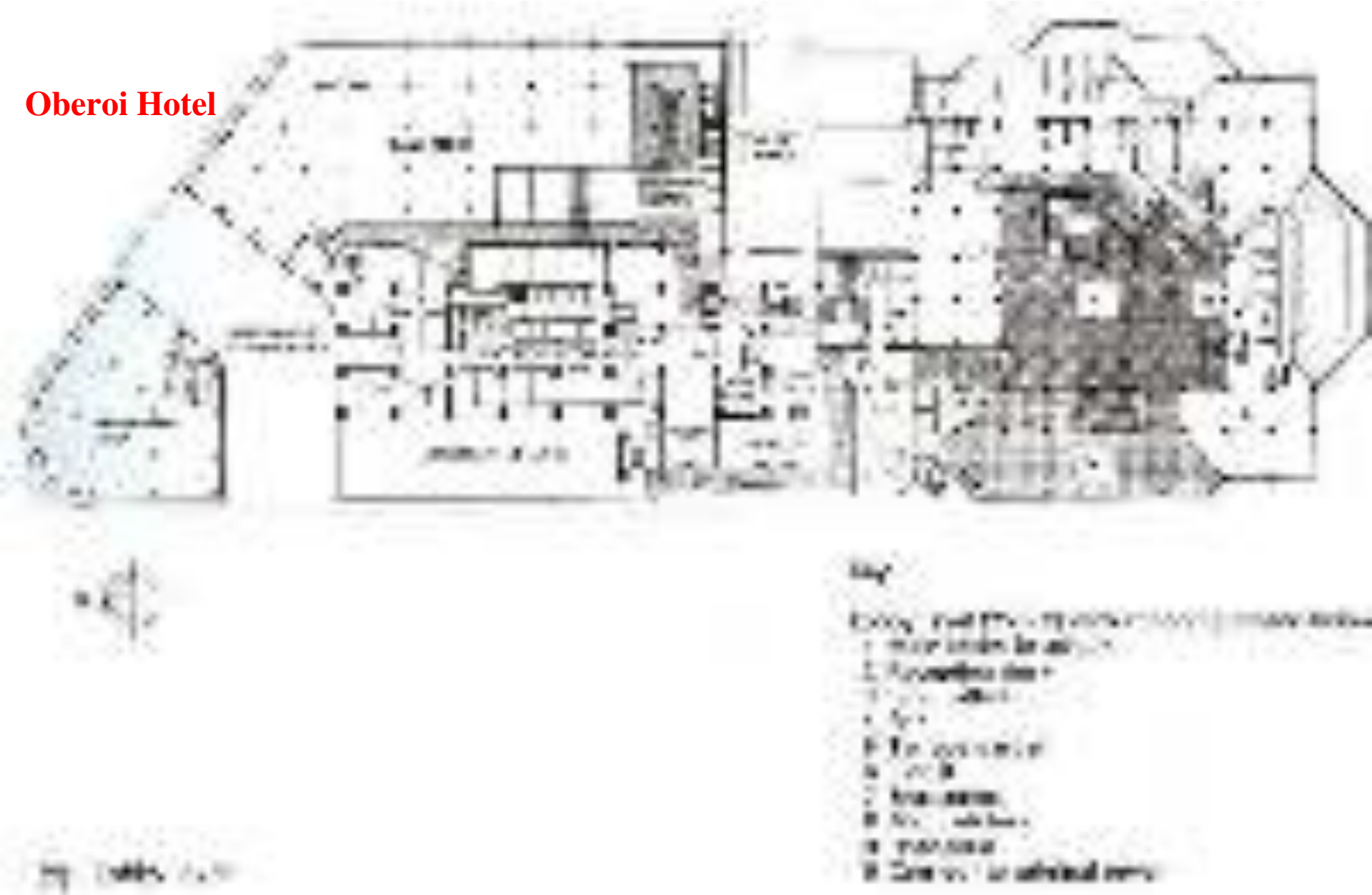
Building plans [Internal planning]

Hemmeter Center, Waikiki

Building plans [Internal planning]

Oberoi Hotel. Bombay, Bombay was interconnected with the earlier and taller Hotel Oberoi Towers to combine the public and service facilities.

Oberoi Hotel



Oberoi Hotel

Building plans [Internal planning]

Oberoi Hotel

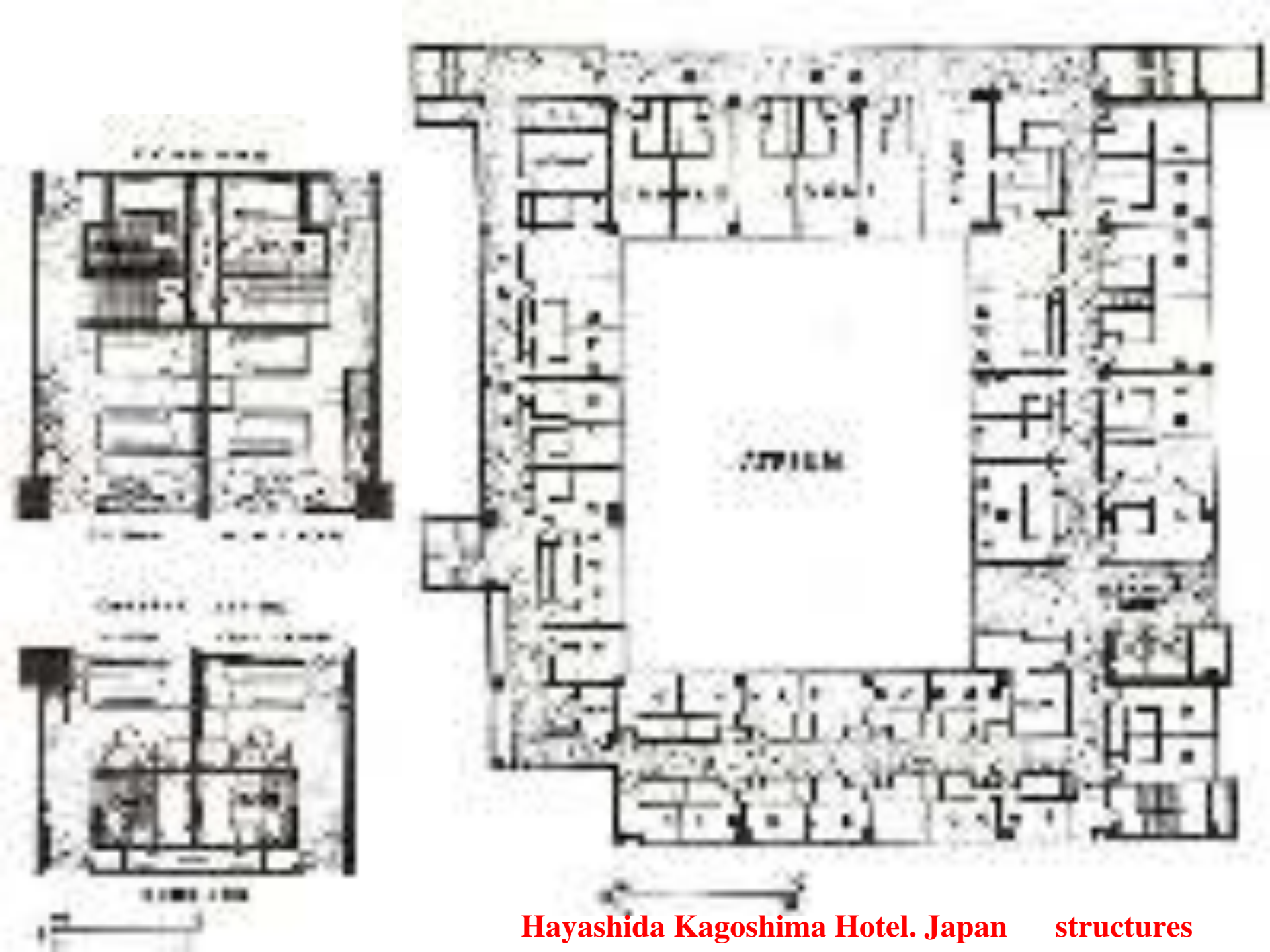
Building plans [Internal planning]

Oberoi Hotel

Building plans [Internal planning]

Sheraton, Waikiki

Hayashida Kagoshima Hotel. Japan



Hayashida Kagoshima Hotel. Japan structures