

# The Architects' Handbook

A detailed architectural floor plan of a large building, likely a university or research facility. The plan features a prominent curved auditorium or lecture hall with tiered seating. To the left of the auditorium is a complex of rooms, including what appears to be a library or study area. The building has a long, rectangular central section with several smaller rooms and a large open space. The plan is drawn in a technical, line-art style with various symbols and dimensions.

Edited by **Quentin Pickard** RIBA

**Blackwell**  
Science

# HOTELS

F. Lawson

## CATEGORIES OF HOTELS

Hotels may be categorised in terms of location, market orientation and standards, the latter affecting the levels of tariffs charged. Individual hotels may also be operated independently or as part of a chain, the latter usually specifying standards to meet brand requirements. The residential areas of a hotel normally account for at least 65–70% of the total built space, and the number of bedrooms is critical in relation to hotel operation (see table below).

rooms	
family run hotels, guesthouses	<25
independent hotels, country houses	50–80
budget inns, lodges	80–120
suburban hotels, airport hotels	120–200
resort hotels	200–300
luxury hotels, boutique hotels	150–250
city-centre convention hotels	300–500
integrated resort villages	300–800
mega-resorts, casino hotels	500–1000+

National systems of classification may be compulsory or voluntary and vary in requirements and designation (stars, crowns, figures, letters). Most are based on the World Tourism Organisation (WTO) model but customised to suit local requirements.

## LOCATIONS

Site selection and decisions on hotel facilities are largely dictated by town and country planning and other conditions, market feasibility and investment appraisal. The range of new developments covers the types outlined below.

### City centre hotels

High costs of land in cities restrict prime sites to higher grade hotels and justify expensive conversions. These include large 'convention hotels', which are mainly operated by international chains and are characterised by high plot ratios, often with high-rise construction, and extensive facilities for business visitors, including large meeting and function rooms. Club leisure centres and shops are commonly included to increase viability. 'De luxe (5★) hotels', including intimate 'boutique hotels', provide the highest standards of quality and service, and are invariably confined to select areas overlooking parks or water and near elegant shopping avenues. 'All-suite hotels' cater mainly for business users requiring separated living rooms, while 'serviced apartments' offer self-contained accommodation with the benefit of other hotel services.

### Suburban hotels

Hotels on suburban sites and in urban redevelopment areas are mainly mid-grade, catering for business and other visitors to the locality as well as travellers en route. They are best sited near major road intersections, business parks and major institutions. Facilities typically include standardised rooms, one

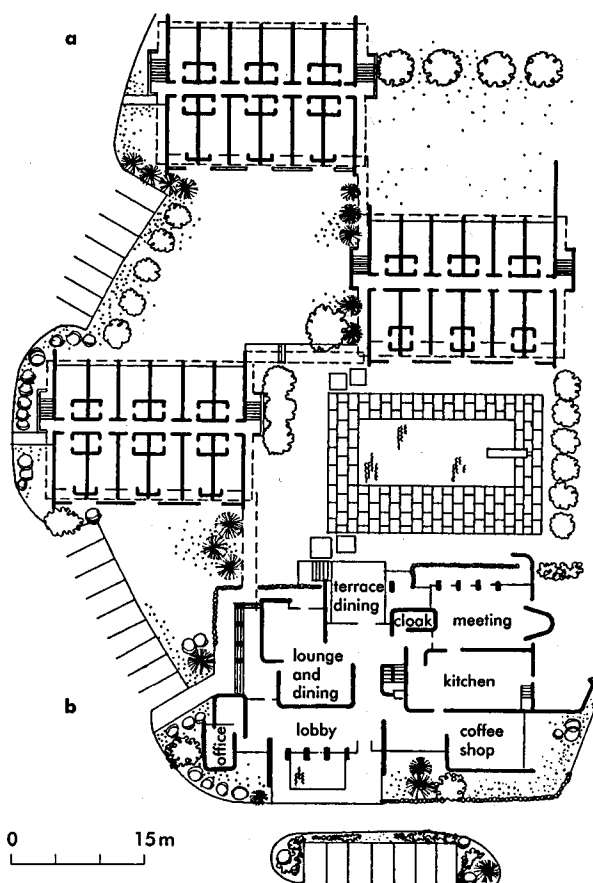
or two restaurants, some meeting/function rooms, a gymnasium and extensive parking.

### Motor hotels

Accommodation for travellers en route includes budget chains of 'lodges', 'inns' and 'motels', with highly standardised blocks of bedrooms sited alongside service stations on motorways and highways, 'motor hotels' and 'suburban hotels' near major road junctions, and 'airport/seaport hotels'. Hotels must be conspicuous and easily recognised, with easy access and a high ratio of parking spaces. Facilities are similar to suburban hotels but higher grade 'convention hotels' are also sited near major airports and other prime places easily accessible to travellers.

### Resort hotels

New hotels in destination resorts are generally high standard with extensive leisure facilities plus large meeting rooms for out-of-season conventions and banquets. Locations include high rated seaside and mountain resorts. There are also 'country hotels', with associated golf courses, sports and equestrian facilities, and 'marina hotels' with sailing harbours.



- a units in blocks of 12 with access to parking at each end of building;
- b catering and admin building provides entertaining, dining and meeting facilities

1 Motor hotel, Revere, Massachusetts, USA  
(Arch: Salsberg & Le Blanc)

### Related developments

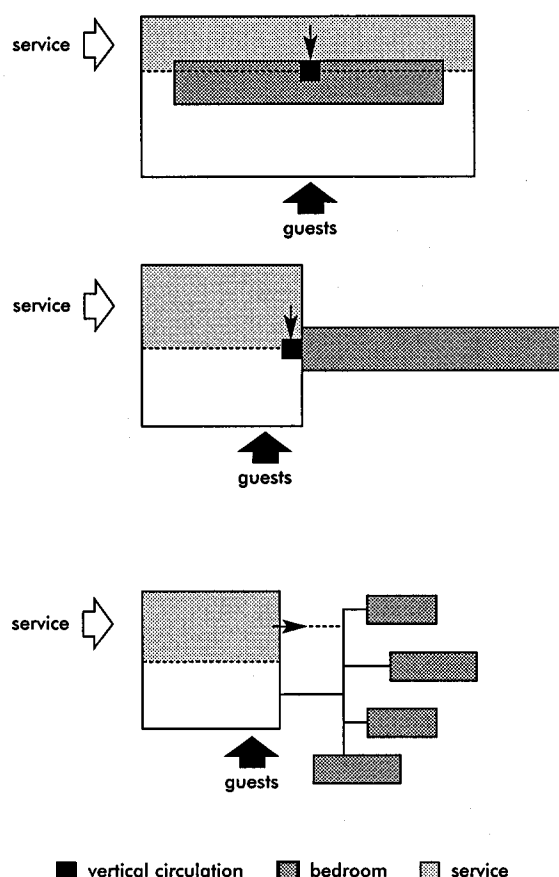
'Resort villages' are large integrated complexes of tourist accommodation clustered around swimming pools and other leisure attractions, which may be glass enclosed for all-weather, year-round attraction. Self-owned properties in 'condominiums' share common central amenities and management services. Other resort properties may be in individual or multiple ownership, such as 'timeshare' arrangements. More specialised 'executive conference centres' combine residential accommodation with high-quality conference and fitness facilities.

### FUNCTIONAL RELATIONSHIPS

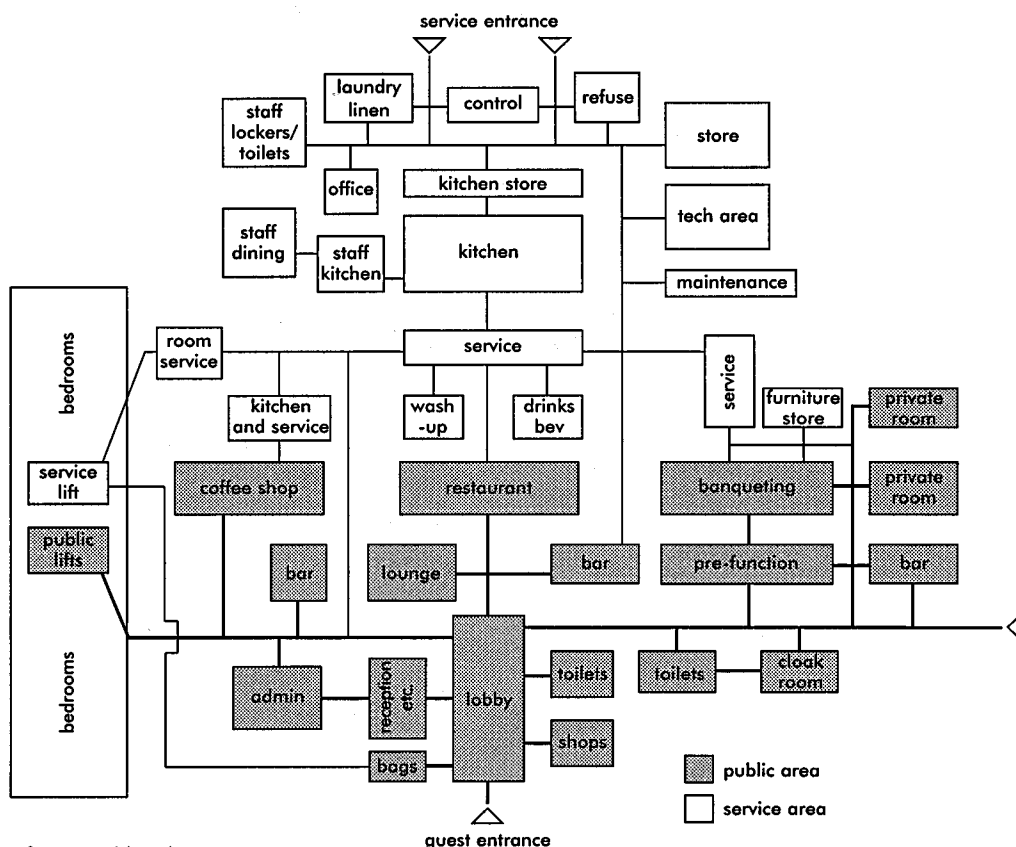
Four distinct types of areas are involved: guest rooms, public areas, administration offices and 'back-of-house' facilities. Relationships between these areas must be planned to provide separation of customer and back-of-house areas but also allow efficient service without cross-circulation or distraction (see 2,3).

Layouts depend on the location and surroundings, the area, contours and cost of site, plot ratios and other planning conditions, and the required size (number of guest rooms) and sophistication of hotel. Three examples of conceptual approaches are shown in 4.

Guest rooms are sited to take advantage of the best views and orientation while minimising noise and disturbance. This also applies to those public areas in which daylight is essential: from restaurants, small meeting rooms and foyers or lounge areas to larger convention halls.



3 Three basic arrangements for relationship of bedroom block to public room areas



2 Flow diagram for typical hotel

**high-grade city hotel**

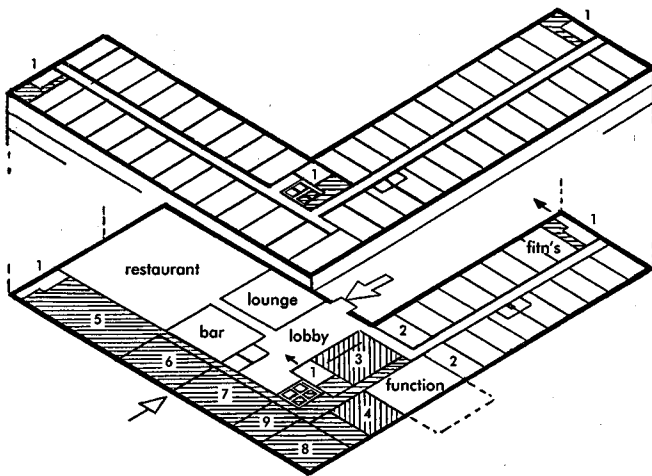
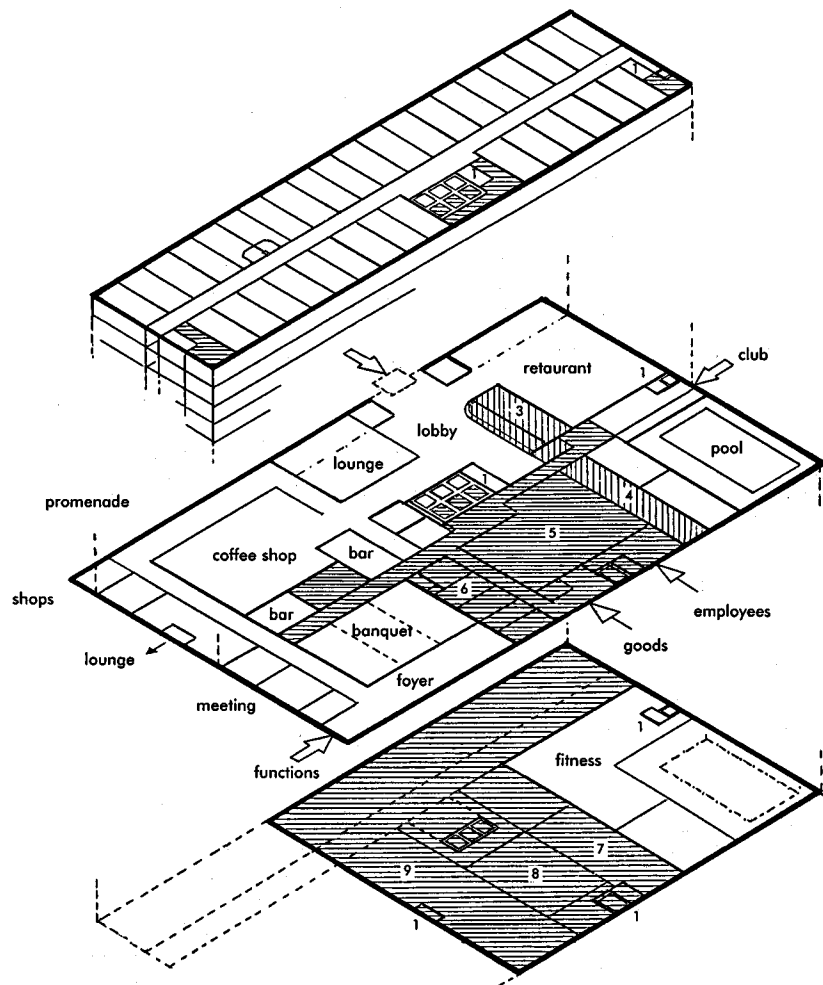
based on 280 guest rooms on eight floors above ground floor

public areas include: lobby lounge, theme bar, main restaurant; coffee shop; banquet hall (divisible) with adjacent foyer and meeting rooms; large leisure club  
back-of-house services are on the ground and basement levels with access to service lifts

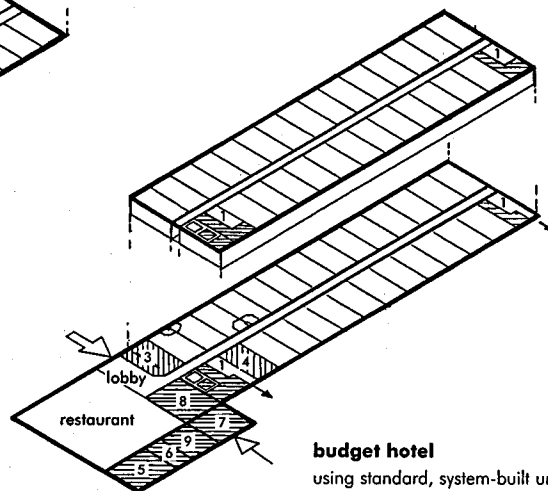
back-of-house and service areas

administration

- 1 stairs, emergency exits
- 2 meeting/committee rooms
- 3 front offices
- 4 admin/executive offices
- 5 kitchen/food preparation
- 6 main stores
- 7 employee changing, etc.
- 8 housekeeping with adjacent laundry areas
- 9 technical areas, engineering offices

**suburban hotel**

144 standard guest rooms occupy three floors over the extended ground floor, which provides public areas, back-of-house and 14 guestrooms (total 158 rooms)  
one restaurant area with adjacent bar and lounge

**budget hotel**

using standard, system-built units and designed for minimum service, this may have 52 rooms (two floors), or 79 rooms (three floors)  
guest rooms have en suite shower rooms

### Space allocation

Typical allocations of the total built space are indicated for hotels of 1★ (budget) to 5★ (deluxe) classification. With increasing sophistication, guest room areas become larger and a greater proportion of space is allocated to public and back-of house-facilities (see 5). The latter will depend on the scope for attracting non-residential custom, functions and conventions as well as the extent of services contracted out (particularly laundry, central food preparation, and maintenance).

A more detailed analysis of space in two types of hotel illustrates the range of facilities provided. These will vary with each site and particular requirements (see 6).

### Structural design

Guest rooms are invariably designed to standard repetitive modules facilitating system building and prefabrication, rapid construction, bulk purchasing and efficient housekeeping and maintenance. Dimensions and gross factors are critical.

Public areas generally require larger spans and may extend into podium or atrium spaces.

Ballrooms used for conventions must have large column-free areas and are often divisible with movable, sound-proofed partitions.

standard category	economy ★	moderate ★★	good ★★★	high ★★★★	Deluxe ★★★★★
gross areas (m <sup>2</sup> /room)					
residential	22 <sup>(4)</sup>	27	33	44 <sup>(2)</sup>	53 <sup>(2)</sup>
public/support	5.5 <sup>(5)</sup>	8	12	18 <sup>(2)</sup>	22
total	27.5	35	45	62 <sup>(2)</sup>	75

<sup>(1)</sup> mid-range: may vary by ±3%

<sup>(2)</sup> includes 5% suites (two rooms)

<sup>(3)</sup> increase by 2–4 m<sup>2</sup>/room for large convention, spa or casino facilities

<sup>(4)</sup> with en-suite shower rooms; others have en-suite bathrooms

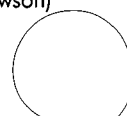
<sup>(5)</sup> minimum catering

5 Typical allocation of built areas: hotels<sup>(1)</sup>  
(F. Lawson)

typical provisions	500 room ★★★ city-centre hotel		200 room ★★★ suburban hotel	
guest rooms and suites	32		25	
circulation, services, etc.	12		7.5	
total residential areas	44.0	71.0%	32.5	72.2%
lobby with lounge area	1.0		1.0	
shops	0.2	1.9%	0.1	2.4%
coffee shop	0.8		0.8	
main restaurant	0.7			
speciality restaurant	0.4		0.7	
lounges, bars	1.1		0.8	
circulation, cloaks etc.	0.6	5.8%	0.6	6.7%
pre-function area, foyer	0.5			
ballroom/banquet hall	1.5			
conference/function rooms*	1.9	6.3%	1.3	2.9%
leisure pool areas*	0.6			
club facilities/fitness room*	0.6	1.9%	0.4	0.9%
front office, administration*	1.6	2.6%	1.4	3.1%
main and satellite kitchens	1.1		0.8	
stores, circulation, etc.*	0.5		0.2	
receiving/garbage areas*	0.3		0.3	
general stores*	0.4		0.4	
housekeeping, laundry*	1.2		1.4	
engineer, stores, equipment*	1.8		1.3	
employee/control/personnel*	0.2		0.1	
changing, lockers, canteen*	1.0	10.5%	0.8	11.8%
total built area	62.0	100%	45.0	100%

\* gross areas, including circulation and ancillary areas

6 Space allocations  
(F. Lawson)

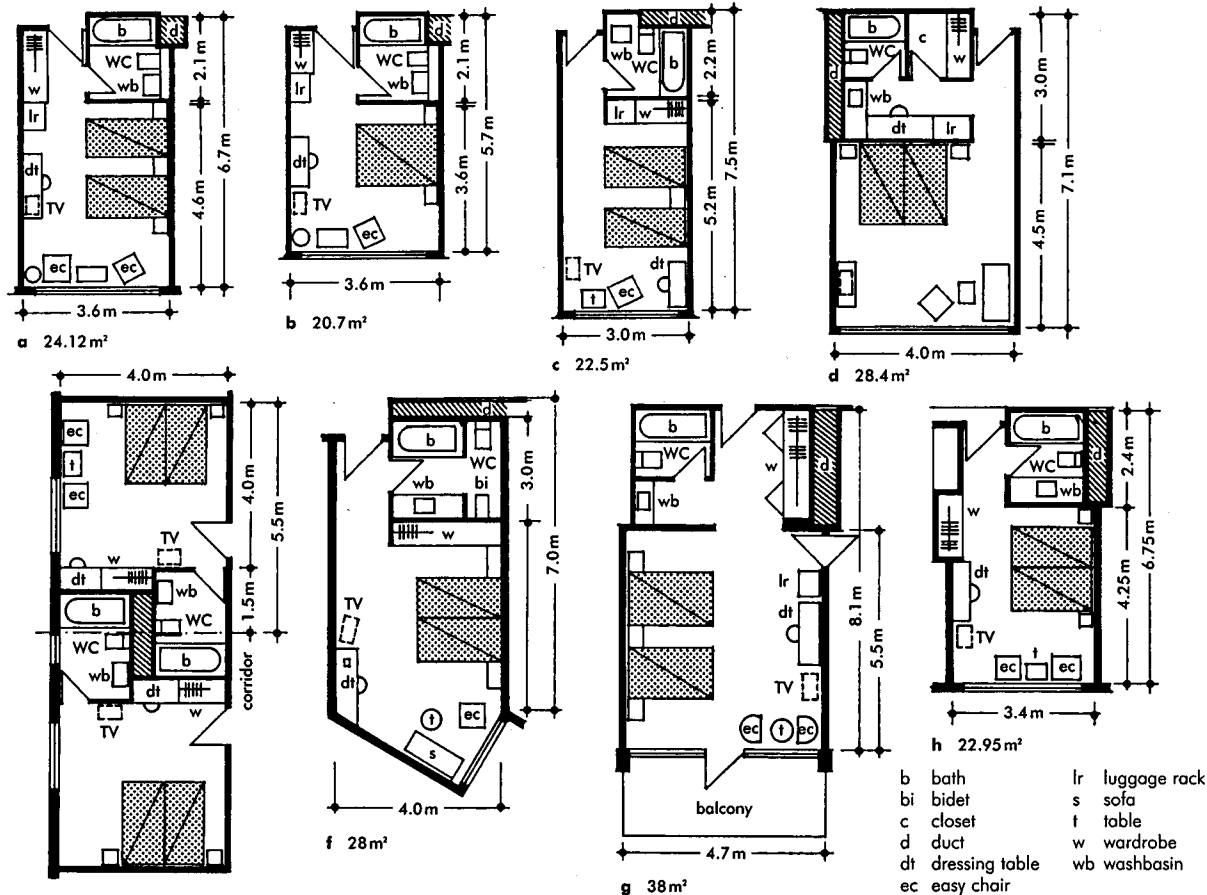


### GUEST ROOMS

Internal room dimensions are dictated by the market requirements, standards of hotel, number and sizes of beds and furniture. Twin beds (1000×2000mm) or one double (1500×2000mm, for single or double occupancy) are most common, with queen size (1650×2000mm), king size (2000×2000mm) or double used in higher grade hotels, particularly in America. In studio rooms, a convertible settee provides a third bed for family use.

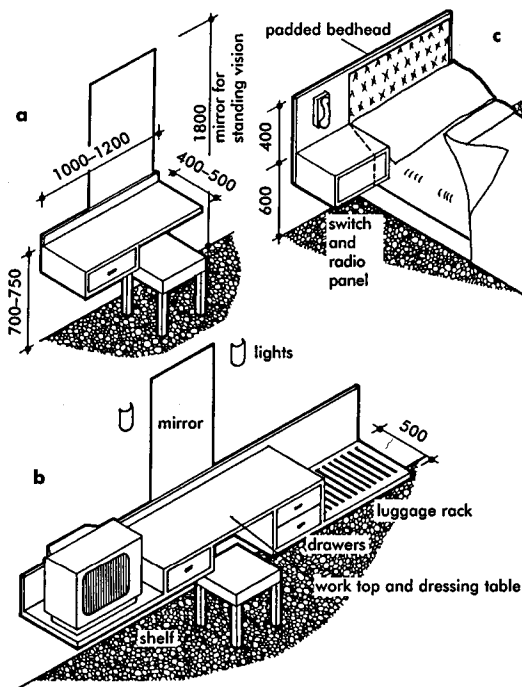
Floor-to-ceiling heights are usually 2.5 m (minimum 2.3 m), lowered to 2.0 m in the room lobby to allow for mechanical services. The most critical plan dimension is room width: 3.6 m (12 ft) is

efficient, allowing a wardrobe in the lobby and furniture along the party wall (see 7a). With staggered wardrobes and minimum space, width can be reduced to 3.4 m (see 7h). For a narrow frontage, the minimum room width is 3.0 m (see 7c). Increased room width allows more spacious impression and alternative bed and bathroom layouts (see 7c.g). Room length is usually more flexible and may extend to a balcony or angled window for directional view (see 7f). Executive rooms have a workstation/lounge near the window. Larger and multi-room suites are usually limited to corner areas and the top residential floor, where changes in the module are practical.



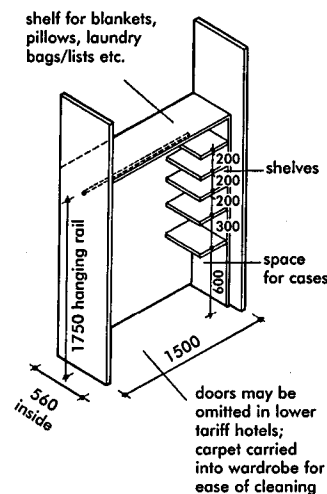
## 7 Guest room dimensions

- a** standard twin guest room: 3.6 m (12 ft) optimum width for efficiency; wardrobe in lobby and furniture on party wall
- b** double bed (single/double occupancy) allows shorter room or space for work area
- c** narrow frontage: minimum width 3.0 m
- d** increased width 4.0 m: allows bed rearrangement and separate dressing area
- e** central bathroom: one with natural light
- f** high-class room with separate WC and bidet areas; in any scheme, an angled window gives less light but extra sitting area and directional view
- g** spacious room with external balcony; separate washbasin
- h** minimum dimensions for twin rooms with staggered wardrobes

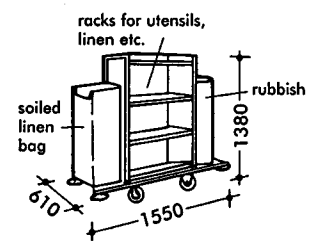


- a** minimum dressing table unit
- b** combined unit: firmly cantilevered to facilitate cleaning or frame supported; durable, scratch/stain proof surfaces with back upstand; balanced wall lighting
- c** bed head with side table (may be played for bed movement): telephone, radio and lighting controls installed; individual reading lamps

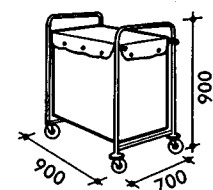
## 8 Guest bedroom fittings



- 9** Typical wardrobe unit: in higher grade hotels, may be fitted with drinks cabinet and wall safe



## 10 Chambermaid's trolley (cart)



## 11 Linen trolley (cart): fabric

### En suite bathrooms

Bathrooms are mainly sited on interior walls, using mechanical ventilation. For minimum building width, bathrooms may be one behind the other between rooms. Luxury bathrooms or economy shower rooms may be against external walls. Adjacent pairs of rooms are arranged mirror image to share common vertical ducts and isolate bathroom noise transmission. (See 12.)

**Typical fitments:** 1500mm bath, with grab bars, shower spray, retractable clothes line and curtain/screen; WC and washbasin. High-grade hotels use 1700mm bath, twin basins set in vanitory surrounds, WC and bidet. Luxury units include separate dressing area and shower. Safety considerations are critical.

**Requirements:** non-slip, drained surfaces; tiled walls; acoustic ceiling; mirror over basin; screened, moisture-proof lighting; panel access to services; controlled warmed air inflow/extraction; mixer valve and thermostat control of hot water; shelf space, towel racks, toilet roll holder, coat hanger, electric shaver point, lidded waste bin, tissue dispenser, toiletry tray/basket. In higher grade hotels: telephone, music relay.

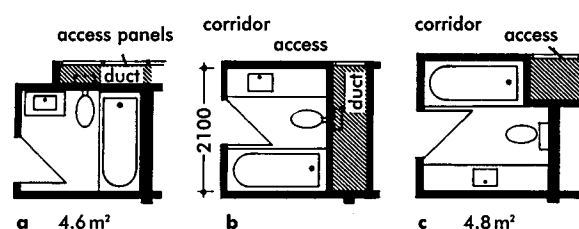
### Resident circulations

Gross residential areas add circulation and floor service spaces to the net room areas (see 13). Gross factors can range from less than 5% for chalet and lodge type buildings with external entrances, through 20–30% for 'double-loaded' central corridors accessed by lifts and stairs, up to 35–45% for single-loaded side corridors and tower buildings.

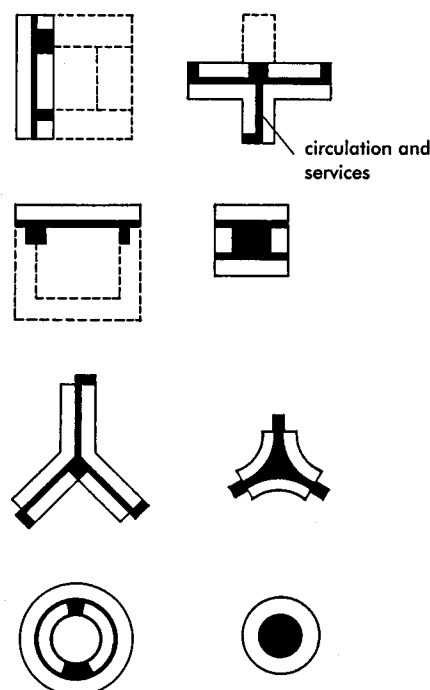
As a rule emergency stairs must be sited at or near the ends of each corridor. Lengths of corridors are limited by travel distances to protected fire escape stairs as specified in local codes. For corridors with sprinkler systems and fire exits at/near opposite ends allowing two directions of escape, maximum distances usually range from 45 to 60m (with smoke doors at 30m). Dead-end corridors with one exit are limited to 7.6m and travel distances within suites of rooms to 9m.

Minimum fire resistance periods for separation of exits such as staircases are normally: 1 hour for buildings up to three storeys, 2 hours for four storeys or more. Combustible material and surface flame ratings of linings in exit routes are controlled. Large hotels use automatic sprinkler systems, fire mode ventilation switching with alarm, lift and smoke door activation. Fire alarm, indication panel and hydrant systems must be installed, together with portable and CO<sub>2</sub> extinguishers (for electrical equipment), in specific areas as required.

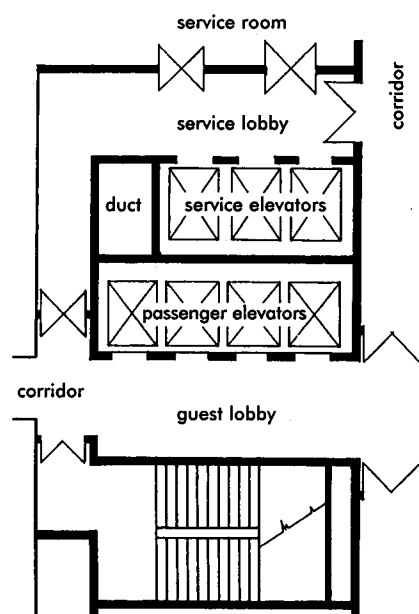
Apart from atrium scenic lifts, guest lifts are best located off the main lobby within control of the front desk. Guest and service lifts, normally in the ratio 2:1, 3:2 or 4:3, are often sited back to back for economy, the service lifts rising from back-of-house areas and opening into a separated service lobby on each floor (see 3,14). Large and high-grade hotels often require specific provision for luggage handling.



12 Typical arrangements of bathrooms and ducts: (a) is best for access to duct but (b) and (c) provide more space for vanity top



13 Plan forms for bedroom accommodation



14 Typical vertical circulation core for 500 bedroom hotel

### Guests with disabilities

Statutory provision must be made to enable easy access for users with disabilities to designated rooms, usually 1–2% of the total, as well as to the public areas. Requirements include: ramps 1:20; corridors at least 915mm wide; doors 815mm clear opening with lobbies 460mm wider than the door on the latch side. Bathrooms require: 1.52m central turning space and 2.75m width, specially designed fittings and grab bars. Between beds and furniture, 910mm space is required; 685mm for knee space; switches set 1.2m high. For window cills, mirrors, etc., note that wheelchair eye level is 1.07–1.37m high.

### ENTRANCES

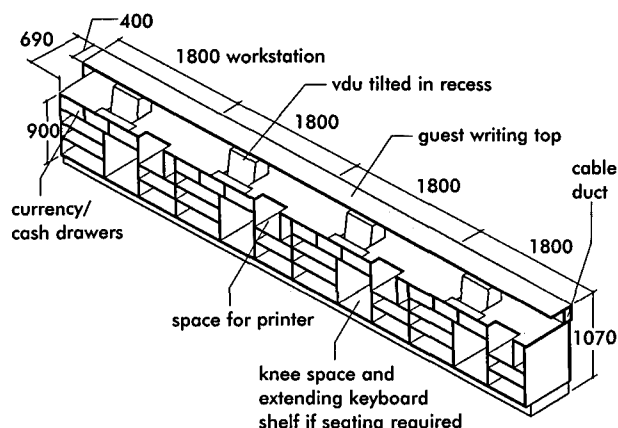
The main entrance must be conspicuous and attractive. Forecourt space should allow for: pedestrians; persons alighting from vehicles, vehicles waiting and passing without hazard; coach waiting and baggage storage for large tourist groups. Revolving doors or a draught lobby with automatic doors are used in larger hotels. Alternative baggage entrance, disabled access and fire escape routes need to be considered.

Car parking space depends on the location, transport modes and the availability of public parking close by. Motor, suburban and airport hotels typically provide 1.1 spaces/room, city-centre hotels 0.3 spaces/room plus 0.2 spaces/convention or banqueting seat. Resort hotels used by tour groups may require less than 0.2 spaces/room plus coach waiting areas.

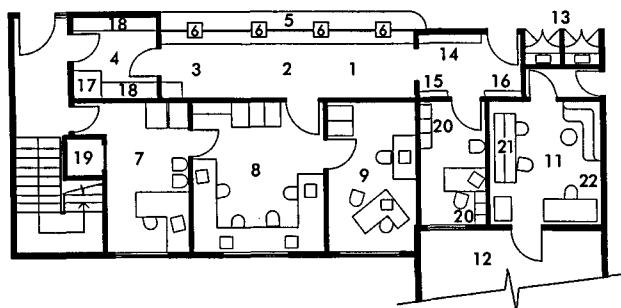
### LOBBIES

The main lobby is the hub of circulation, a place for assembly, waiting, registration, account settling and information services. Ranging from high-grade city hotels (about 1.0m<sup>2</sup> per room), often spectacular in design, to budget designs (about 0.3m<sup>2</sup> per room or less), the lobby includes a front desk, lounge-waiting area, public telephones, cloakrooms and facilities for luggage handling and safe deposit. In larger hotels, this may extend to individual or arcades of shops, concierge, currency changing, telephone exchange, bell-captain, group registration and other services. (See 15–18.)

The front desk is set back at least 1.2m from circulation routes and is supported by a front office. Planned around 1.5–1.8m vdu workstations, it has reception, cashier and information (concierge) sections and is adjacent to the telephone switchboard, meter and alarm indicator panels. Working space behind the desk: 1.2–1.5m. Desk lengths: 50 rooms, 3m; 100/150 rooms, 4.5m; 200/250 rooms, 7.5m; 300/400 rooms, 10.5m. A separate area for convention reception/information may be required.

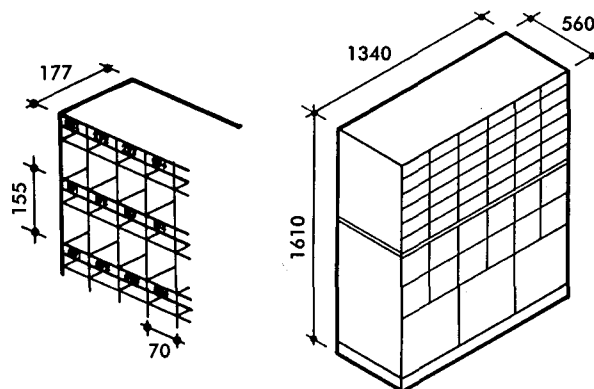


- 15** Typical reception desk for 300–400 rooms: four to five stations with reception, cashier and information sections; central stations are flexible for check-in/cash-out to allow for peak arrival/departure flows; working heights are for standing; writing tops 300–400mm wide; concierge desk may be sited separately; key and message rack may be sited behind the counter, but preferably screened (Fred Lawson)



- 1 reception; 2 information (general); 3 cashier; 4 safety deposit; 5 front counter; 6 vdu monitor (printers below counter); 7 front office manager; 8 front office; 9 cashier/accountant; 10 security manager; 11 telephone operators; 12 business centre; 13 public telephones; 14 key/letter rack; 15 indicators (fire); 16 meters; 17 desk; 18 deposit boxes; 19 safe; 20 monitors (cameras, entry); 21 switchboard consoles; 22 rest area

- 16** Compact arrangement for front desk and office for 300 room hotel: executive offices on another floor; first aid room located near by; separate computer room; located within clear view of main entrance; set back 1.2–2.0m from main circulation, on route to guest rooms and lifts (Fred Lawson)



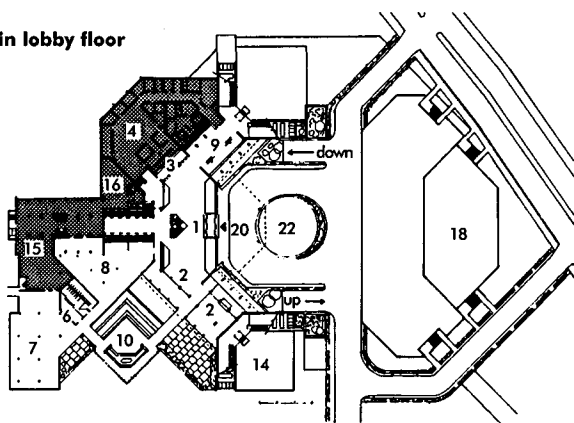
- 17** Key and letter rack

- 18** Typical bank of safety deposit boxes; various sizes should be provided

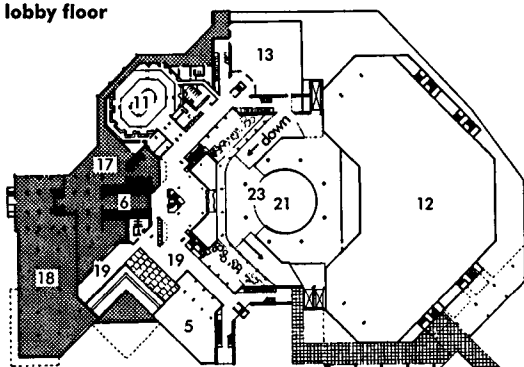
## breakdown of public areas

restaurants	m <sup>2</sup>	occupancy	
main lobby:			
main restaurant	595	425	
coffee shop	280	400	
lobby bar	185	185	
mezzanine:			
gourmet restaurant	370	200	
lower lobby:			
snack bar	175	185	
ice cream bar and café	93	75	
night club	520	375	
convention space		meeting	banquet
small ballroom 1	520	800	400
small ballroom 2	390	600	300
grand ballroom	3750	5785	2900
guest of honour room	540	758	880
total 3 adjoining ballrooms	4660	7148	3580
pre-convention foyer space	740		
total area contiguous meeting room	5390		
21 additional meeting rooms:			
average size 75–100 person	70		
exhibition space (convertible to parking)	7930		
shops			
main lobby floor	58		
mezzanine	520		
lower lobby	432		
total	1010		

## main lobby floor



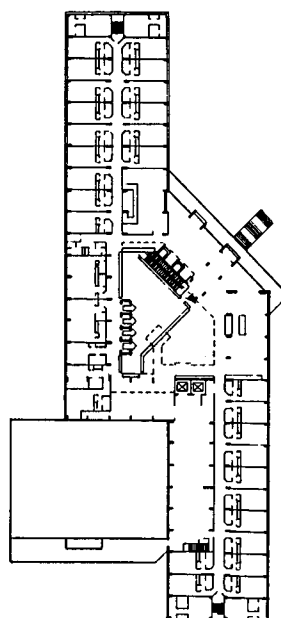
## lower lobby floor



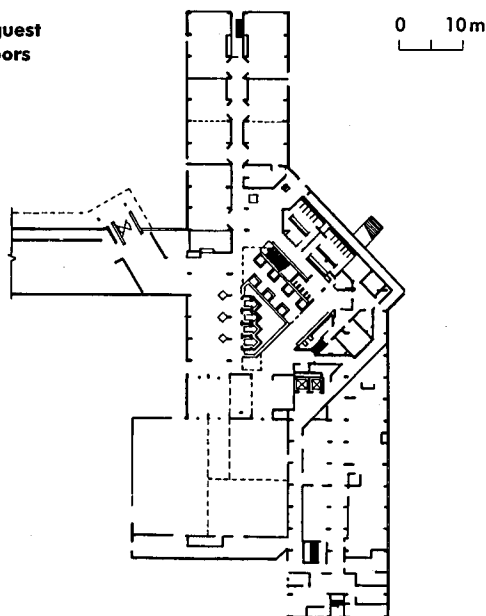
1 main lobby; 2 lobby lounge; 3 registration; 4 admin; 5 shops and agencies; 6 check room; 7 restaurant; 8 coffee shop; 9 news stand; 10 bar/cocktail lounge; 11 discotheque; 12 grand ballroom; 13 meeting room; 14 receiving kitchen; 15 main kitchen; 16 room service; 17 kitchen; 18 mechanical; 19 snack bar; 20 main entrance; 21 convention foyer; 22 open light-well; 23 convention entrance

**19** Phoenix of Atlanta Hotel, USA: total of 2058 guest rooms (Arch: Anan Lapidus)

## ground floor



## typical guest room floors



**20** Hyatt Hotel, Boston, USA: atrium design with added feature of orientation over river providing view from public spaces and guest rooms (Arch: John Portman)

## RESTAURANTS, BARS, FUNCTION ROOMS

More than one food outlet is offered by high-grade hotels, typically designed as the main restaurant, a coffee shop, theme, ethnic or speciality restaurant and a café-bar for more casual day or leisure area use. The largest restaurant or coffee shop is adapted for more concentrated breakfast service. Usually the public facilities include a sophisticated cocktail bar, adjacent to the main restaurants, and a separate main bar designed to create social interest. Refreshments are also served in the lobby lounge.

The ratio of covers (seats) provided per room depends on the extent of non-residential demand, group travel and room service. As a guide: city-centre hotels, 0.8–1.2 seats/room; resort hotels, 1.8–2.0

In mid-grade hotels one restaurant with an adjacent bar is usual; in budget hotels this is usually limited to simple continental breakfast counter service or operated independently in a separate unit.

High-grade hotels usually offer separate banquet halls and function rooms for conventions and group events. Group access is via foyers or pre-function rooms which provide cloakroom facilities and temporary refreshments service. Large ballrooms are usually divisible with removable sound-proof partitions. Each of the separated areas must have its own independent access and service entrance, air-conditioning, lighting, power, audio-visual aid services and controls.

typical areas	(m <sup>2</sup> /cover)
high-class restaurant	2.0–2.4
coffee shop	1.6–1.8
banquet	1.1–1.3
smaller function	1.6–1.8
foyer	0.3–0.5
service areas	(m <sup>2</sup> /cover)
main kitchen	0.9–1.0
banquet kitchen	0.2–0.3
satellite service kitchen	0.3–0.4
furniture stores (ballroom)	0.2

Food service planning in a large hotel is often complex. Control systems for food received, in storage and used is necessary. Main and satellite kitchens must be level with and adjacent to the restaurants served. Transport of food to outlets on a different floor requires dedicated goods lifts.

Apart from standard continental breakfasts ordered in advance, room service is expensive and limited to high-grade hotels. Service pantries, with basic equipment, on each floor are used in conjunction with food prepared in the main kitchen, having access to the service lifts (see 21).

### Leisure facilities

Enclosed leisure areas range from a fitness room to a fully equipped health club with pool and spa facilities attracting local fee members. In resorts, leisure facilities are crucial and buildings are planned around landscaped pools and attractions.

**Built areas:** high (urban), 1.3 m<sup>2</sup>/room; mid-grade, 0.3 m<sup>2</sup>/room; resort, 0.3–0.5 m<sup>2</sup>/room (+ large external areas).

### LAUNDRY AND HOUSEKEEPING

Collection of soiled laundry may be by trolley or chute. In small or economy hotels most laundry is contracted out. A standard laundry room for a 200 room hotel takes up about 160 m<sup>2</sup>, plus separate linen storage and housekeeping areas of 80 m<sup>2</sup>. Requirements include ventilation giving rates of 15 to 20 air changes/hour, separate extracts from steam and dry cleaning equipment, high lighting (160 lux), moisture- and fireproof electrical systems, non-slip flooring and drainage, and storage for chemicals.

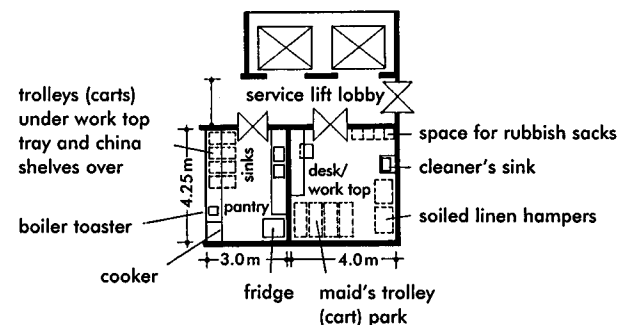
Housekeeping areas are 0.4 m<sup>2</sup>/room. Separate areas may be required for sewing work, uniforms and guest valet services (see 22,23).

### Other stores

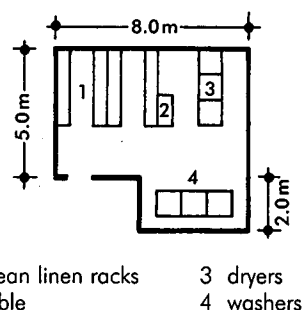
Separate secure storage with controlled issue required for:

- furniture (with repair and paint shops adjacent)
- cleaning materials
- glass, china, silver
- drinks – red wines (14–16°C), white wines (10–12°C), spirits, beers, etc. and soft drinks.

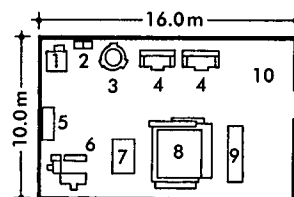
**Overall area:** high-grade, 0.8–1.2 m<sup>2</sup>/room; budget, 0.3–0.5 m<sup>2</sup>/room



- 21** Typical service area for 50–60 rooms/floor: note provision of pantry depends on class of hotel and room service arrangements in kitchen; local linen store or cupboard may be required depending on method of control



- 22** Non-iron laundry for 120 bedroom hotel



- 23** Laundry for 200 bedroom hotel

### EMPLOYEE FACILITIES

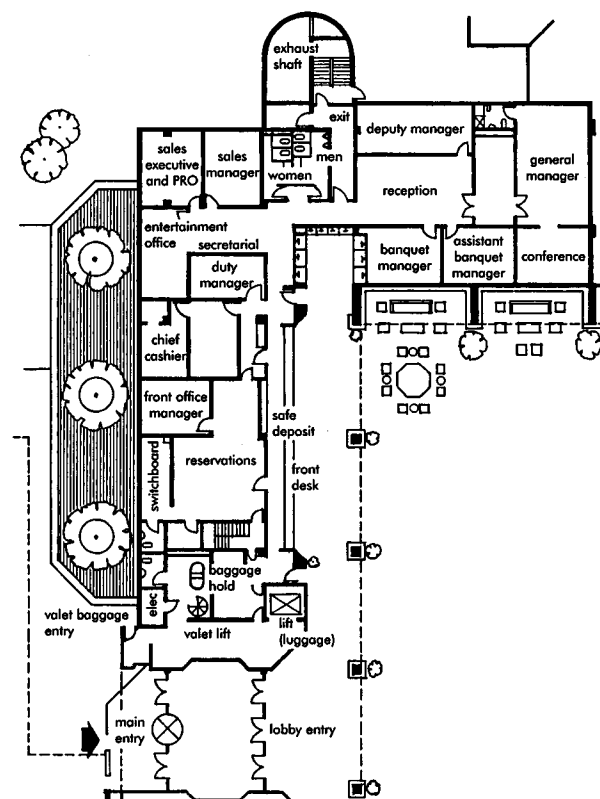
- Employees per room: luxury, 1.5; high-grade, 0.8–1.0; mid-grade, 0.5–0.6; budget, 0.2–0.3.
- Requirements: controlled entry with time recording; personnel offices; lockers (one per employee); changing rooms, showers and toilets with separate facilities for men and women.
- Staff canteen: to accommodate about one-third of staff numbers in shifts.

**Area:** luxury, 1.8 m<sup>2</sup>/room; high-mid-grade, 1.1 m<sup>2</sup>/room; budget, 0.5 m<sup>2</sup>/room.

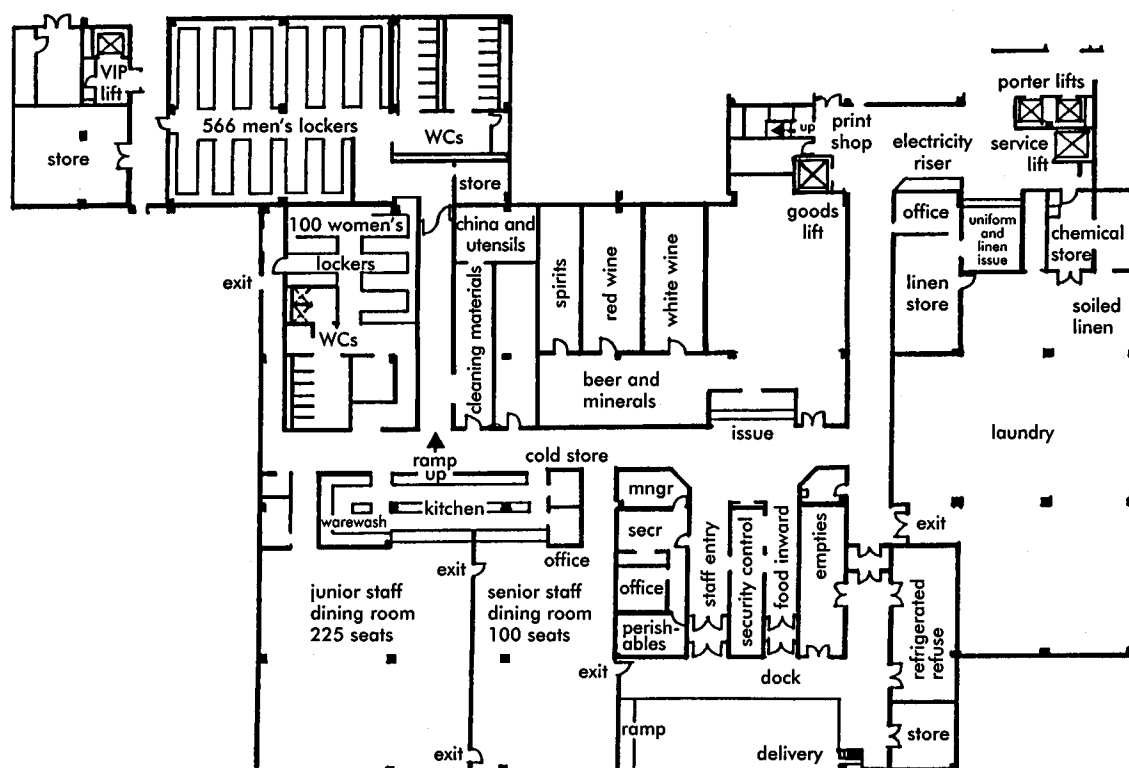
### Administration

Include the front office (located adjacent to the reception desk), executive, accounting, sales and catering offices, and personnel and engineer's offices (the last two being near the work areas). Group administration may be largely centralised. (See 24,25.)

**Area:** high-grade, 1.6 m<sup>2</sup>/room; mid-grade, 1.2 m<sup>2</sup>/room; budget, 0.4 m<sup>2</sup>/room.



**25** Example of admin offices for a large hotel: except for front desk, reservations and cashier, these may also be sited elsewhere (e.g. on mezzanine)



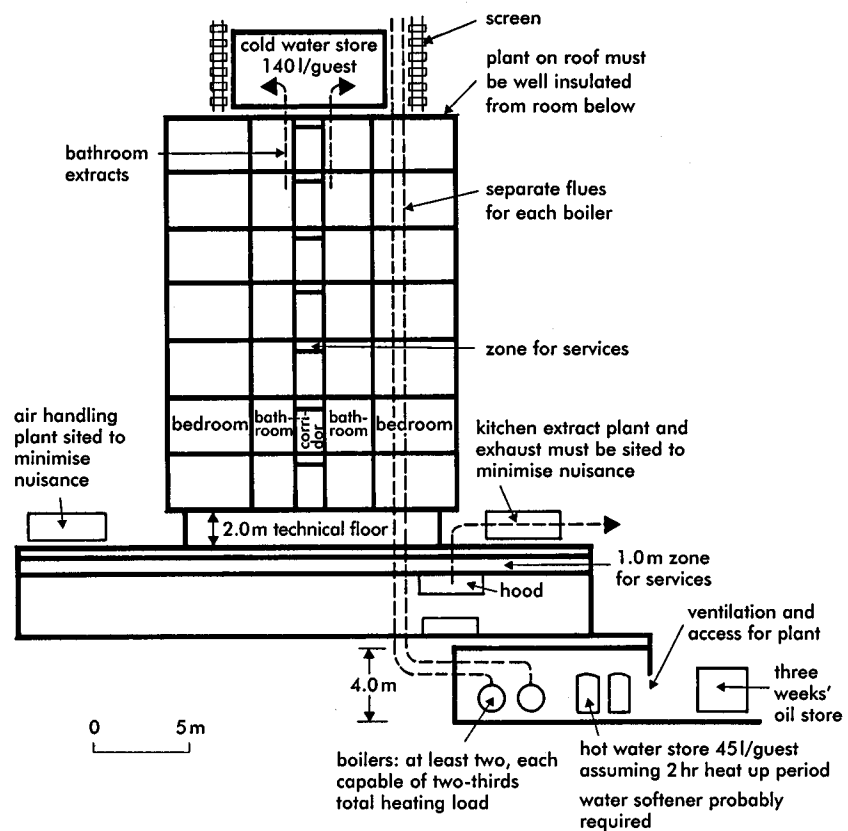
**24** Service area and staff accommodation for large hotel

### TECHNICAL AREAS

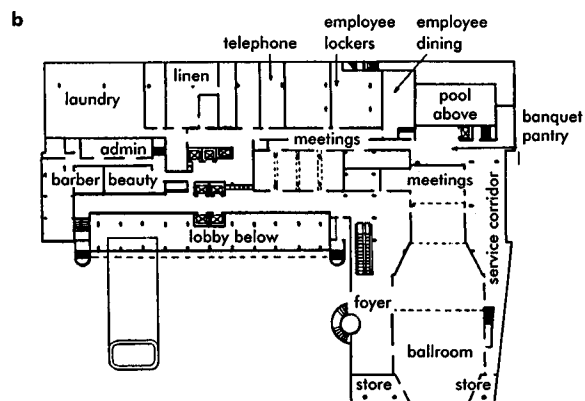
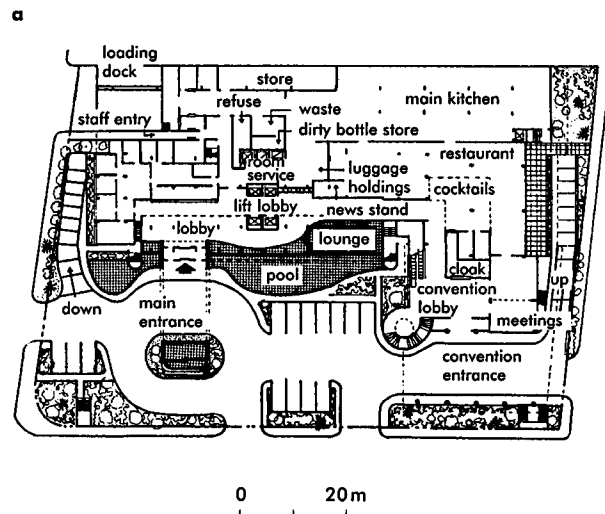
Space provisions depend on the extent of workshops on site: most phased maintenance and specialist repair work is contracted out. Technical equipment may be sited in back-of-house, on higher technical floors, roof or ceiling mounted or/and external to the building. (See 26.)

**Requirements in high-grade hotels:** engineers' offices; security office; computer rooms; meter and switchgear room; electrical transformers; standby generators; telephone exchange equipment room; public address system; water storage, treatment, and pumping equipment; boiler plant and calorifiers; air-conditioning plant and coolers; swimming pool treatment plant; workshops and equipment stores.

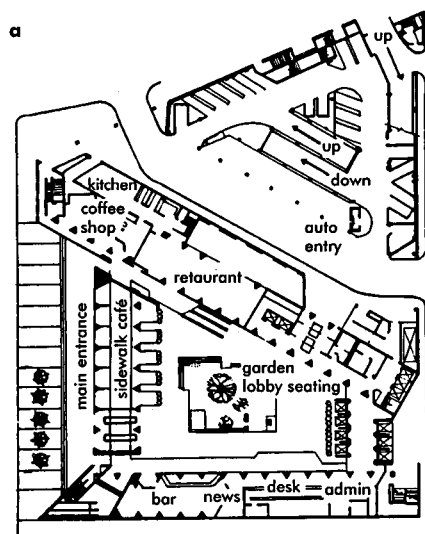
**Total built areas:** high-grade,  $1.8\text{m}^2/\text{room}$ ; mid-grade,  $1.2\text{m}^2/\text{room}$ ; budget,  $0.6\text{m}^2/\text{room}$ .



26 Section showing salient features of building services design for hotel

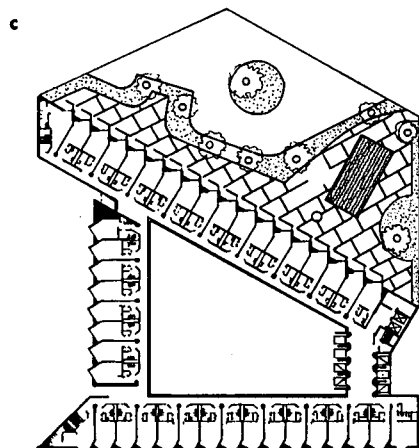
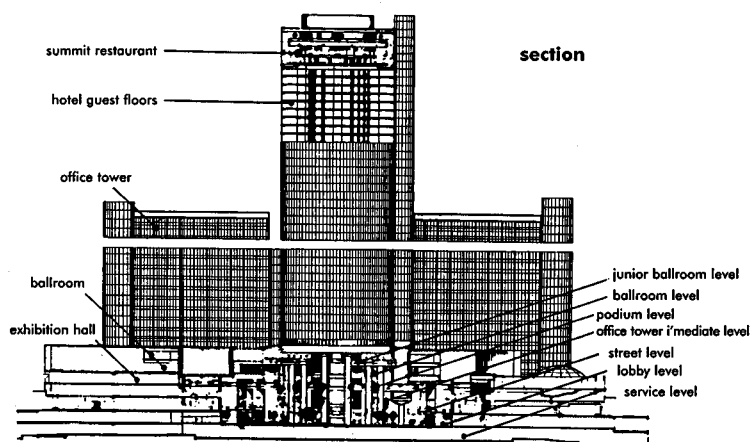
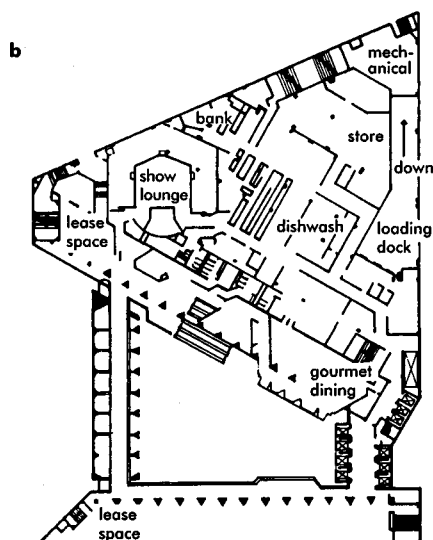


27 Small convention hotel (400 room): (a) ground floor; (b) upper floor, showing segregation of hotel and convention business vehicle traffic and tight control of service and personnel traffic inside

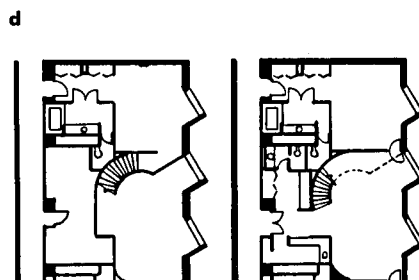
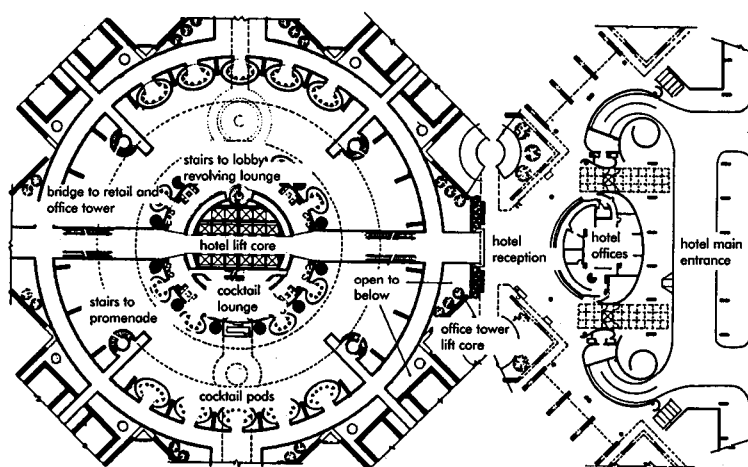


- a lobby floor
- b first floor
- c typical guest room floor
- d examples of bedroom suites showing provision of meeting space (note possible use of dividing walls to create smaller rooms)

28 Hyatt Regency Hotel, Houston, Texas, USA  
(Arch: JVIII)



street level



29 Renaissance Center, Detroit, USA: convention centre and 1400 room hotel with 2650m<sup>2</sup> hall, 13 restaurants, office space, commercial retail space and rentable flats (or condominiums)  
(Arch: John Portman)