

Design guide for government buildings in the Caribbean

by
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This guide has been produced with the intention of helping designers of public buildings in the Caribbean. Sections have been written which deal with the special regional requirements in respect of climate; building for comfort; dimensional coordination; school buildings, medical buildings; and government offices.

The loose-leaf format has been adopted to facilitate the insertion of future sections and up-dated material by the Overseas Division of BRE and to encourage the addition of items having particular relevance to their own area by designers using the guide.

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CLIMATE

1

1 CLIMATE

1.1 The Caribbean Area

1.1.1 General description

'The Caribbean area may be treated as a single climatic region, oceanic in character. Throughout the year it lies in the path of the Trade Winds blowing from some easterly point with little interruption. The intertropical convergence zone only affects the extreme south of the area in summer being well to the south in winter. There are two main seasons: a hot rainy summer season lasting approximately from May to November and a mild comparatively dry winter season'¹

1.1.2 Temperature

In summer, moist tropical air masses affect the whole of the Caribbean area and the latitudinal effect is minimal:

Month of July

Mean daily maximum range 30°/86° to 33°/91°*

Mean daily minimum range 22°/72° to 26°/79°

Leeward and Windward Islands have the lowest temperatures.

In winter there is a rather more pronounced variation as a fall of 6°/11° or 7°/12° in the average temperature of the Gulf of Mexico has a cooling effect on Cuba and the Bahamas. The temperature of the Caribbean Sea remains fairly constant throughout the year so there is no comparable cooling effect on the more southerly islands.

The Greater Antilles and the Bahamas are also subjected to polar outbreaks from the interior of the North American continent.

Month of January

Mean daily maximum range 23°/73° to 31°/88°

Mean daily minimum range 14°/57° to 24°/75°

The higher temperatures are in the south.

1.1.3 Humidity

Relative humidity is highest around dawn when it averages 85 to 95 per cent at most places all the year round.

It is usually at its lowest in the early afternoon and more seasonal variation is evident, higher in summer at most places:

summer average 65 to 75 per cent

winter average 60 to 70 per cent

However in the islands off the north coast of South America seasonal variation is negligible.

1.1.4 Wind Direction

Local topography influences wind direction to a considerably extent so that recordings, which are normally taken in exposed positions such as airports or at sea, are not necessarily typical of the area. However there is a predominance of winds from directions between NE and SE with some differences between the northern, central and southern areas of the Caribbean:-

Northern

Winter — winds most frequently from between NE and E.

Summer — winds most frequently from between E and SE.

Central

All the year — predominantly from NE to E.

Secondary winds from between ESE and SSE reach similar frequency during autumn.

Southern

All the year — almost entirely between NE and SE, the most frequent being E.

1.1.5 Wind Speed

Wind speed is at a minimum during the night and early morning, falling to under 3 metres per sec/7 mph.

It increases during the daytime to reach a maximum during the afternoon.

Generally the winds in the winter season are steadier and stronger by about 2 metres per sec/4½ mph than those in the rainy season, though the latter may be stronger in gusts.

Strong winds (11-17 metres per sec/25-38 mph) are infrequent over the whole area, occurring for the most part on 1 per cent occasions or less in all months. They are most likely to occur in gusts in association with passing cumulo-nimbus.

Gales (more than 17 metres per sec/38 mph) are rare except in gusts as above or in hurricanes.

1.1.6 Local Winds

1.1.6.1 Northers

Fresh strong squally winds from a northerly direction affect the Bahamas from time to time between November and February or March. Sometimes they extend as far south as Cuba and Jamaica. Known as 'Northers' they may reach 15 metres per sec/34 mph and last for several days before veering to a more easterly quarter.

1.1.6.2 Land and Sea Breezes

All but the smallest islands are affected by land breezes, blowing from the land to the sea during the night, and sea breezes, blowing from the sea to the land from mid-morning to early evening. The former is weaker than the sea breeze and dies away around dawn.

1.1.6.3 Katabatic Winds

In clear quiet weather Katabatic winds as mountain breezes occur at night over suitably mountainous terrain. They may be felt for distances up to about 3 km/2 miles out to sea.

1.1.6.4 Funnelling and other orographic effects

The mountains of south-east Cuba and Haiti create a funnel through which the wind blows with increased strength in either an east or west direction. The orientation of the mountains affects local winds in many other places also.

1.1.7 Hurricanes

Hurricanes, intense disturbances with strong winds and torrential rain, occur between June and November, reaching a peak from August to October. The

*Note: Temperatures are shown as 33°C/91°F.

average rate of occurrence over a 10 year period is about 7 a year.

They originate over the tropical Atlantic Ocean and Western Caribbean Sea, seldom if ever over land. The most usual track is approximately from east to west, but variations with humps and loops are quite common. The average rate of motion is 5 or 6 metres per sec/11 or 13 mph. Recurvature with a north-westerly, northerly and then even north-easterly direction usually occurs at varying longitudes after they have passed 50 or 60 degrees west.

Hurricanes usually begin to decrease in size and intensity either on entering the zone of westerly winds north of the tropics or on reaching land.

A mature storm can have an area with hurricane force winds (33 metres per sec/74 mph or more) with a radius as much as 320 km/200 miles, the radius of the whole storm being around 1000 km/620 miles.

The strongest winds are known to have exceeded 50 metres per sec/112 mph on many occasions and it is thought that they may reach 90 metres per sec/200 mph in a severe storm.

Damage due to strong winds is often widespread but the area of extreme damage may be comparatively small as the area of extreme winds is not large.

The most violent winds are to be found on the right of the direction of motion and decrease outwards from the centre of the storm.

1.1.8 *Sunshine*

Sunshine data is available from stations in Kingston, Jamaica; Nassau, Bahamas; San Juan, Puerto Rico; Antigua; Port of Spain, Trinidad and Bridgetown, Barbados.

In most places the sunniest month is March but the least sunny month is more variable, falling for the most part towards the end of the year.

1.1.9 *Cloud*

'Air masses over the Caribbean area are generally in a state of latent instability so cloud is mainly cumulus or cumulonimbus. These clouds reach their maximum development by early afternoon over land so that small islands have a cover of cumulus cloud and larger mountainous islands often have cumulonimbus. Over the sea convective cloud reaches peak development just before dawn so windward coastal areas are often cloudy at night but comparatively cloudfree in the daytime'¹.

Average cloud amounts at all times of day are greater in the wet than in the dry season.

In the early morning amounts range

from 2-4 oktas in the dry season
from 3-5 oktas in the wet season

In the afternoon

from 3-5 oktas in the dry season
from 4-6 oktas in the wet season

Note 1 oktas = 1/8 of sky.

1.1.10 *Precipitation*

1.1.10.1 *Amount*

Amounts vary considerably from year to year. The highest average annual rainfall occurs in The Windward Island: amounts vary from about 1800 mm/71 in to 3200 mm/126 in.

The lowest annual rainfall occurs in the adjacent islands of Curacao, Aruba and Bonaire: averages vary from about 400 mm/16 in to 600 mm/24 in.

Over the rest of the area averages vary from about 1000 mm/39 in to 1500 mm/59 in with under 1000 mm/39 in in a few places.

On the more mountainous islands there may be considerable variation from one part to another due to local topographical effects.

Over most of the area the wettest months are May to November or June to December during which time 70 to 80 per cent of the total annual precipitation falls. Curacao, Aruba and Bonaire are the exception, the group having a short wet period from October to December when 50 to 60 per cent of the annual total falls.

1.1.10.2 *Heavy falls in 24 hours*

Maximum falls in 24 hours are much greater in the Caribbean area than in temperate latitudes. This is partly due to the higher temperatures and partly due to hurricanes.

The higher known falls are 510 mm/20 in in October at Havana (Cuba) and 508 mm/20 in in September at Ciudad Trujillo (Dominican Republic). 1109 mm/43.65 in has been recorded in January at Bowden Pen, Portland, Jamaica.

1.2 **Belize (British Honduras)**

1.2.1 *General description*

'British Honduras lies entirely within the Tropics and comes under the influence of the 'North-east Trade Winds' throughout the year.

Over the low lying areas the climate is hot and sticky, especially in places sheltered from the sea breezes.'²

December to April, the 'dry' season: winds tend to be more north-westerly.

May to November, the 'wet' season: north-westerlies still occur but during much of the season the NE Trade-winds predominate.

1.2.2 *Temperature*

Temperatures have only been recorded for the city of Belize and are shown to be fairly uniform throughout the year:

Mean daily maximum varies between 27°/81° to 31°/88°
Mean daily minimum varies between 21°/70° to 24°/75°

according to the time of the year.

1.2.3 *Humidity*

'Mean relative humidities at Belize, both at 0600 and 1800 local time, are between 85 and 95 per cent and would appear to be fairly uniform throughout the day. Further inland, over the high ground well away from the coast, the air is probably much drier.'²

1.2.4 Winds

Wind direction is as described under the general description. The winds are usually light or moderate but, in the coastal districts, the sea breeze often

reinforces the prevailing on-shore wind during the afternoon and the resulting wind is fresh and sometimes strong. There appears to be little seasonal variation in either direction or speed.

Strong winds (11-17 metres per sec/25-38 mph): from the limited data available it would appear they occur at Belize, on average, three days a year. They are most likely to occur on the coast during the afternoon or in association with hurricanes.

Gales (more than 17 metres per sec/38 mph) would appear to be very infrequent.

1.2.5 Local Winds

1.2.5.1 Northers

Between February and March strong squally northerly winds, known as 'Northers', occur. These winds are an extension of the 'Texas Northers' and bring relatively very cold air to the country.

1.2.5.2 Land and Sea Breezes

Occur along the coastal strip during most months of the year.

Land breeze off-shore during the night, very much weaker of the two winds.

Sea breezes on-shore during the day can, when it reinforces the prevailing wind, be fresh and, at times, strong.

The only recorded data available is for Belize at 0600 local time. Later in the day it is probable that the wind speeds are stronger and the wind directions more at right angles to the main coastline

1.2.6 Hurricanes

'Tropical cyclones or hurricanes occasionally affect the area between June and November. The most dangerous and destructive storms are usually fully developed West Indian Hurricanes and are most likely to occur in August and September. They are not frequent: during a 150 year period 8 hurricanes affected Belize.'²

Damage by flooding due to increased rainfall during hurricanes is a risk to low lying areas and together with unusually high tides associated with them is a particular risk to exposed coastal locations.

1.2.7 Sunshine

Sunshine data is available from Belize International Airport. The sunniest months are March, April and May and the least sunny from September to January.

1.2.8 Cloud

Information is only available for Belize where the mean cloud amount at both 0600 and 1800 local time is between 4 and 6 oktas.

Cloudless skies are most infrequent, especially between May and September.

Overcast skies (8 oktas) occur, on an average, on between 10 and 20 per cent of occasions.

1.2.9 Precipitation

Precipitation amounts are considerable but vary considerably with the location being heavier over the higher ground in the South of the country.

Most of the rain falls between June and January. Heavy falls of rain in excess of 50 mm/2 in in 24 hours can occur in any month.

Between May and November falls in excess of 172 mm/5in have occurred.

The largest fall recorded during a 6 to 7 year period was 252 mm/9.8 in.

BUILDING FOR COMFORT

2

2 BUILDING FOR COMFORT

2.1 General

A copy of Overseas Building Note No 158 'Building for Comfort' is attached to the back of this section. It suggests principles to be considered in the siting and designing of buildings in warm climates and gives references for more detailed study.

Section 1 of the guide shows the Caribbean area to have a warm climate with relatively small diurnal and annual range of temperatures together with very high humidity. Buildings of light construction with maximum cross ventilation are most suitable for these conditions, ideally one-room deep producing long, relatively narrow, buildings on plan.

2.2 Orientation

In all warm climates it is essential to prevent the sun shining directly into the building and to reduce the radiation gain through the structure. This is more easily attained by siting the long axis in an E-W direction and restricting all openings to the North and South elevations where they are easier to shade (see para 2.3) and the end walls present a smaller surface area to the low sun. However, in an area of high humidity, for non air conditioned buildings ventilation is of equal importance.

Wind direction in the Caribbean is mainly within an arc from NE to SE, most frequently from the East, therefore to obtain maximum ventilation the building requires to be sited with its long axis in a N-S direction, as is traditional in most areas.

For maximum comfort the siting of any building must be a compromise between conflicting requirements (see Plate 201), and must be considered in the light of local knowledge.

2.2.1 *Contours of the site*

When the length of a building is more than its width greater economy is achieved the nearer to the contours it is possible to align the longer axis.

2.2.2 *Sun protection*

Nearby buildings, trees or hills, may provide shade from low East and West sun. A predominance of early morning and/or late afternoon cloud may make protection from low East or West sun of less importance. Times of occupancy or rooms will influence protection required.

2.2.3 *Ventilation*

Winds, are recorded over open sea; they can vary according to local topography.

2.3 Shade angles

Solar charts enable the position of the sun to be ascertained, relative to the building, for any time of the day, any day of the year. A shadow angle protractor superimposed over the particular chart reveals shadow angles for buildings of any orientation.

Plates 202 to 205 show angles for positions on latitudes 12° and 20° North for 22 June and 22 December. These diagrams show the relative penetration of the sun into, and the shadow cast by, a structure on differing orientations and at different times of the day and can be used as a guide to deciding orientation.

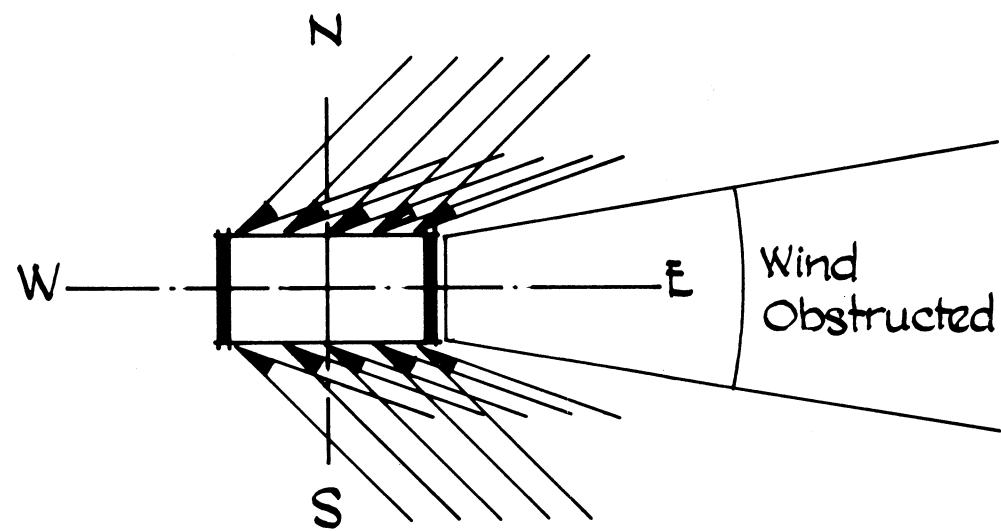
Solar charts for latitudes 12°, 16° and 20° North are reproduced on Plates 206 and 207, together with a shadow angle protractor, so that angles can be calculated for other places, times and orientations. A worked example is illustrated for guidance.

2.4 Sunshading devices

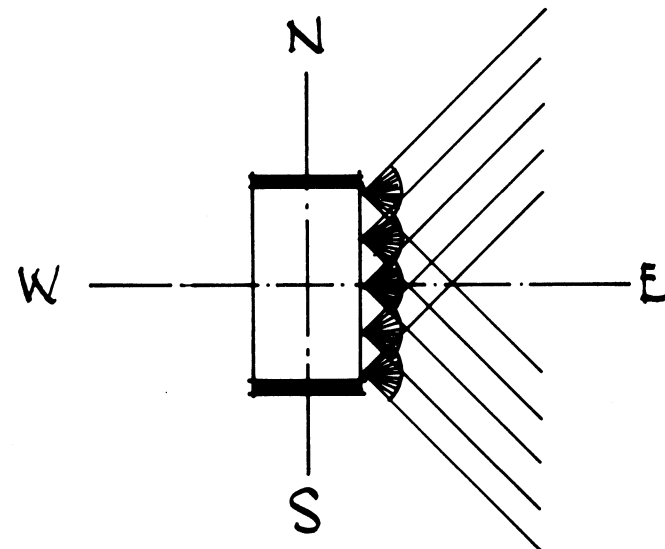
An overhanging roof will provide shade to windows and walls to a depth that can be obtained graphically when shade angles are known. Conversely the amount of overhang can be obtained to provide the required shade. To buildings more than one storey height additional shade devices will be required above windows of the lower floors and these can be designed to a minimum size required to provide the necessary protection.

Shutters and adjustable louvres are effective sunshading devices, they can also be closed in times of rain and dust storms. The illumination level will drop considerably however when they are closed. They can be usefully used to keep the early morning sun out of offices and classrooms, to prevent heat build-up, before occupation. ie Shutters or louvres on east facing windows should be closed on leaving the room at the end of the day and opened on re-entry the following morning, if shading from that time on is provided by other means, see Plate 208³.

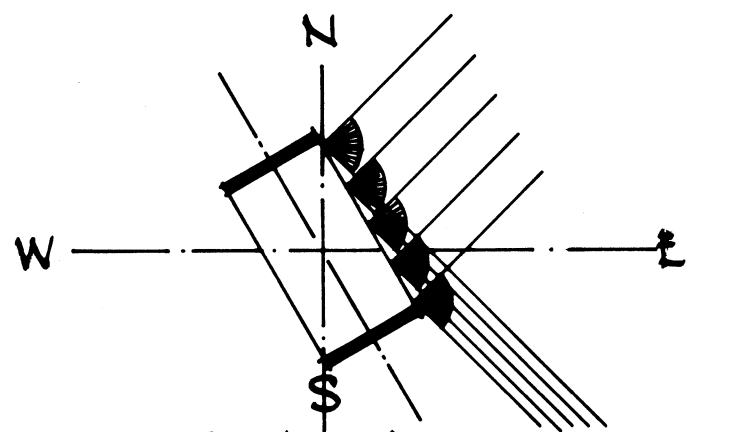
Sunshades of solid construction, cantilevered from the structure, conduct heat into the building and are likely to reflect radiant heat from their top surfaces through openings or windows above. Louvred sunshades of light construction are preferable.



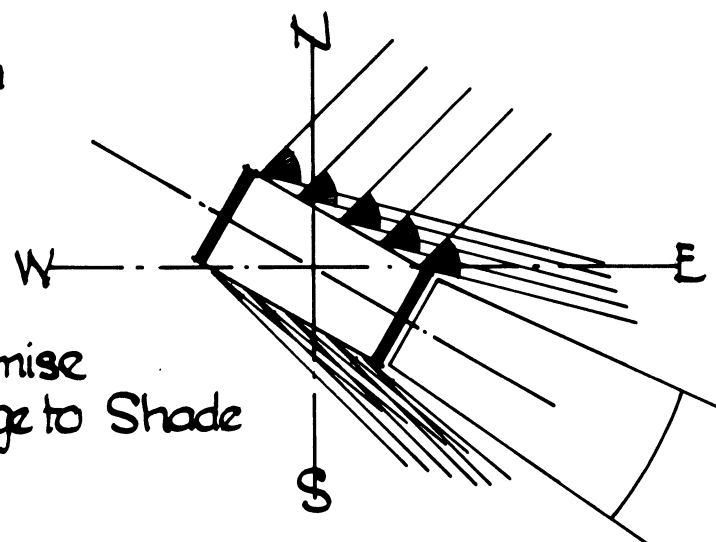
Maximum Shade
from Sun
(see plates 202-208)



Maximum advantage
from Wind
Minimum Shade
from Sun



Compromise
advantage to Ventilation



Compromise
advantage to Shade

Day of year: 22 June

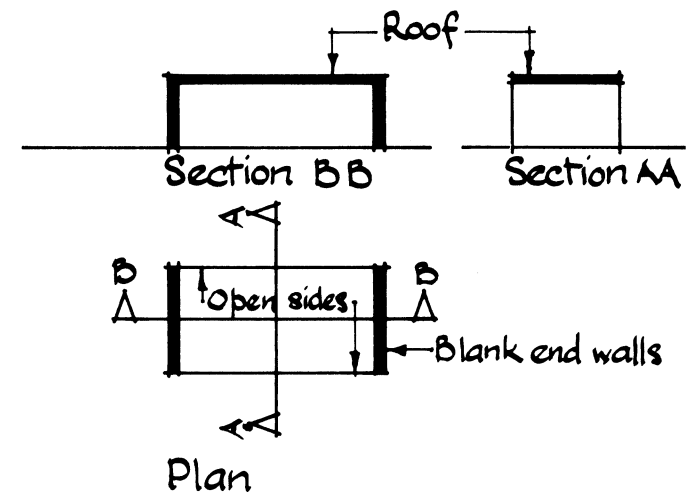
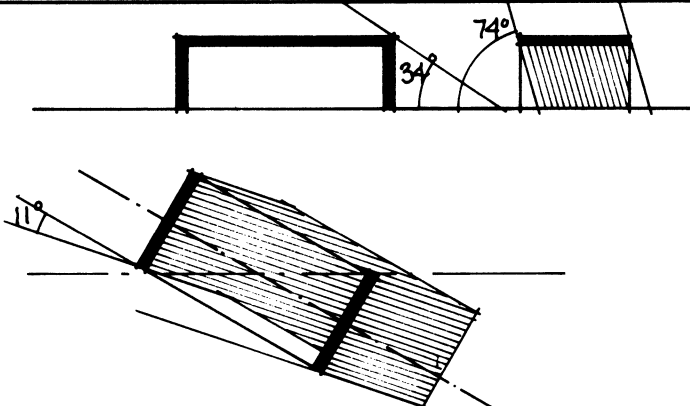
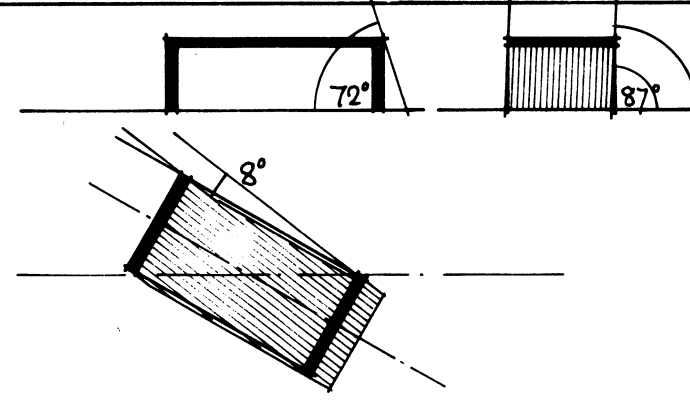
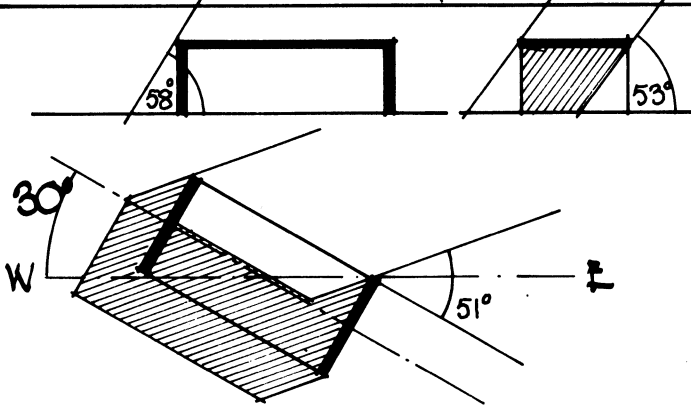
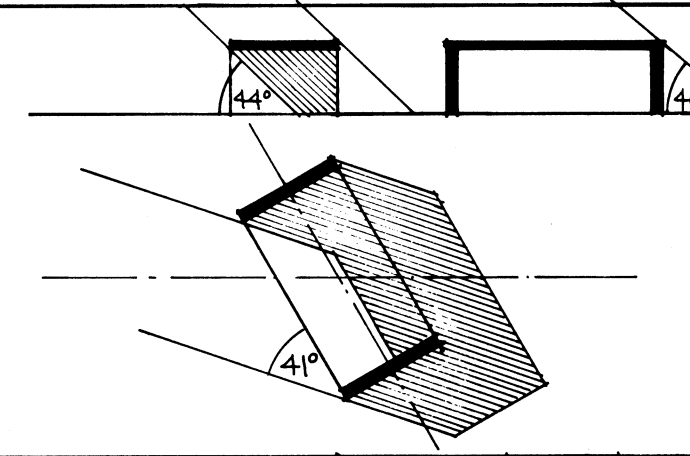
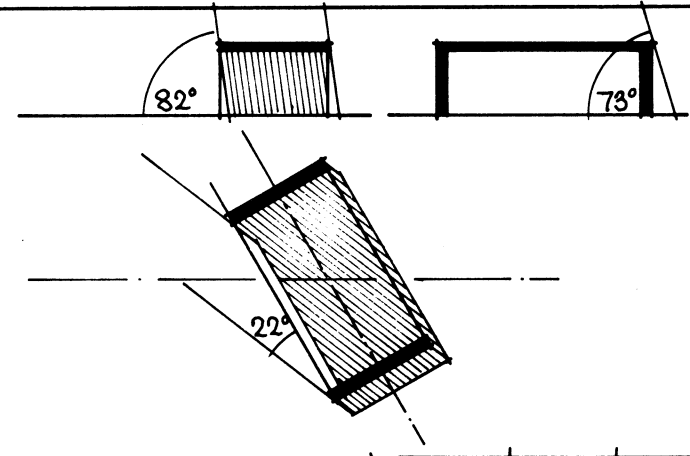
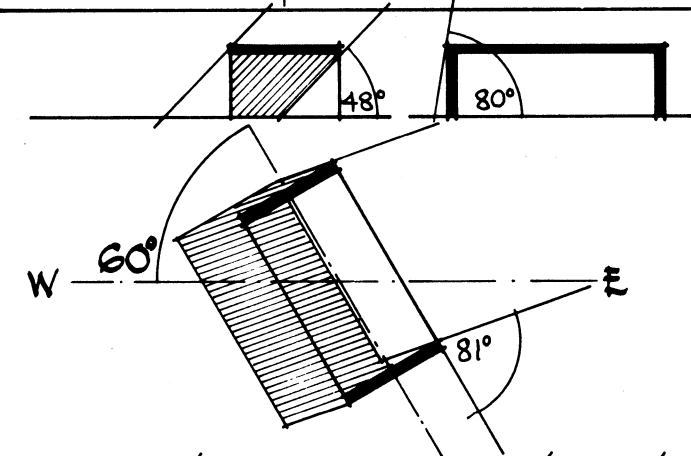
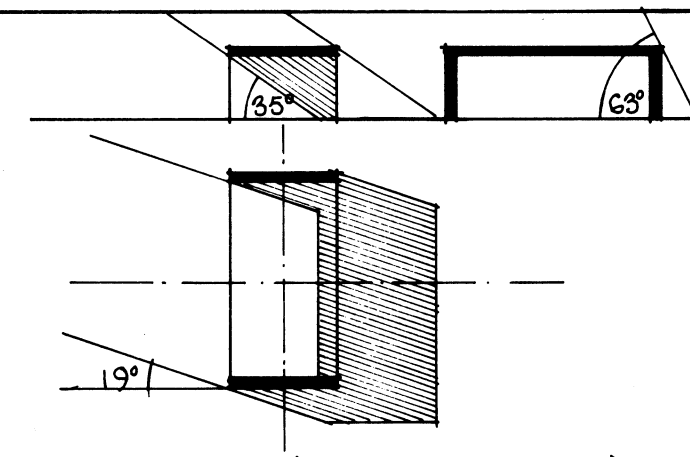
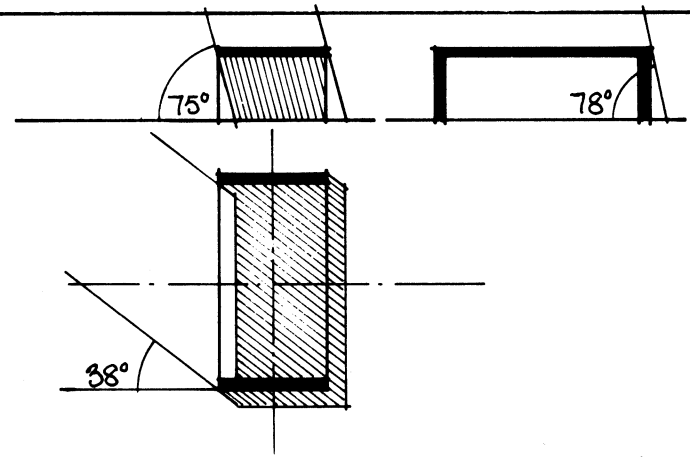
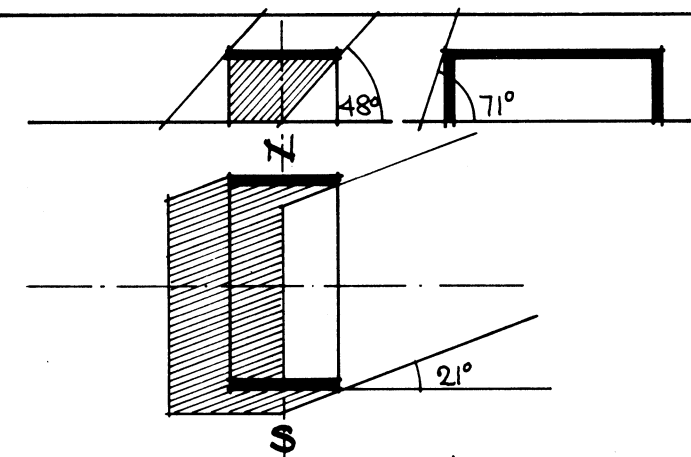
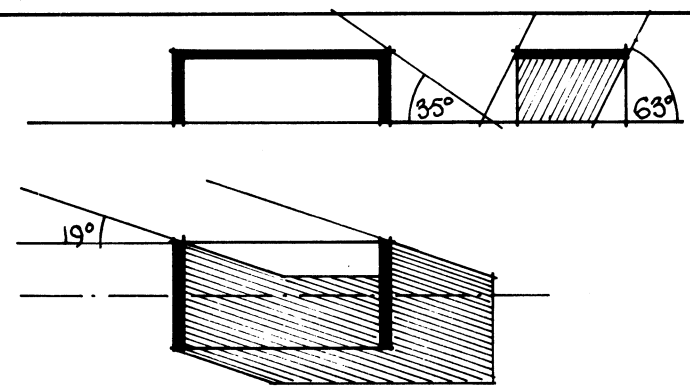
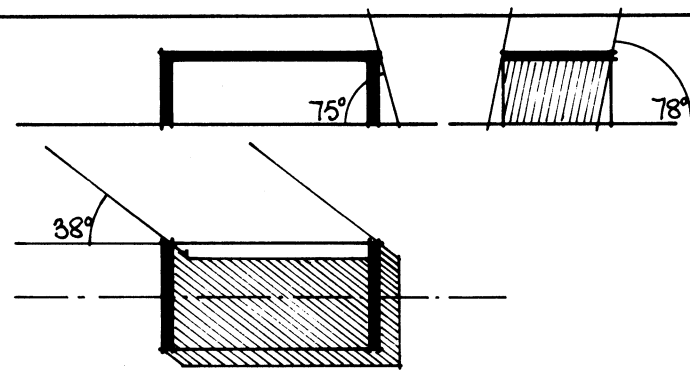
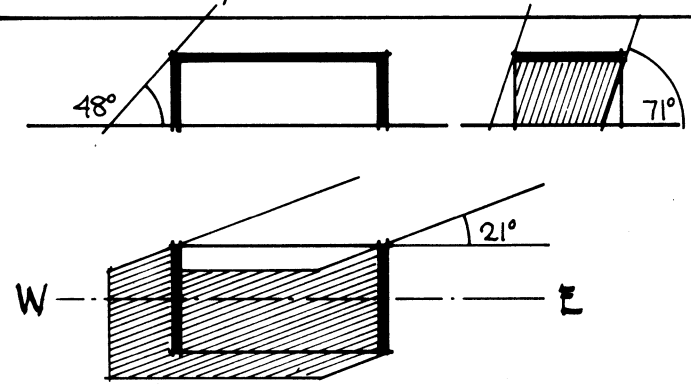
Latitude: 12° North

Time of day:

09.00

13.00

16.00



Diagrammatic Structure to show Shadow Angles

Day of year: 22 December

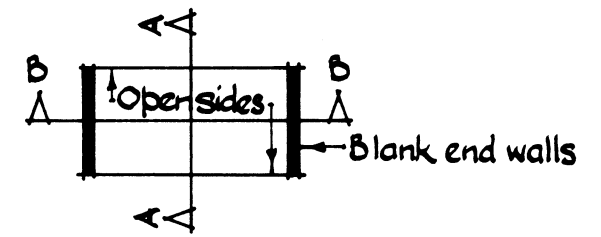
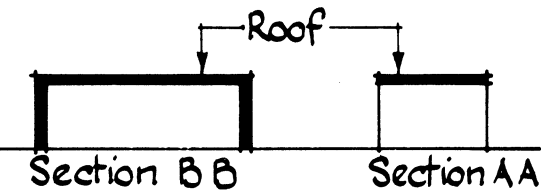
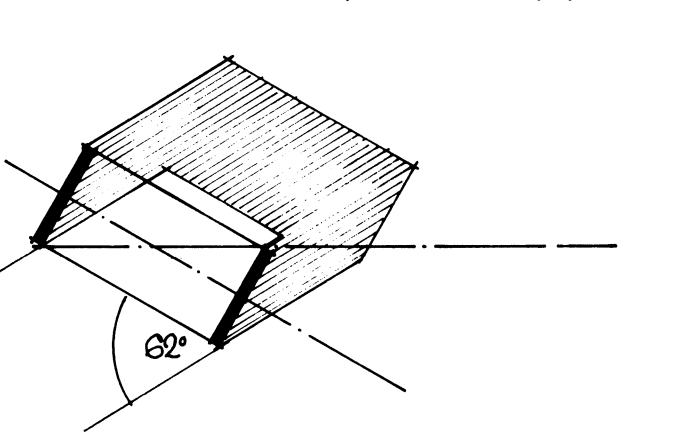
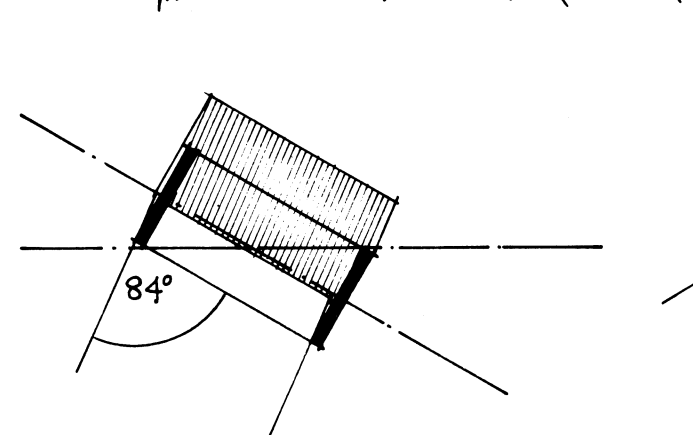
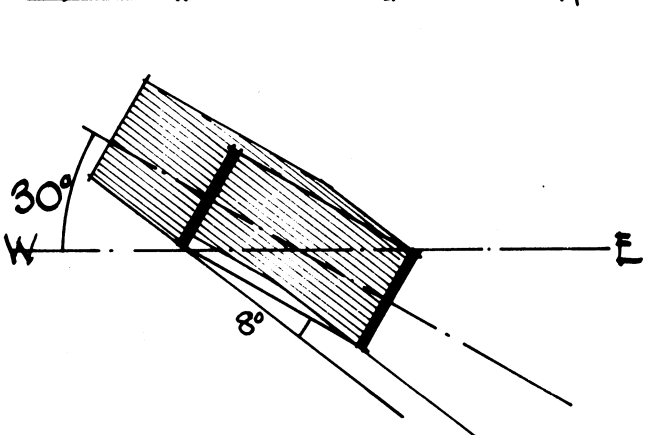
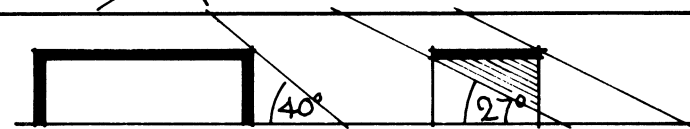
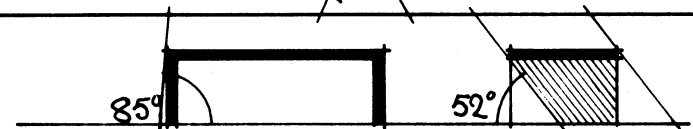
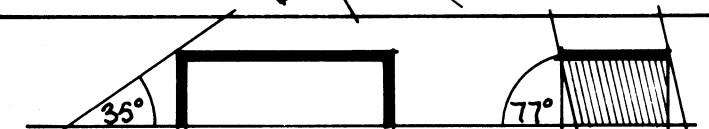
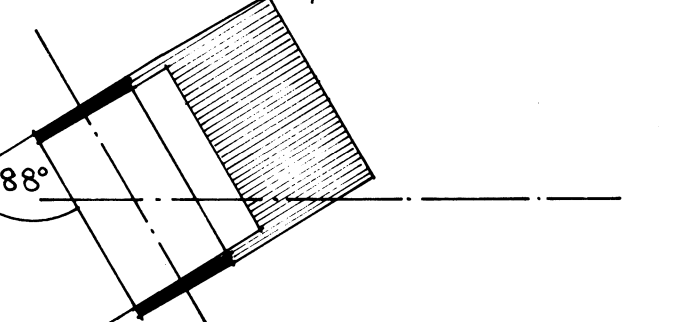
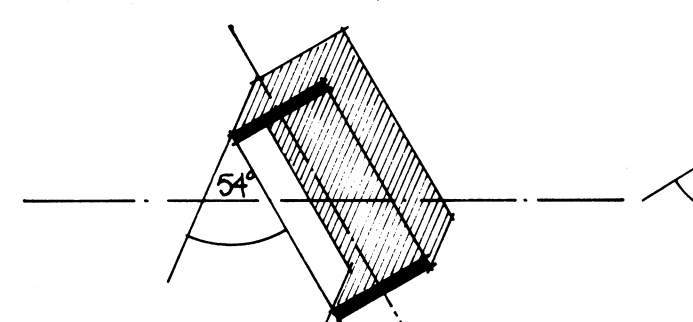
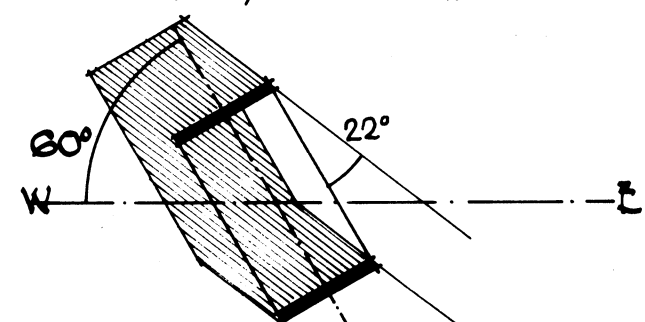
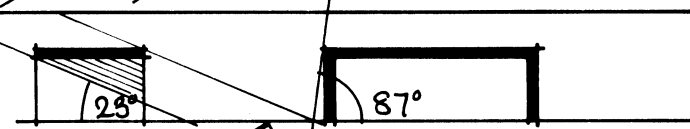
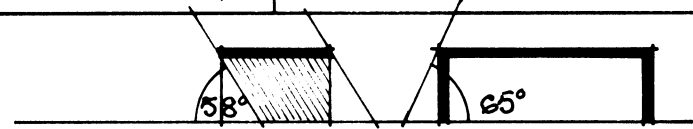
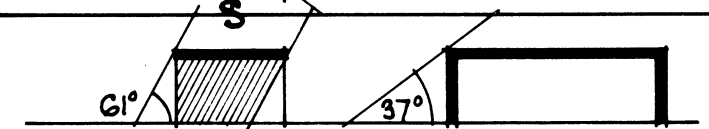
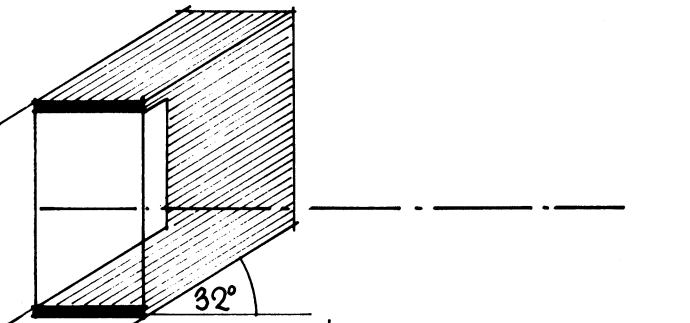
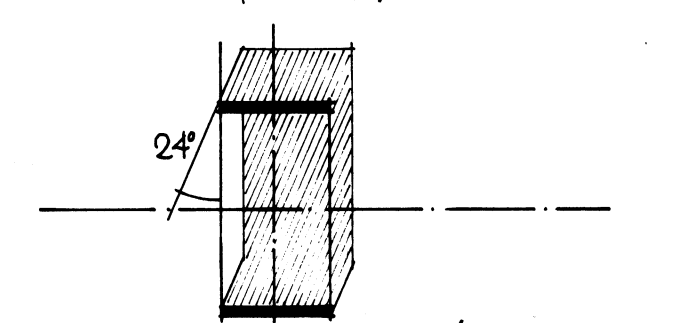
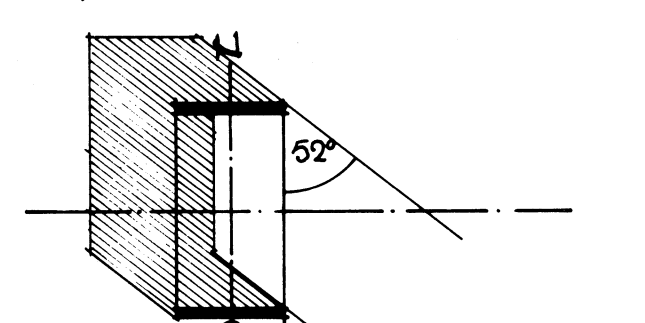
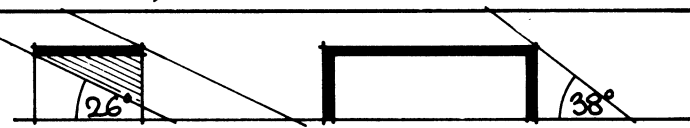
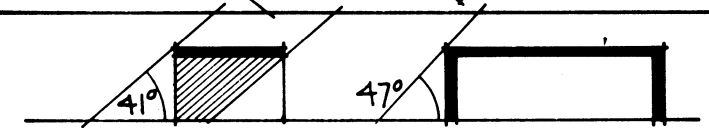
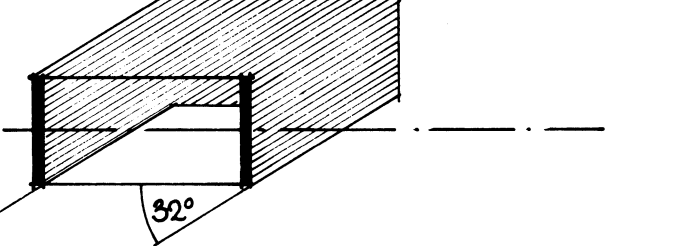
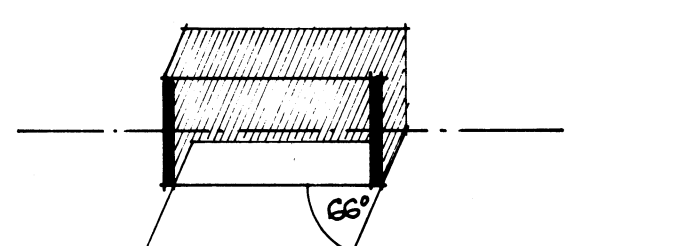
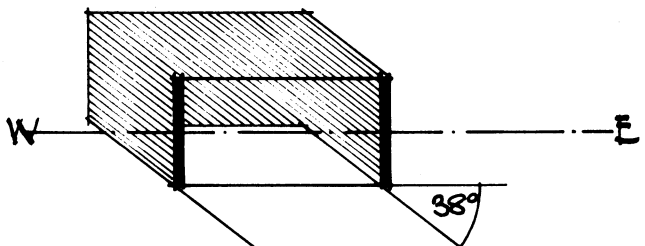
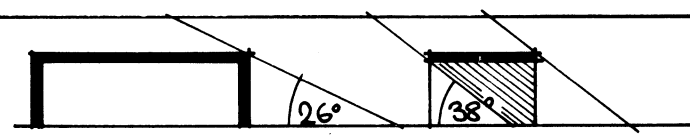
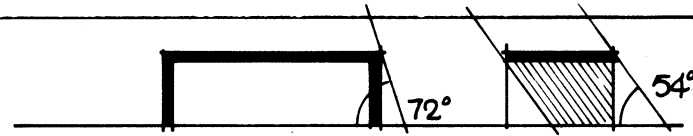
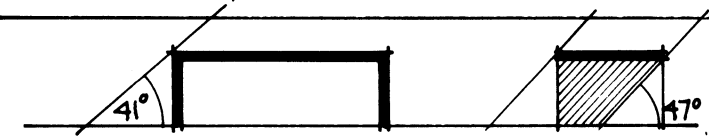
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Time of day:

09.00

13.00

16.00



Plan
Diagrammatic Structure
to show Shadow Angles

Day of year: 22 June

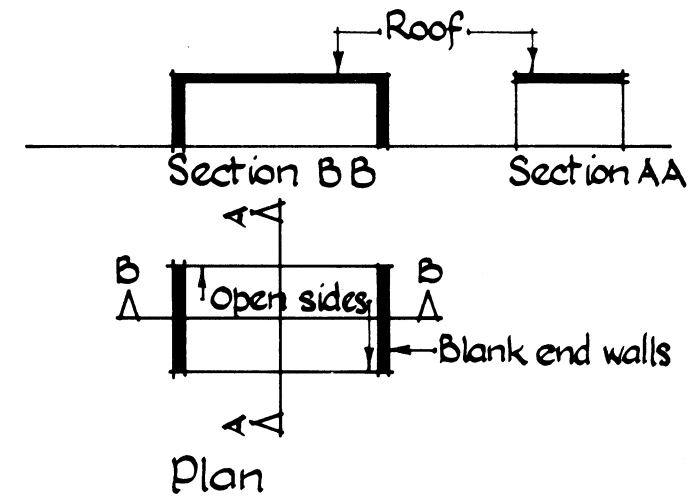
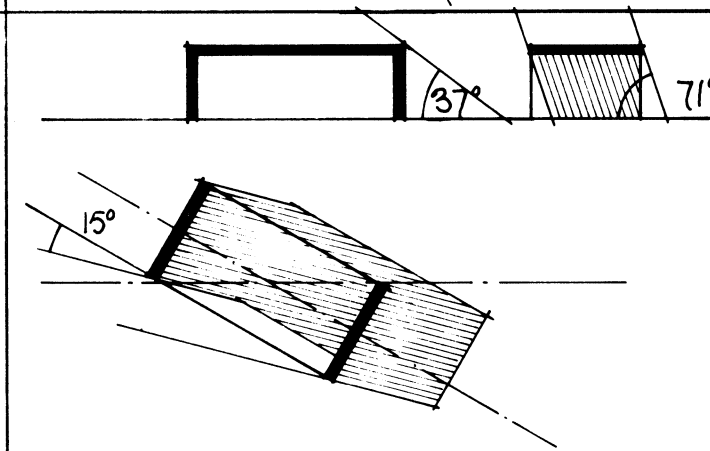
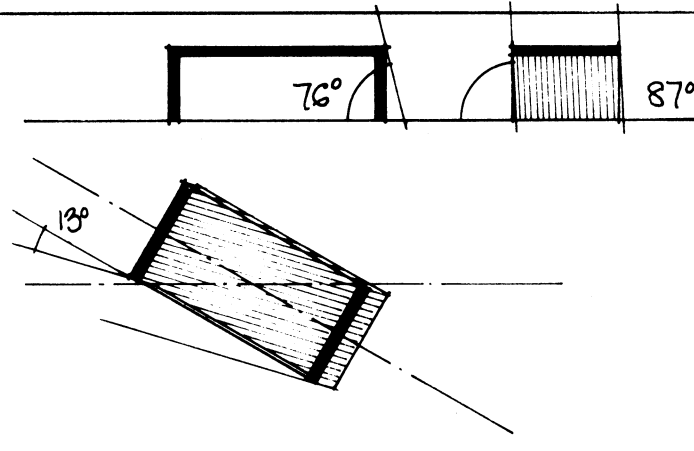
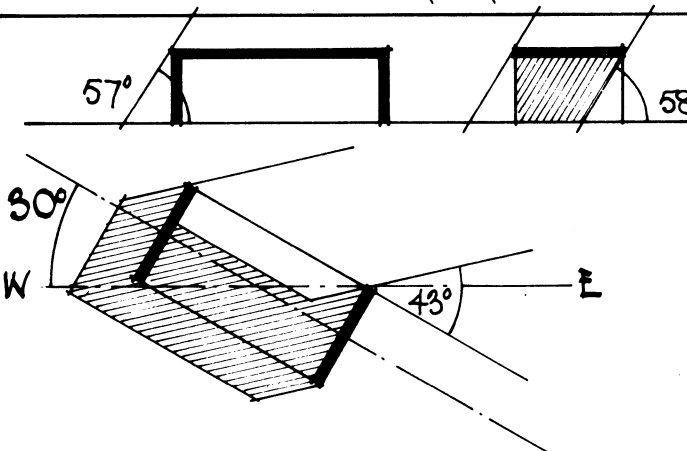
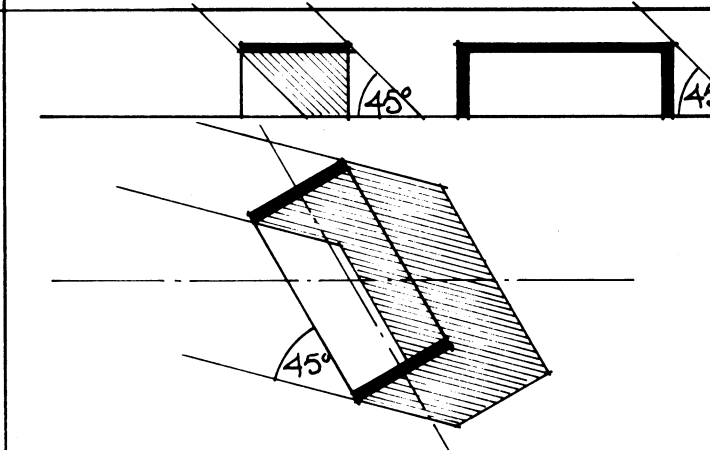
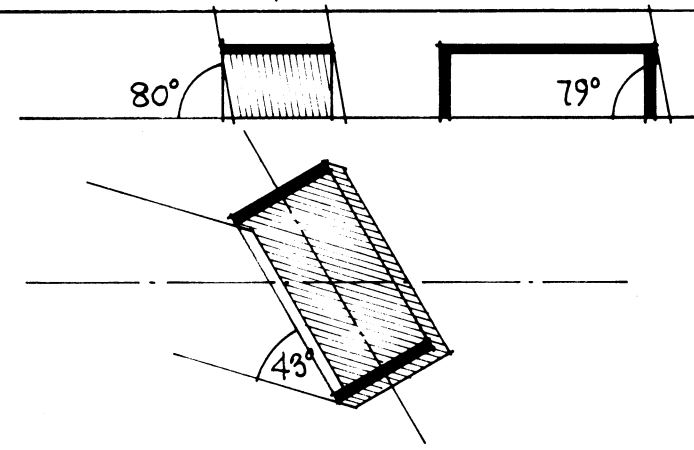
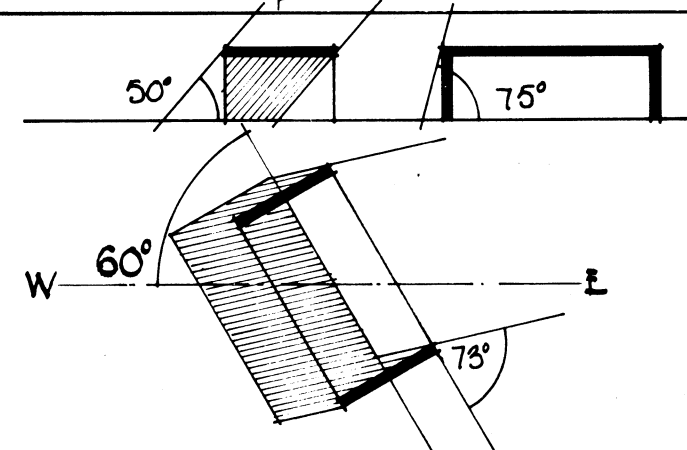
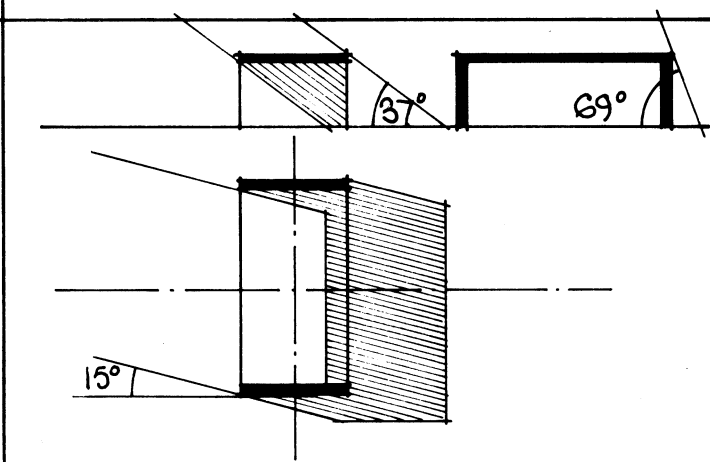
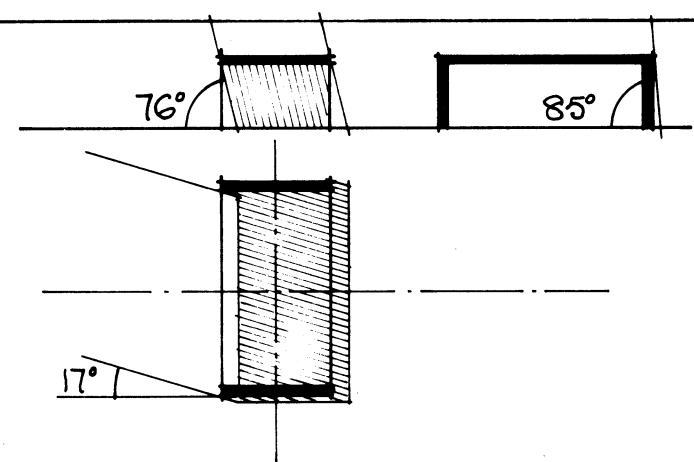
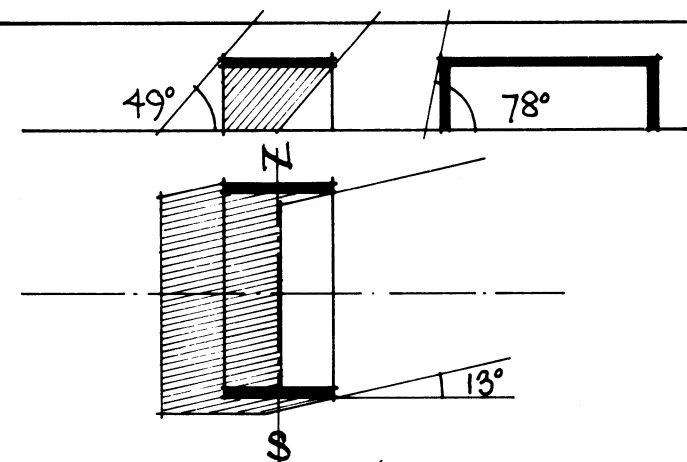
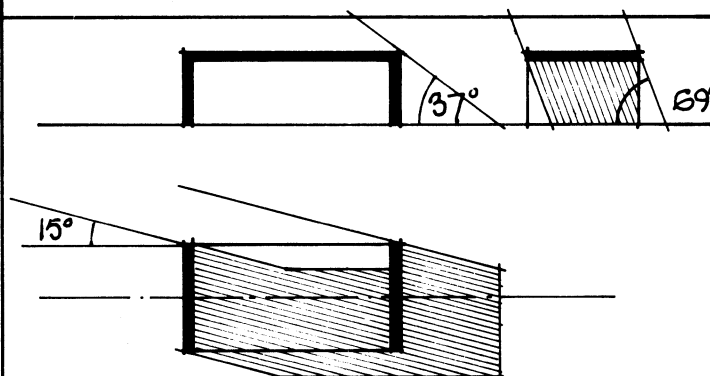
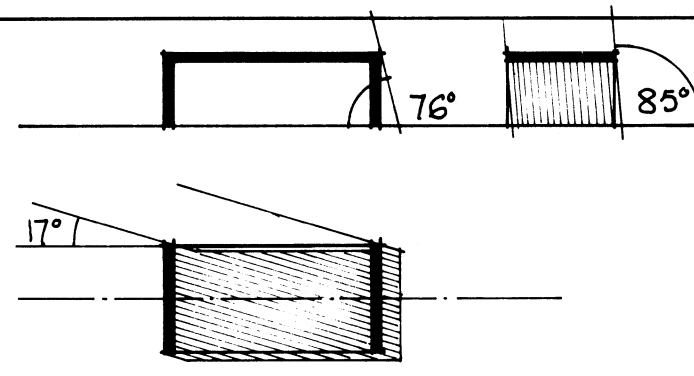
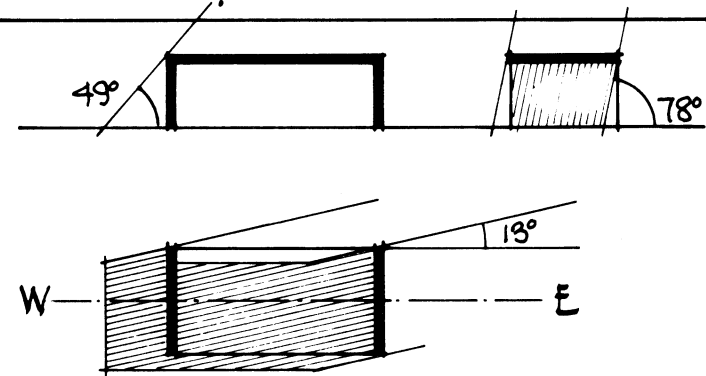
Latitude: 20° North

Time of day:

09.00

13.00

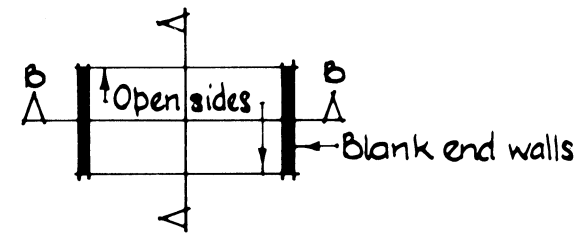
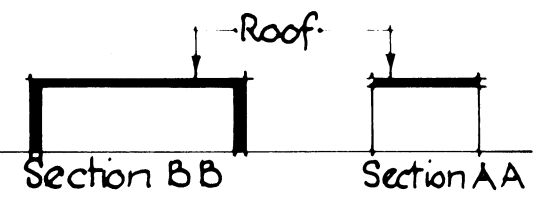
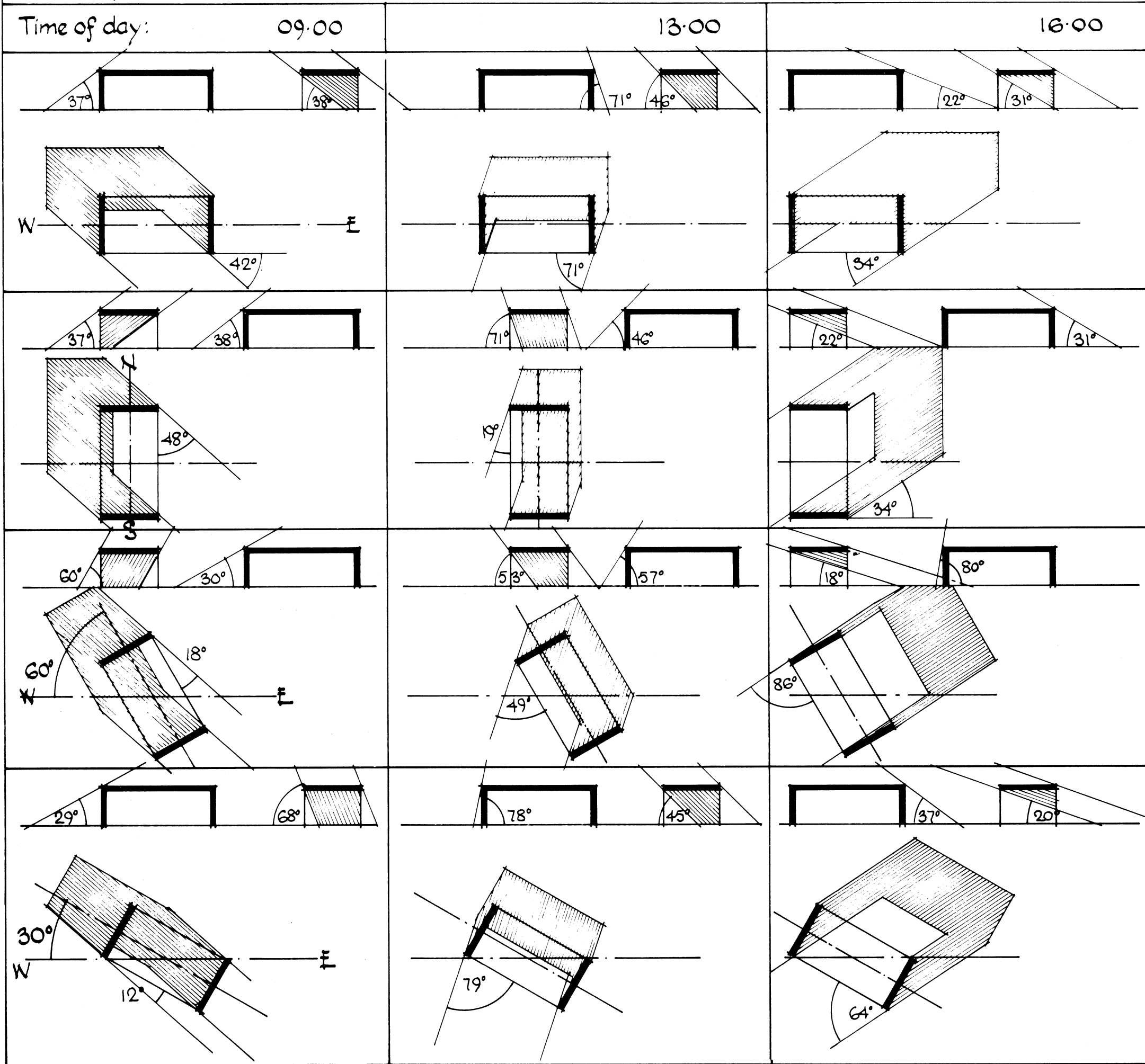
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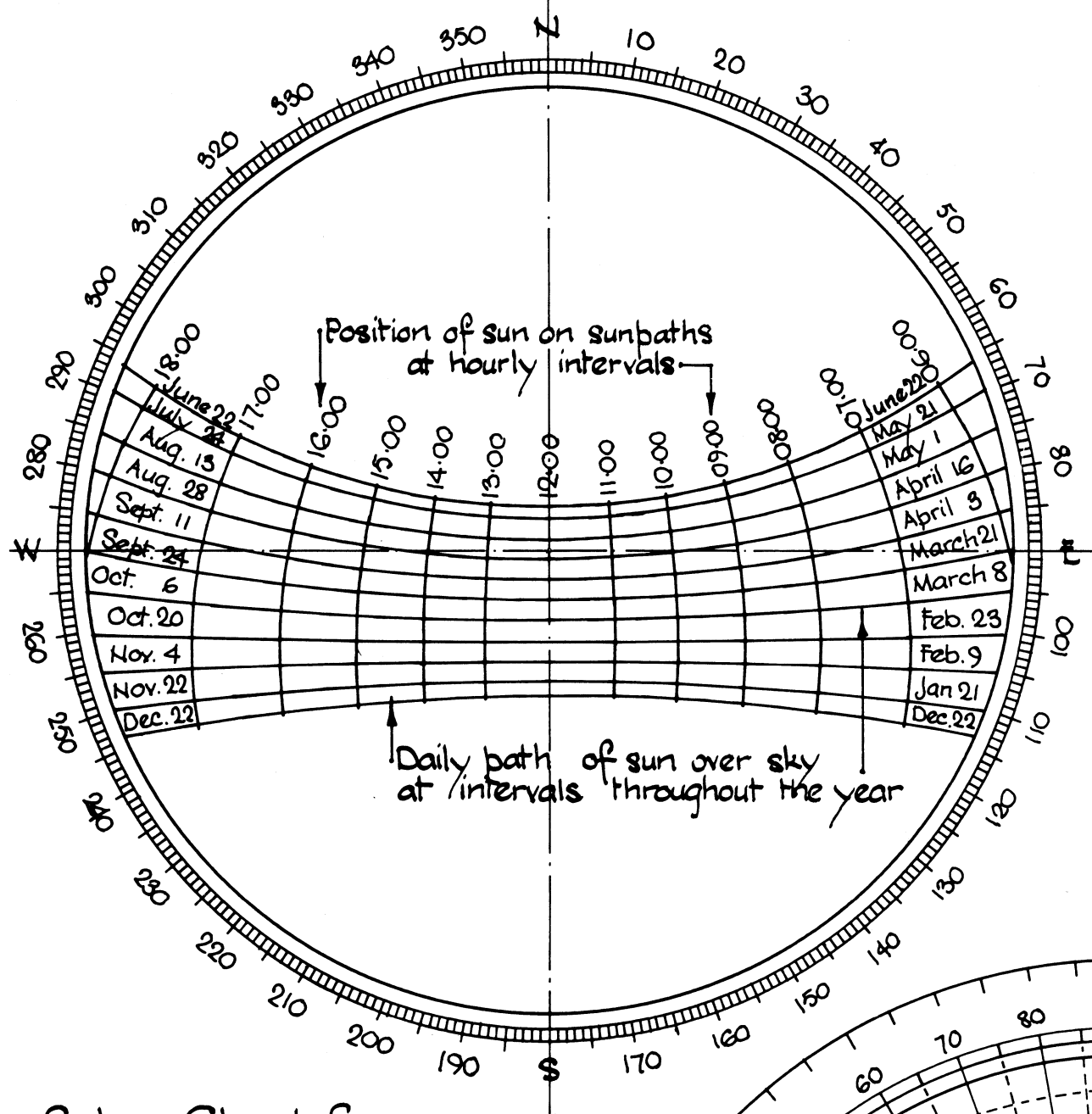
Diagrammatic Structure to show Shadow Angles

Day of year: 22 December

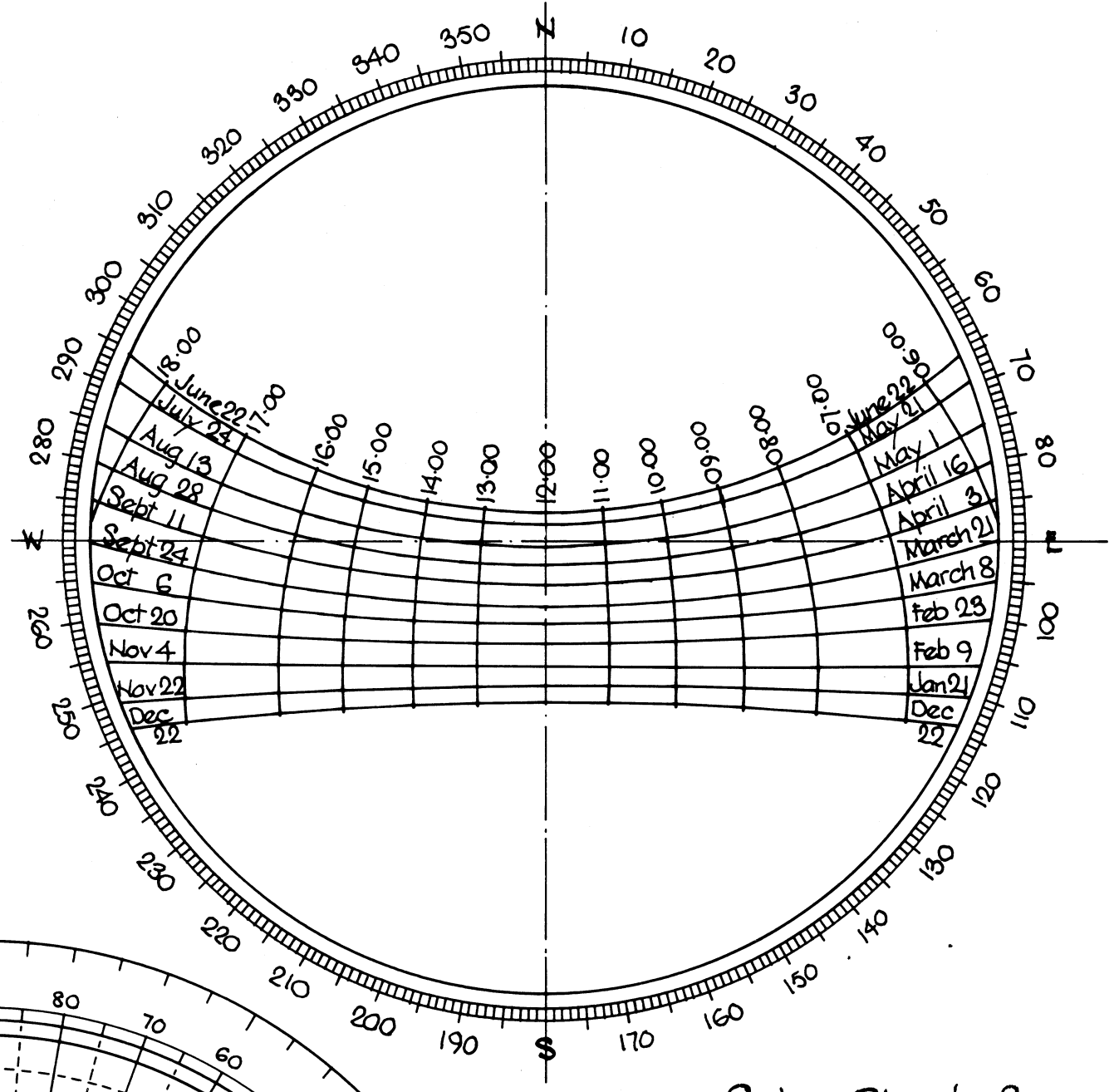
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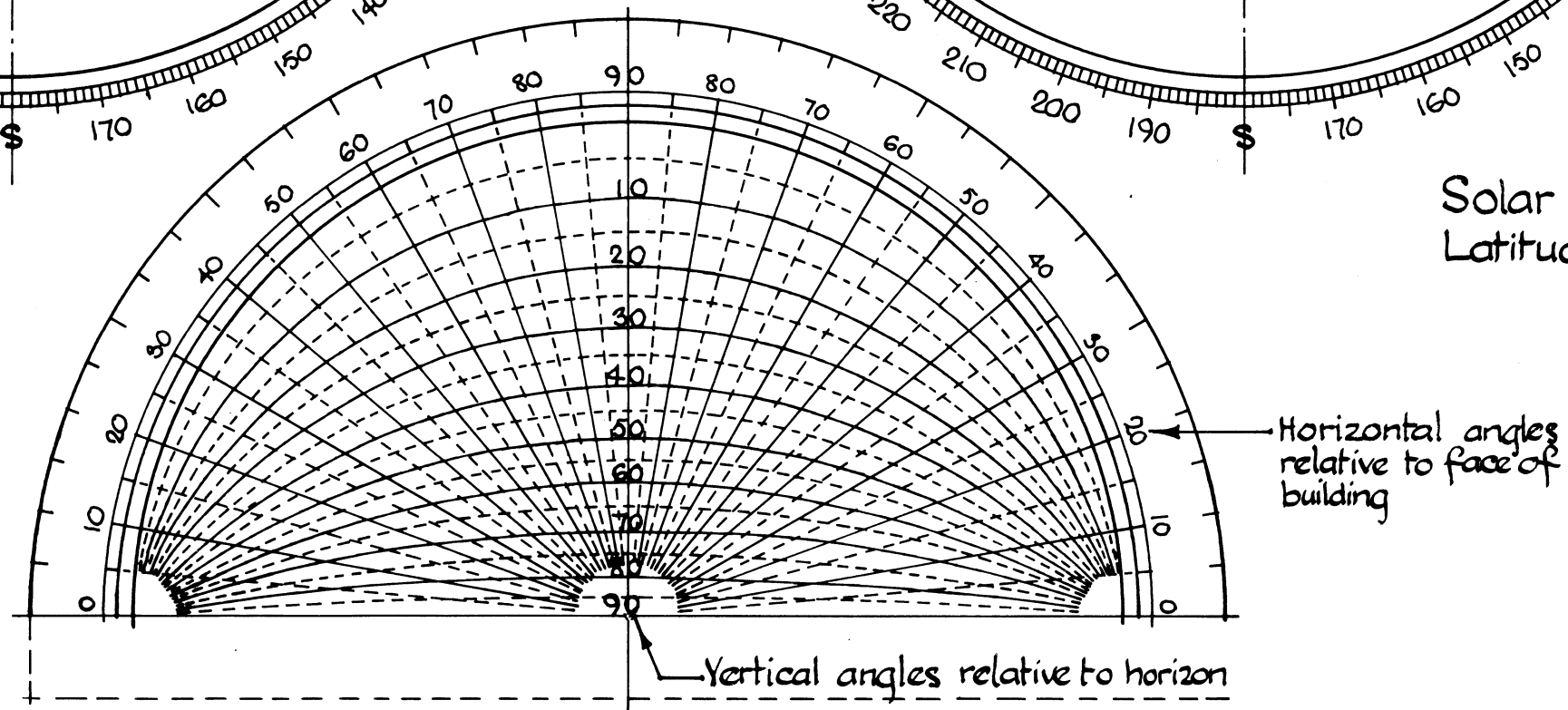
Diagrammatic Structure to show Shadow Angles



Solar Chart for Latitude 12° N



Solar Chart for Latitude 16° N

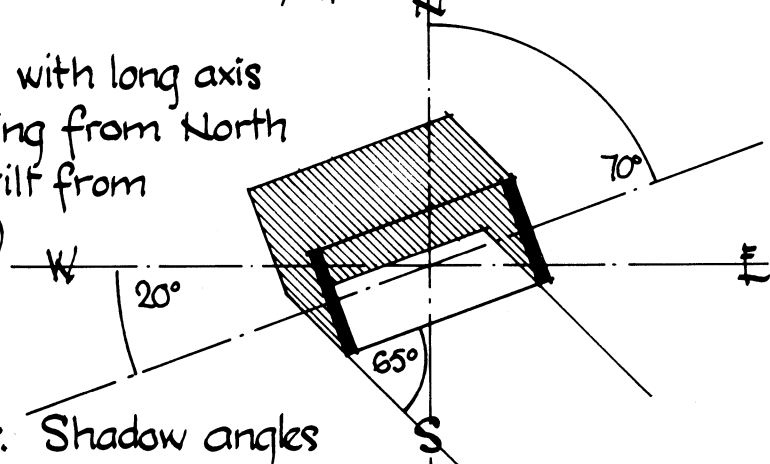


Shadow Angle Protractor
(trace onto transparent material for use)

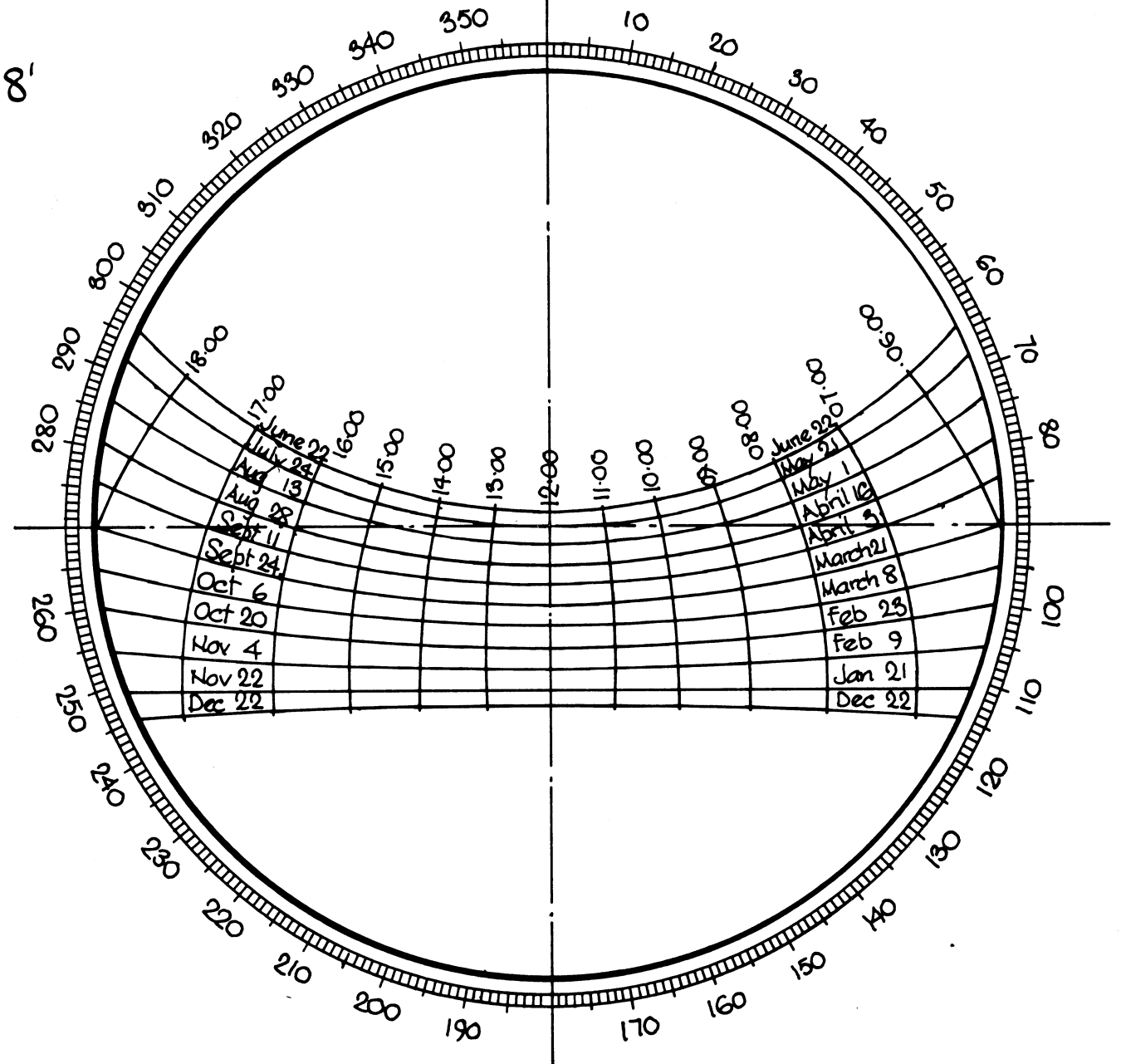
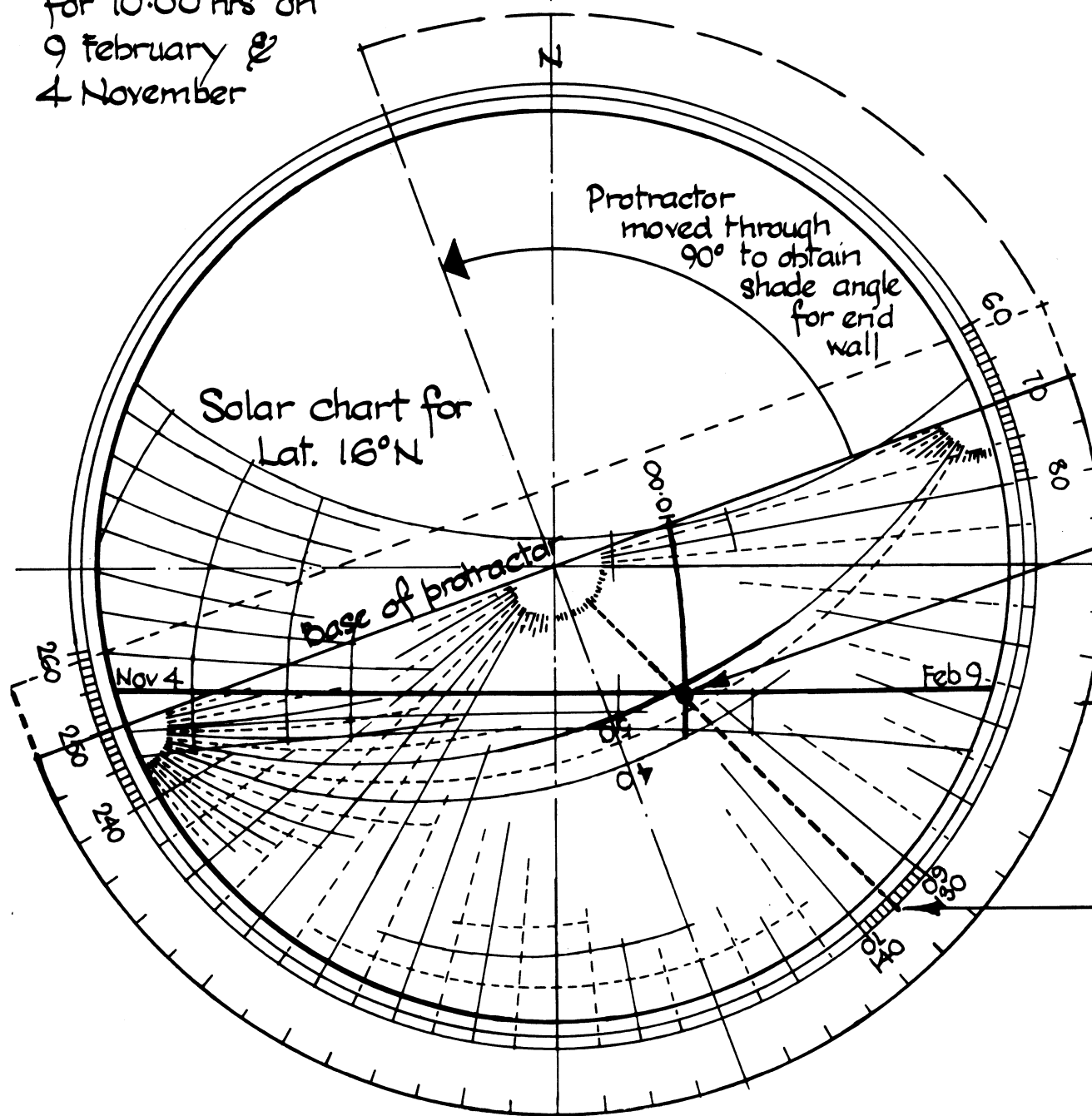
Worked Example: Site, Roseau, Dominica, Latitude $15^{\circ}18'$



Structure with long axis 70° bearing from North (i.e. 20° tilt from E-W axis)



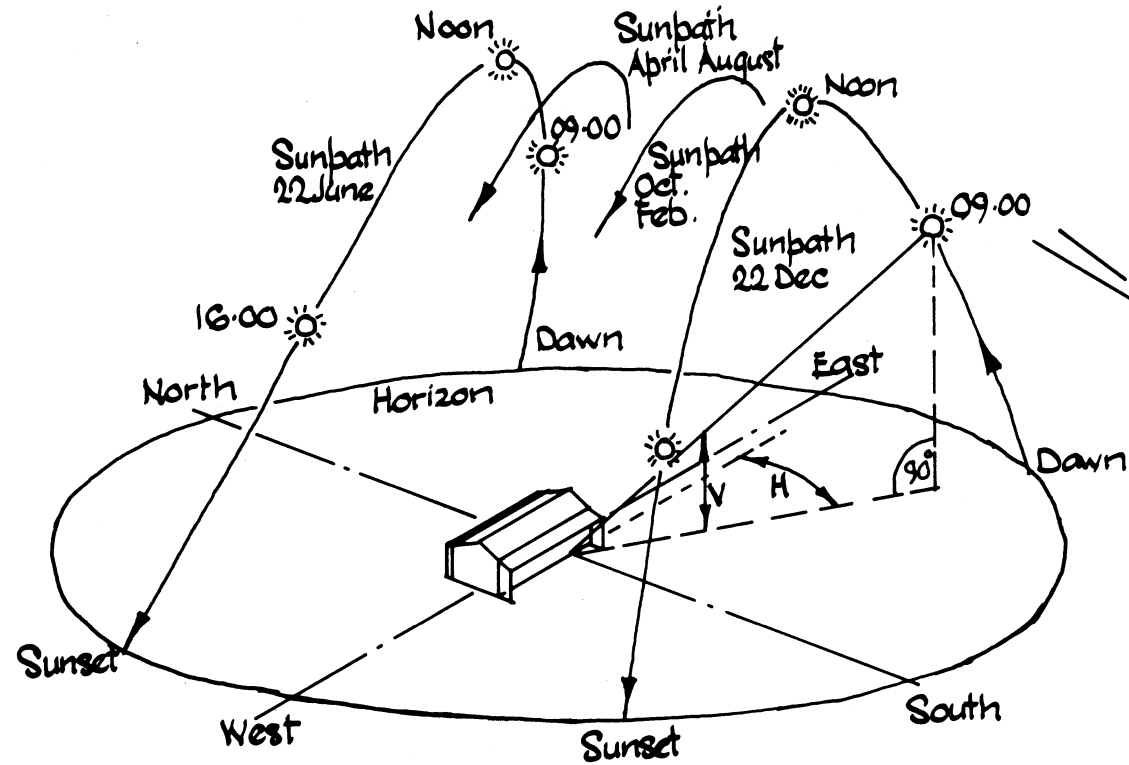
Required: Shadow angles for 10.00 hrs on 9 February & 4 November



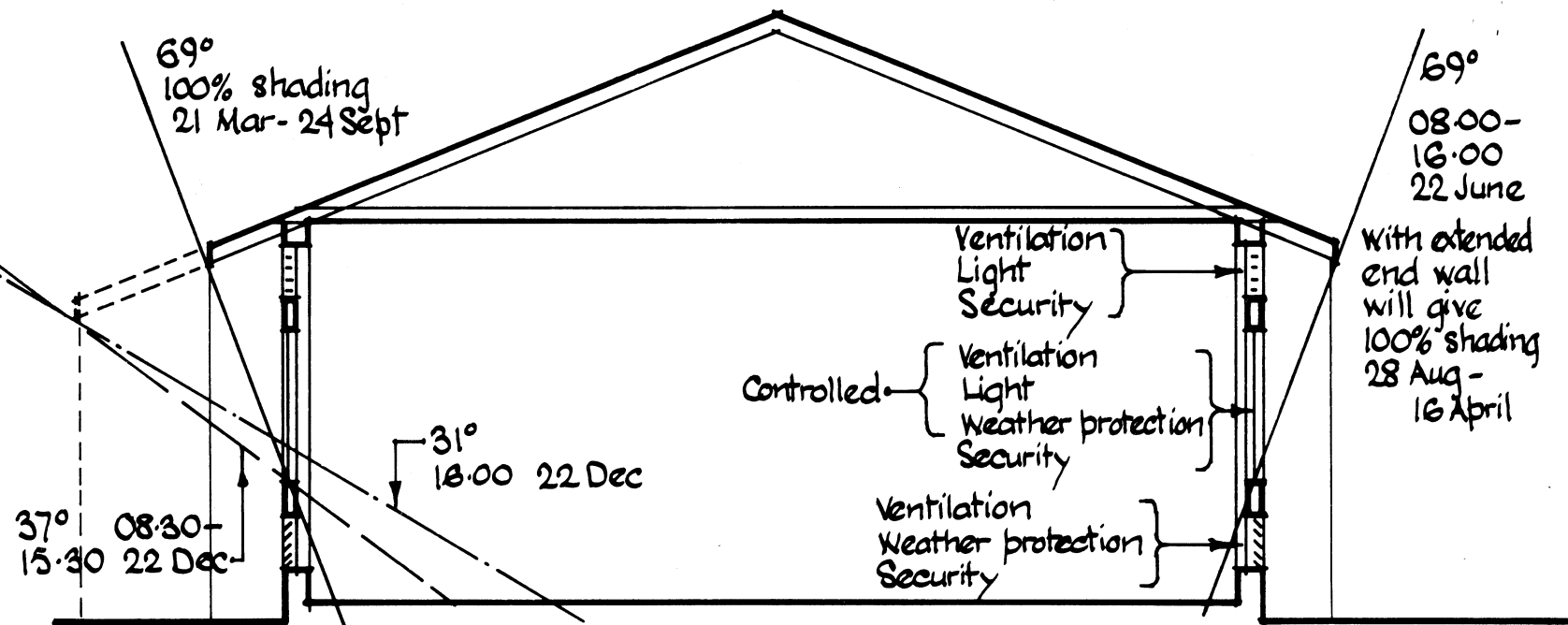
Position of sun at 10.00 hrs on Feb 9 & Nov 4
Vertical shade angle 48°

Shadow angle protractor superimposed over Solar chart (base parallel to face of building)

Horizontal shade angle 65° from face of building

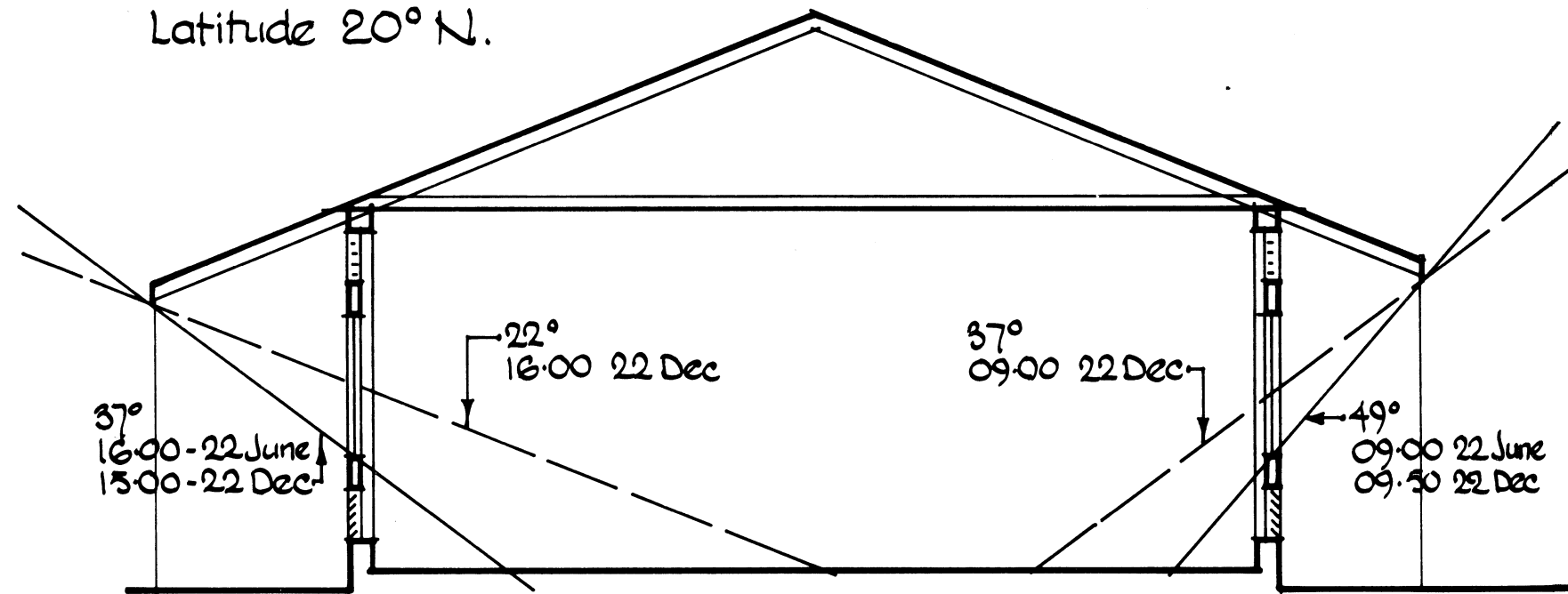


Sunpaths
(Projected onto flat base produce Solar charts)

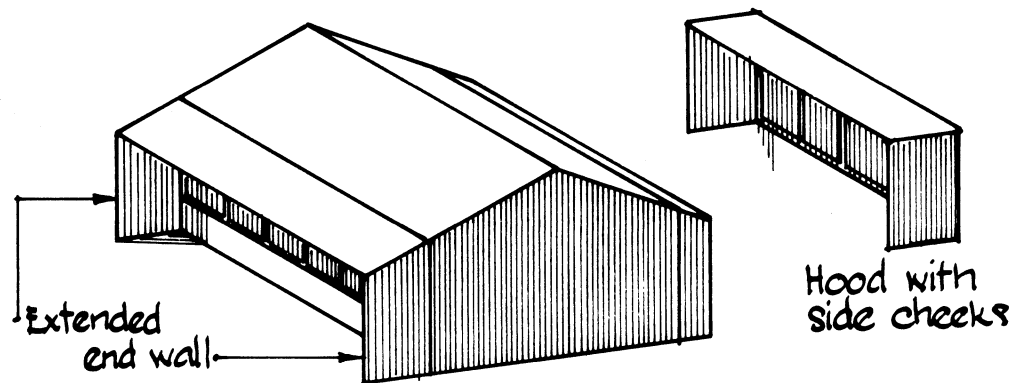


Building sited on E-W axis
Overhang of roof to give shade from 08:00-16:00 on 22 June
Extension of roof on southern side shown to give shade from 08:30-15:30 Dec.

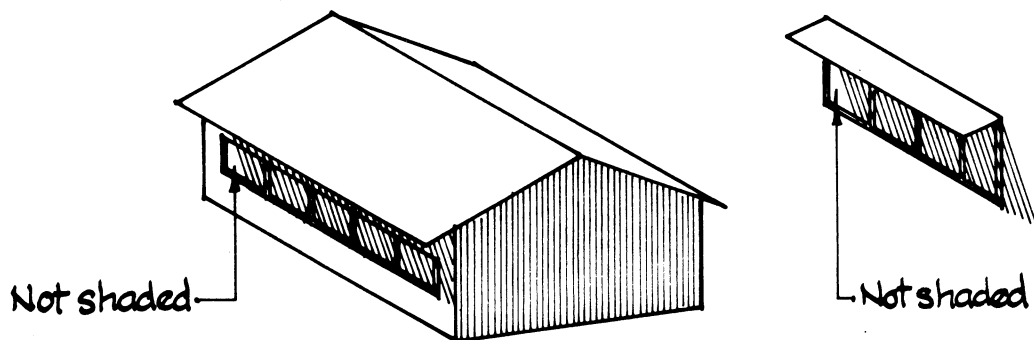
Latitude 20° N.



Building sited on N-S axis
Overhang of roof to give shade from 09:00-16:00 on 22 June and from 09:50-15:00 on 22 Dec.



Totally effective shade over all windows



Reference 3

DIMENSIONAL CO-ORDINATION

3 DIMENSIONAL CO-ORDINATION

3.1 Studies have been made, both within separate countries and internationally, to rationalise the building process in the interests of greater production and economy. Standardization of building is difficult and perhaps undesirable, but it is being applied to materials and components.

3.2 Adopting a dimensional common denominator is the first step to enabling manufacturers of building components to produce goods which have a better prospect of matching the sizes of components produced by other manufacturers and for these to fit into building with a minimum of waste and labour⁴.

3.3 Basic Module

There is a general acceptance that the basic module be 100 mm (4 in).

3.4 Planning Grid

A designer can use any planning grid of which the divisions are a multiple of the basic module. A common grid of 3 module spacing: 300 mm (12 in). This grid is particularly useful in that it is easily readable both for metric and feet-inches. For larger buildings with a structural frame 6 module, 600 mm (2 feet) or 9 module 900 mm (3 feet) may be suitable.

A module planning grid can be used to define the principal spaces in a building and basic position of the main external and internal wall elements. It is primarily indicated on general location drawings⁶.

All plans in this design guide have been drawn on a planning grid of 300 mm (12 in) unless otherwise noted.

3.5 Basic Module Grid

The basic module grid is used to define the detailed horizontal and vertical position of components and elements. In the horizontal plane it normally coincides with the modular planning and structural grids. It is primarily indicated on the larger scale assembly drawings⁵.

3.6 Nominal and Actual Dimensions: Tolerances

An allowance for tolerance and, if necessary, jointing, must be made within the modular dimension, ie the co-ordination is of nominal dimensions, the actual dimension being smaller by that allowance.

3.7 Use of Dimensional Co-ordination in the West Indies

Modular co-ordination was suggested by the Department of Engineering of the University of the West Indies, as one of the actions to be taken to reduce building costs, in their report on low cost housing⁶.

The common building block of cement/sand is normally produced in multiples of 100 mm (4 in) nominal size, a modular block, so that modular planning should reduce the necessity for cutting or producing a variety of different-sized blocks.

3.8 Preferred Dimensions

The Department of the Environment of the United Kingdom has developed a 'Method of Building' to rationalise the practices and procedures used in the design and construction of Ministry buildings and in the handbook⁷ recommends the use of certain preferred dimensions within its dimensional framework (see Plate 301).

EXTERNAL ENVELOPE

Height

The preferred sill & head levels for external envelope components in 'people intensive' buildings are indicated below. The combination of sill & head levels result in a preferred range of heights for components. Cladding may bypass the floor zone and continue to a controlling level at another floor.

Length

The run of fixed and opening lights should provide a desired 100mm flexibility in length. The following is the minimum range of opening solutions: 600, 900, 1000, 1200, 1300 and 1500mm.

The preferred increment in length for cladding (or blackwork) is 100mm. Cladding or 100mm mullions may also be combined with opening lights to provide 100mm flexibility.

The preferred increment in length for door sets is 100mm. The door set may comprise a single leaf, one and a half leaves or double leaves and may incorporate side and/or overhead panels or lights. The door set space includes the frame or lining, but not necessarily any architraves.

INTERNAL SUB-DIVISION

Height

The preferred head levels for internal sub-division components in 'people intensive' buildings are indicated below. Partitioning & doorsets should preferably be between finished floor level & the underside of the ceiling. Door sets may also conform to the 2100mm intermediate head level.

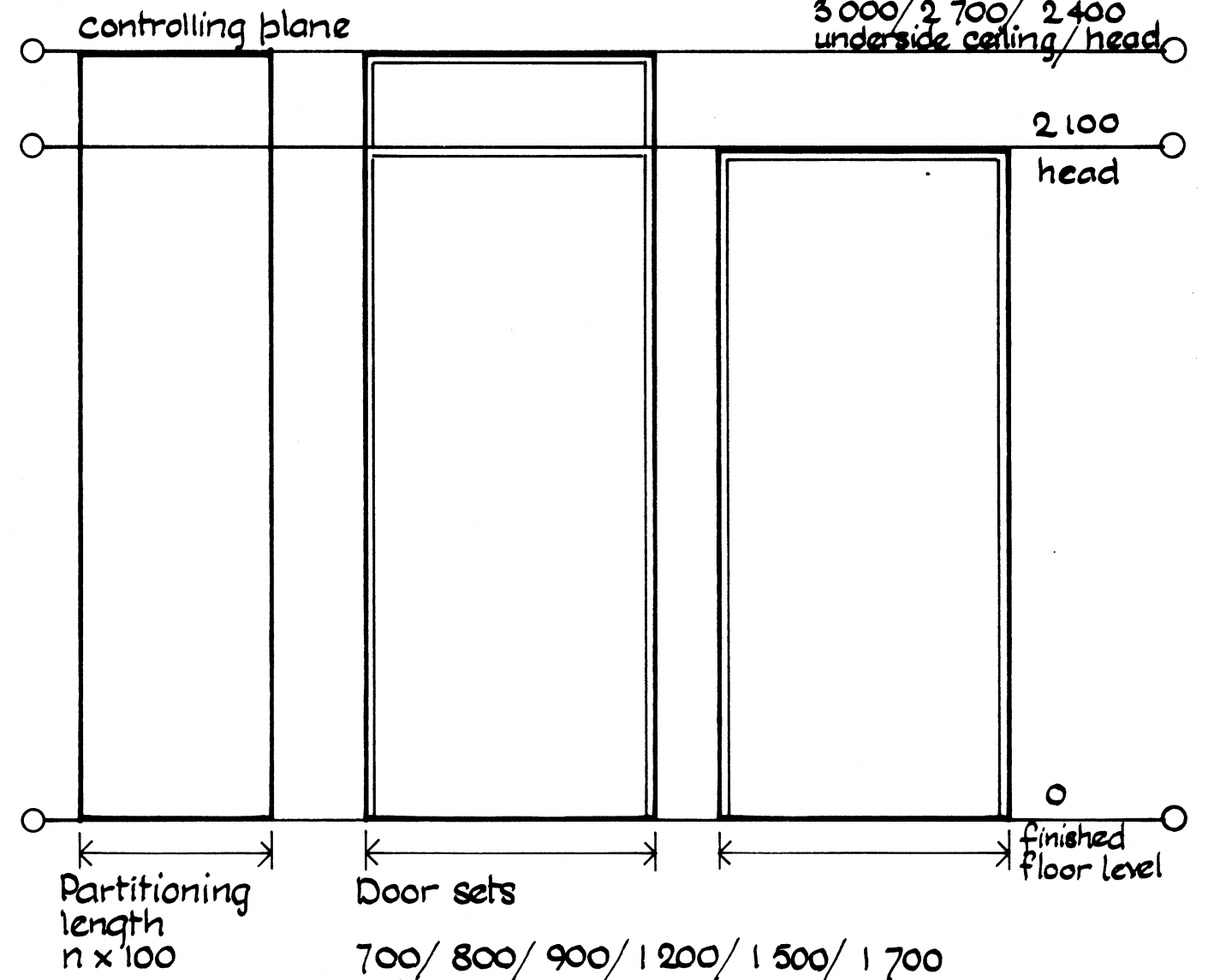
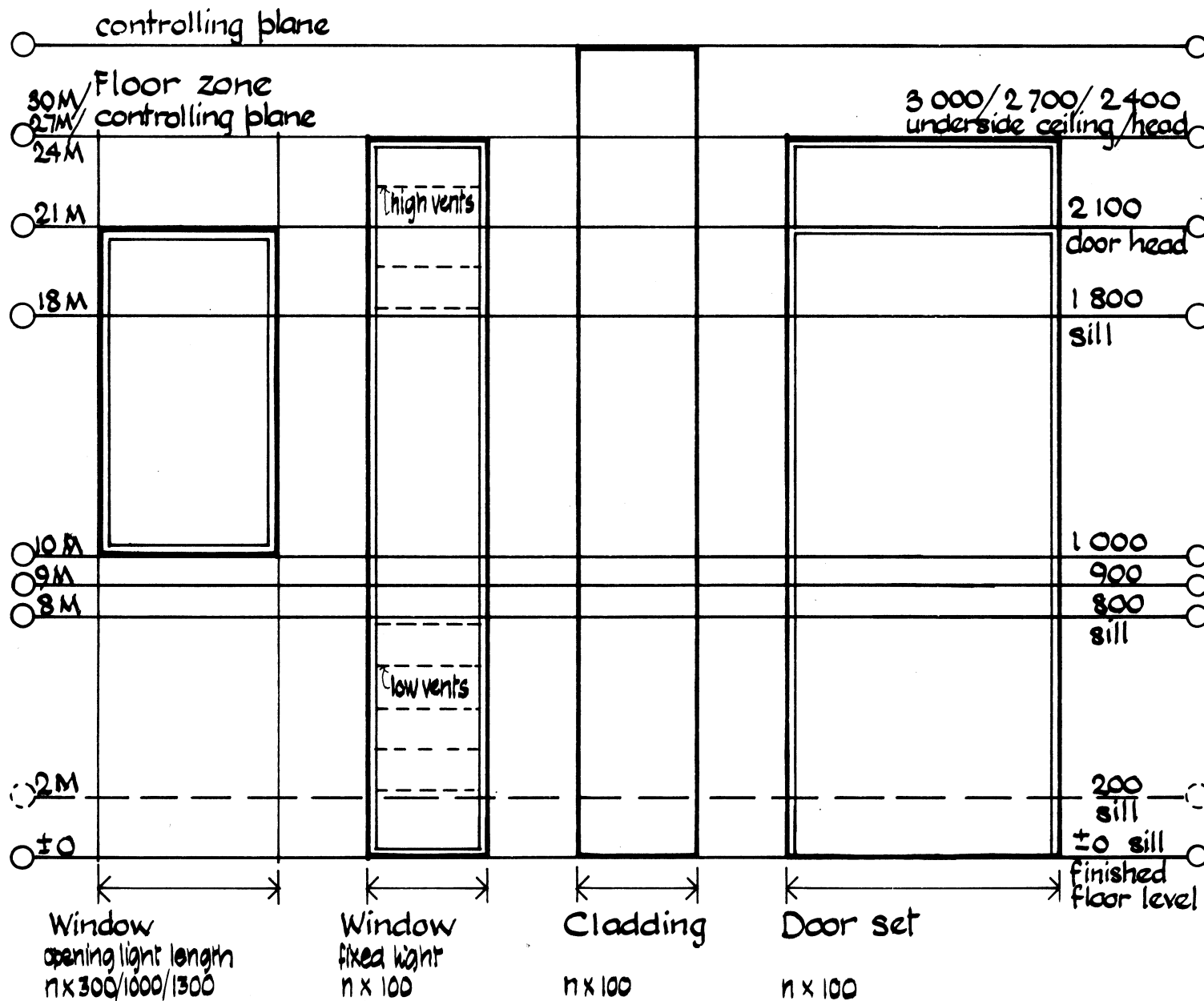
Length

The range of lengths of partitions unit should be sufficient to fill the majority of 100mm incremental spaces above 200mm. The door set preferred lengths are indicated below. The door set may comprise a single leaf, one & a half leaves or double leaves and may incorporate side and/or overhead panels or lights. The door set space includes the frame or lining, but not necessarily any architraves.

Width

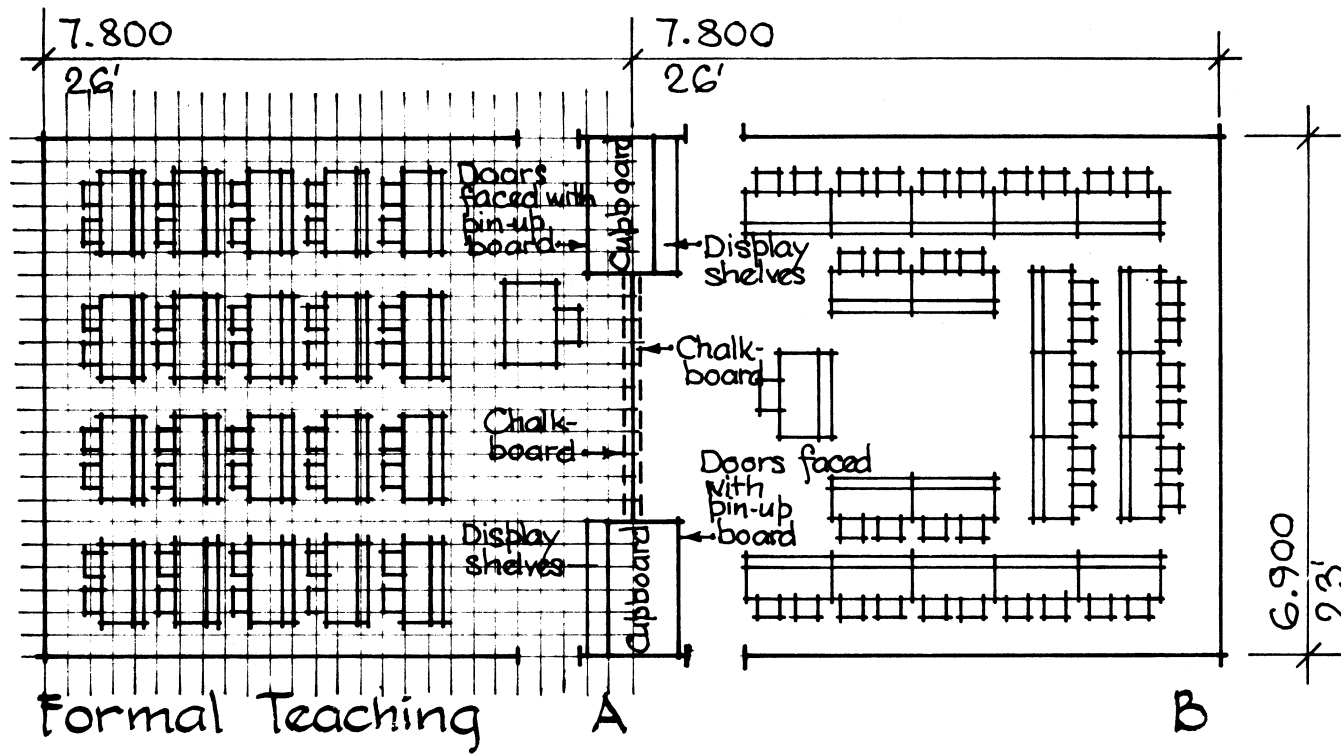
Preference 100mm

This diagram is taken from reference 7 with additions, such as reference to vents which would be applicable in the Caribbean. Heights are additionally shown in modules (M) so that they can be assessed in feet & inches as well as in metric dimensions
M = 100mm or 4 inches



SCHOOL BUILDINGS

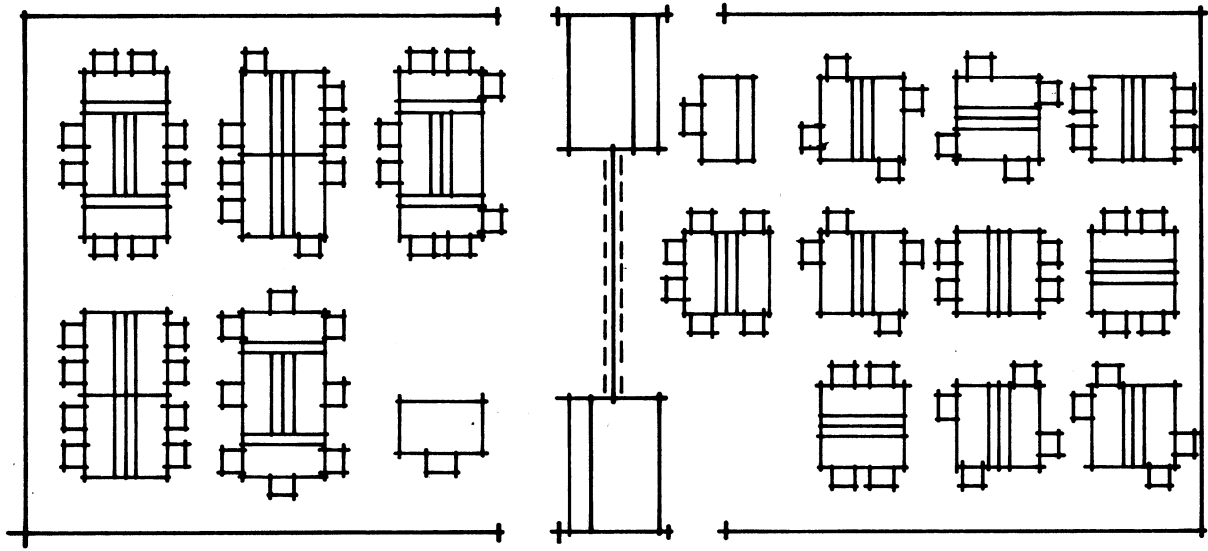
4



Formal Teaching

A

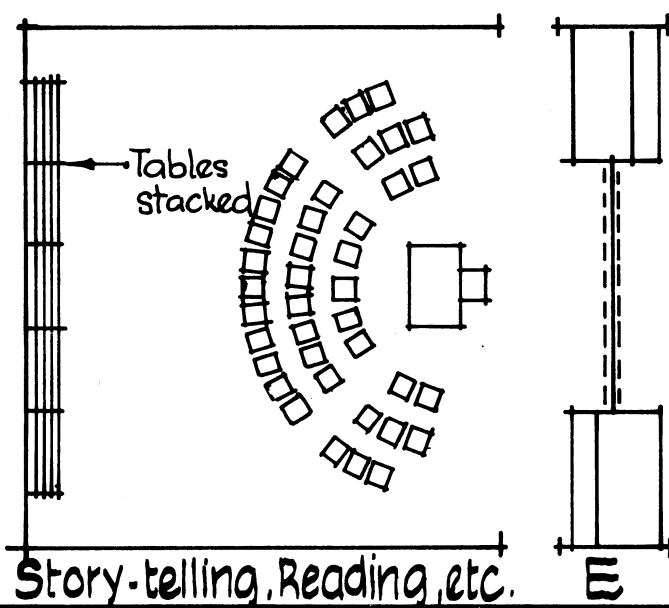
B



Group Working

C

D



Story-telling, Reading, etc.

E

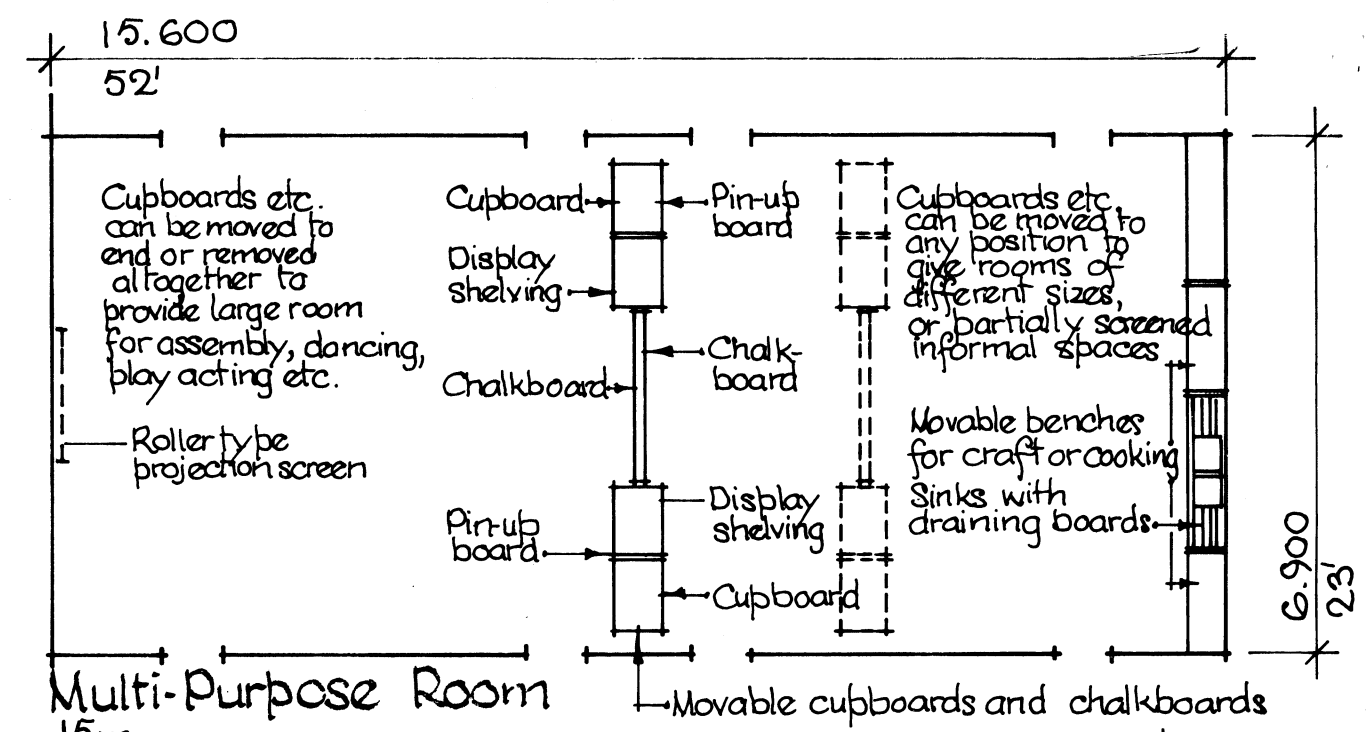
Standard Classroom

6.900 x 7.800 = 53.82 m²
 23' x 26' = 598 ft²
 with 40 pupils: 1.34 m² } per pupil
 15 ft² }

Note: Metric/Imperial equivalents are approx. as grid is taken as 300mm or 1 foot (actually 305mm = 1 foot)

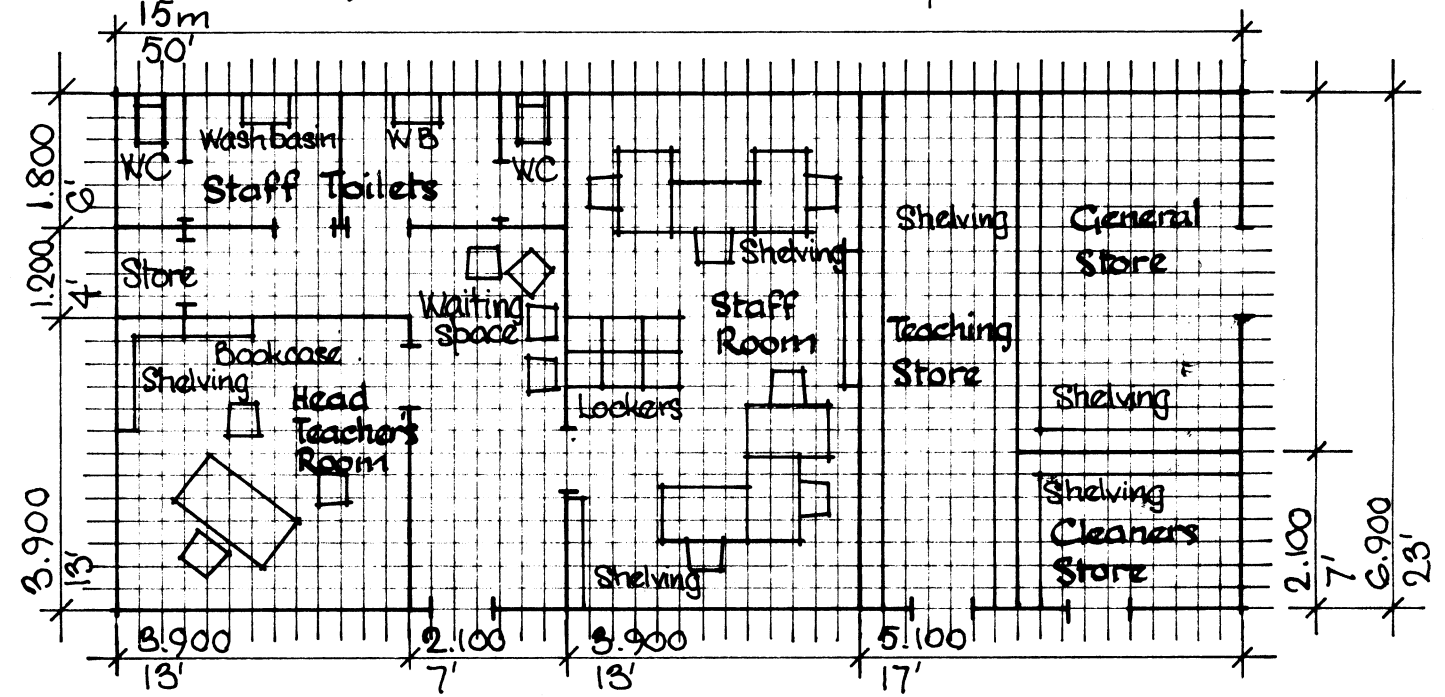
Possible arrangements of tables within teaching space

size of tables: pupils 1100 x 550mm (3'8" x 1'10"); teachers 1100 x 700 (3'8" x 2'4")



Multi-Purpose Room

Movable cupboards and chalkboards



Administration Block

Accommodation for 6 classroom primary school i.e. 240 pupils:

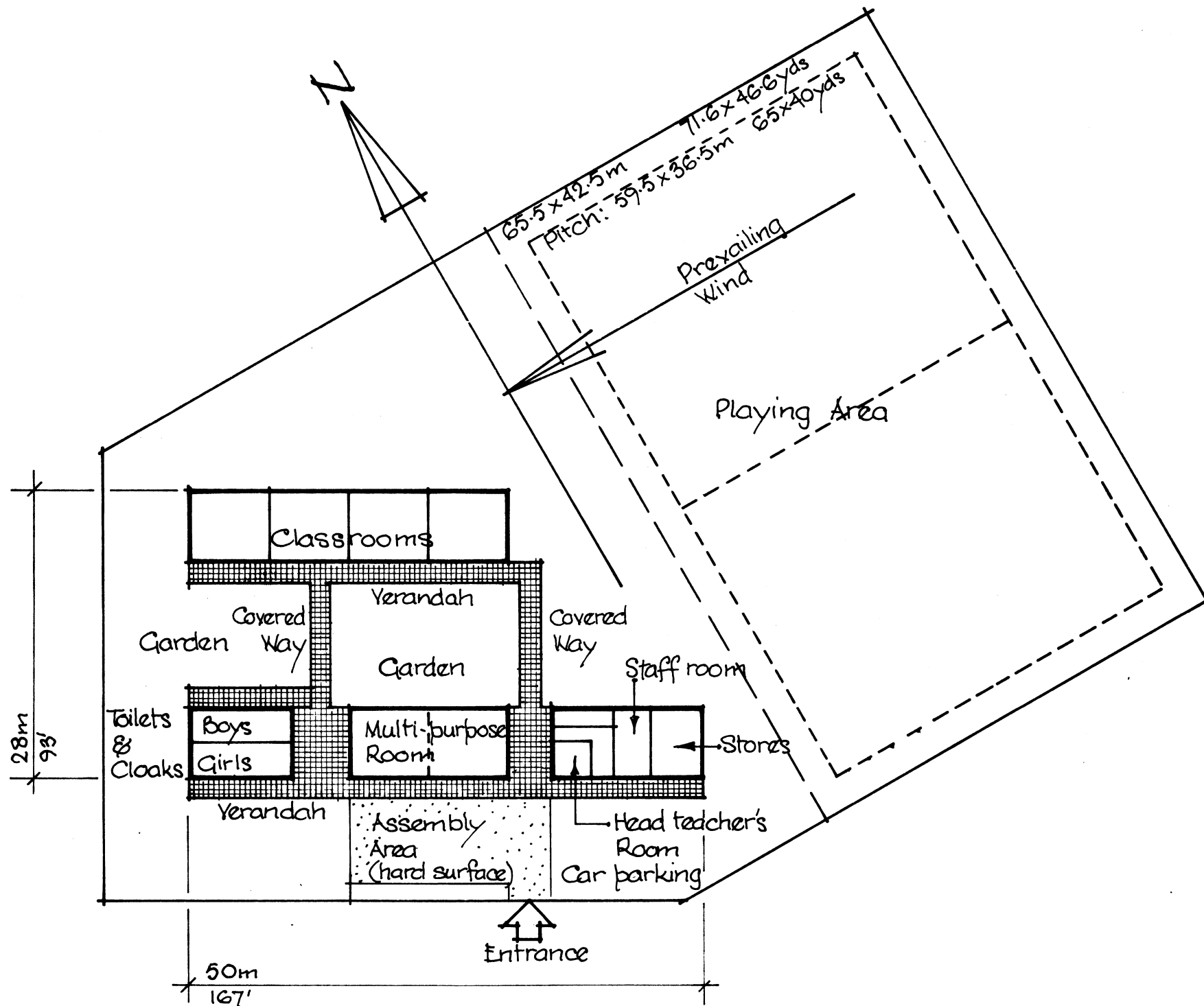
- 4 standard classrooms
- 1 multi-purpose room
- 1 administration block
- Toilets to scale

these can be linked or joined to suit site conditions: i.e. contours, trees, wind, boulders, sun. Level area should be reserved for play & games area

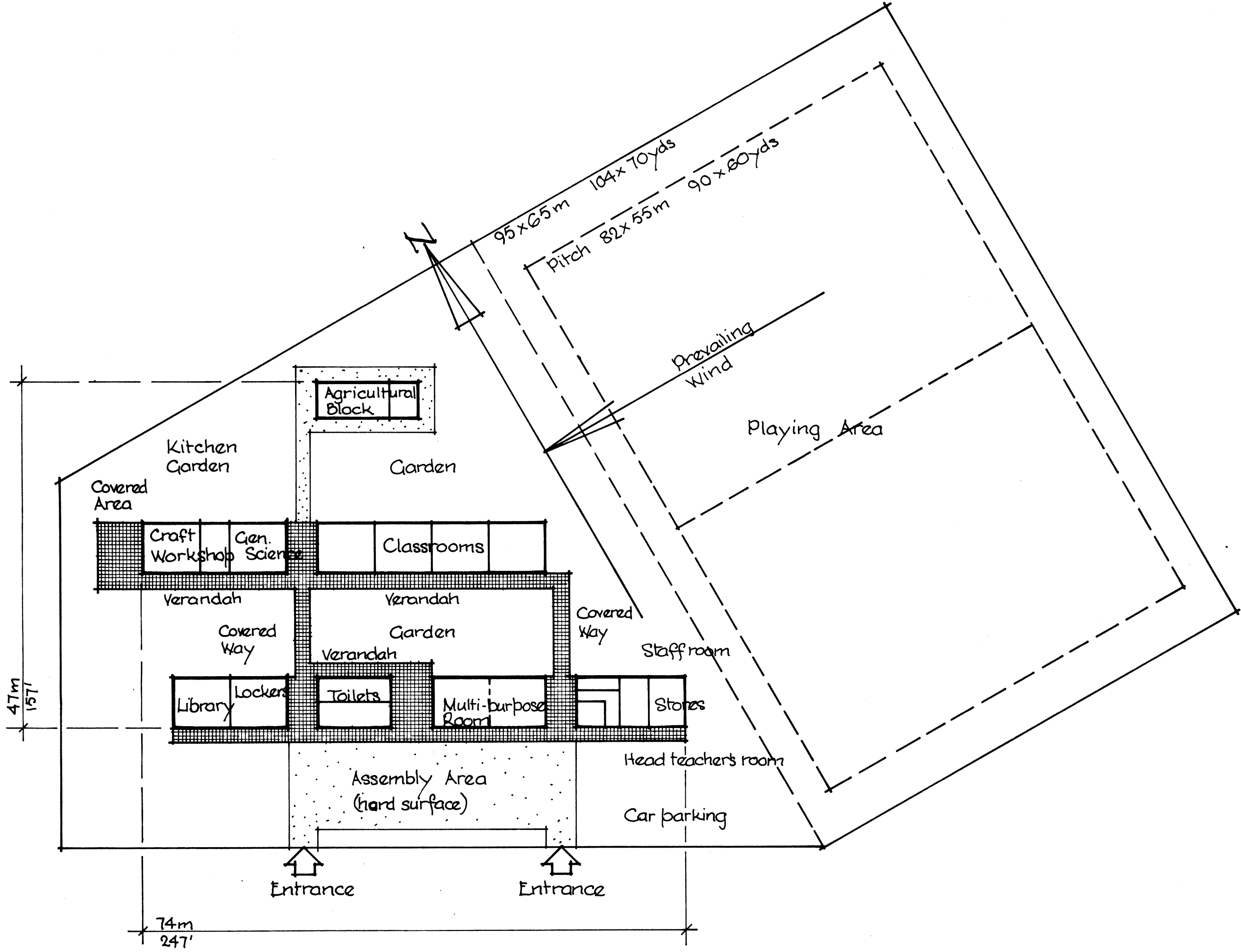
Scale 1:100

Note:

Actual layout and position of playing area will depend on prevailing site conditions, see text.



Scale 1:500



Scale 1:500

MEDICAL BUILDINGS

5

5 MEDICAL BUILDINGS

5.1 Introduction

The design of hospitals is a highly specialised subject requiring detailed research and planning for each project with cooperation between designers, medical staff and administrators.

The Medical Architecture Research Unit of the Department of Environmental Design, Polytechnic of North London was commissioned by the Overseas Division of the Building Research Establishment, Department of the Environment, United Kingdom to make a study of Accommodation Standards for Medical Buildings. This has resulted in a 'World Survey'¹⁴, in which available information on accommodation provided in medical buildings throughout the world has been summarised and, where possible, compared. An attempt has been made to cover the entire range of health buildings from the smallest clinic to the highly sophisticated teaching hospital. A comprehensive bibliography is included.

For reasons expressed in the opening paragraph above it is intended to limit the scope of this document to clinics and health centres which can be a simple Nurse's Station or any of a variety of centres to a complex including dentistry, X-ray and even a theatre for minor operations with perhaps some overnight accommodation, depending on the size of the community it serves and the distance from, and communication with, a hospital.

In addition to reference 14 mentioned above, information has been obtained from the following references:

British Health Care and Technology, Health Centres	reference 15
Design Guide, Health Centres in Scotland	reference 16
Design Guide for Medical Buildings, University of Nairobi	reference 17

Plans of existing or proposed centres in the Islands of the Caribbean are copied from drawings supplied by the appropriate Public Works Departments. See Plate 501.

As with the Section on School Building, suggested detailed layouts and sizes for specific rooms are given followed by possible combinations of these rooms for various categories of centres depending on local requirements and the funds available.

5.2 General Notes

5.2.1 Areas shown in the following suggested details of accommodation are based on a grid of 300 mm (12 inches), ie to centres of partitions. Areas shown in reference 16 are from inside faces of partition walls and, though drawn on the same grid, are therefore somewhat lower.

5.2.2 Doors through which stretchers and/or beds have to pass should be 1100 mm (3' 6") wide, other doors need only be 800 mm (2' 8") wide. Double doors are not recommended except in places where they will remain open most of the time, as they are vulnerable to damage¹⁷. If a single leaf of 1100 mm is not favoured locally then a door of 1200 mm (4') should be used with one leaf of 450 mm (1' 6"), normally kept closed, together with a leaf of 750 mm (2' 6").

5.3 Patients' Waiting Area

5.3.1 Function

To provide waiting space for patients and accompanying relatives or friends.

5.3.2 Area

Based on an allowance of 1.40 m² (15 ft²) per person waiting, includes patients and companions.

Reference 16 quotes 'Separate waiting areas should be provided for each group of four consulting/examination rooms assuming 20 persons waiting. An additional area of 4 m² (43 ft²) is required for a receptionist. For one, two or three consulting/examination rooms assume 6 persons per room'. It is assumed there will be considerably more persons waiting per room in the type of centre under consideration in this document though the area could be augmented by an adjacent partly covered courtyard.

5.3.3 Relationship

Easy access to associated consulting/examination or treatment rooms though these rooms ideally should not open directly from the waiting area. In the larger centres treatment, radiodiagnostic, physiotherapy and chiropody rooms should each have an associated waiting area.

5.3.4 Furniture and equipment

Fixed

Doctor/Receptionist call system
Pin board for notices

Movable

Chairs
Low tables
Receptionist's table

5.4 Patients' lavatories

5.4.1 Function

As title

5.4.2 Area

Area shown for each toilet is 3.6 m² (40 ft²), including a WC cubicle of 1.8 m² (20 ft²) its preferred dimensions being 1.2 m (4') × 1.5 m (5') in order to permit a patient to be assisted.

Lavatories can be specifically earmarked for male and female patients if local opinion favours this.

5.4.3 Relationship

To be convenient to the waiting areas.

5.4.4 Furniture and equipment

Fixed

Coat hook
Hand rinse basin
Shelf
WC suite
Mirror
Toilet paper holder
Paper towel dispenser

Movable

Disposal bin
see Plate 502

5.5 Health Education Room

5.5.1 Function

For mothercraft instruction, health education, relaxation classes and, possibly, physiotherapy.

5.5.2 Area

28.8. m² (320 ft²).

5.5.3 Relationship

Should be easily accessible from the entrance area so that it may be used at times when other parts of the centre are closed.

5.5.4 Furniture and equipment

Fixed

High level storage (not over sink)

Melamine work top over low level storage

Stainless steel sink unit

Pin boards for notices

Paper towel dispenser

Movable

Chairs

Disposal bin

Tables

Mats

Movable chalkboard

Trolley or mat storage box with hinged top or front

See Plate 502

5.6 Health education store

5.6.1 Function

For storage of equipment and supplies of health education literature.

5.6.2 Area

8.10 m² (90 ft²)

5.6.3 Relationship

Opening of health education room with glazed panel for projection.

5.6.4 Furniture and equipment

Fixed

Adjustable shelving

Wall hooks

See Plate 502

5.7 Treatment room

5.7.1 Function

For the treatment of patients and for the storage of items required for such treatment, including drugs, lotions and disposable items. The room must be well ventilated, ie should preferably be on an outside wall but where this is not possible should have a mechanical ventilation system capable of providing at least six air changes per hour.

5.7.2 Area

17.50 m² (195 ft²).

5.7.3 Relationship

Associated with a waiting room area and convenient to the entrance for patients who attend for routine treatments without first having to see a doctor.

5.7.4 Furniture and equipment

Fixed

Coat hooks

High level storage (not over sink)

Melamine work top over low level storage

Shelving

Stainless steel sink with draining board and large bottle trap and wrist operated taps

Writing shelf

Dangerous drugs cupboard (there is a British Standard Specification No 2881-1969)

Mirror

Paper towel dispenser

Movable

Chairs

Couch steps

Disposal bins

2 equipment trolleys

Examination couch with couch cover dispenser

Lockable refrigerator for drugs (UK Dept of Health and Social Security have a specification)

Mobile examination lamp

Stool

See Plate 502

5.8 Treatment Disposal Room

5.8.1 Function

For the cleaning of trolleys and for the temporary storage of goods prior to their removal to the refuse disposal room.

5.8.2 Area

5.40 m² (60 ft²).

5.8.3 Relationship

Adjacent to treatment rooms

5.8.4 Furniture and equipment

Fixed

Shelf

Stainless steel sink with draining board

Paper towel dispenser

Movable

Mobile bag holders

Stapler

See Plate 503

5.9 Test Room

5.9.1 Function

To allow certain diagnostic tests to be carried out and to be a collecting point for specimens for a central laboratory.

5.9.2 Area

8 m² (9 ft²)

5.9.3 Relationship

To be near the treatment room

5.9.4 Furniture and equipment

Fixed

Fireclay sink and draining board

High and low level storage

Melamine work top

Paper towel dispenser

Movable

Disposal bin

See Plate 503

5.10 Clinette

5.10.1 Function

To obtain urine specimens

5.10.2 Area

2.7 m² (30 ft²)

5.10.3 Relationship

Communicating with test room via a hatch with doors on both sides.

5.10.4 Furniture and equipment

Fixed

Coat hook

Hand-rinse basin

Shelf

Urine specimen collector (or WC suite)

Shelf within hatch

Toilet paper holder

Paper towel dispenser

Movable

Disposal bin

See Plate 503

5.11 Chiropody Room

5.11.1 Function

For the treatment of foot conditions.

5.11.2 Area

13 m² (144 ft²)

5.11.3 Relationship

Convenient to its waiting area

5.11.4 Furniture and equipment

Fixed

Coat hooks

High and low level storage

Stainless steel sink with

drainer and wrist operated

taps

Paper towel dispenser

Fixed

Movable

Chair

Disposal bin

Filing cabinet

Small writing table

Stool

Waste paper bin

Movable

Chiropody chair with foot stool

Chiropody equipment trolley with lamp and drill

See Plate 503

5.12 Combined Consulting/Examination Room

5.12.1 Function

For interviewing, examining and treating patients some of whom may be accompanied by relatives.

The consulting/examination room has been the subject of operational study and experience in relation to both design and function. Future changes in clinical practice will involve the more frequent participation of the nurse, the presence of a colleague in training or specialist consultation in the room. The size of room suggested allows for this including access to both sides of the couch, room for undressing and for the presence of a relative.

Advantages to the patient of the combined consulting/examination room:

Delays and inconveniences of moving to another room are avoided

The interview, examination and treatment by the doctor can take place in one room

The patient is given the undivided attention of the doctor

The screened couch area provides more privacy than an unscreened couch in a room with a door leading off a corridor.

In audiometry and/or speech therapy are to be carried out in the centre then one consulting room should be treated acoustically: double openable windows, minimum space between glass should be 100 mm, acoustic tiles on the ceiling and wall to wall carpet.

5.12.2 Area

17 m² (195 ft²).

5.12.3 Relationship

Easily accessible from its waiting area and communicating with adjacent consulting/examination rooms.

5.12.4 Furniture and equipment

Fixed

Bracket for sphygmomanometer

Ceiling mounted curtain tracks (ground examination area)

Coat hooks
 High level storage (not above basin)
 Melamine work top over low level storage with two lockable drawers and two cupboards
 Wash hand basin with wrist operated taps
 Writing shelf
 Mirror
 Paper towel dispenser

Movable
 Chairs
 Dictating machine
 Disposal bin
 Equipment trolley
 Examination couch with couch cover dispenser
 Mobile examination lamp
 Swivel chair
 Single pedestal desk
 Steps
 Wastepaper bin
 Height scale
 Weighing machine

See Plate 504

5.13 Interview room

5.13.1 Function

For interviewing patients and relatives

5.13.2 Area

10 m² (110 ft²)

5.13.3 Relationship

Should be in close association with Consulting/examination rooms and have easy access from waiting room.

5.13.4 Furniture and equipment

Fixed	Movable
Coat hooks	Chairs
Wash hand basin	Disposal bin
Mirror	Table
Paper towel dispenser	Wastepaper bin

See Plate 504

5.14 Physiotherapy/Rehabilitation Room and Store

5.14.1 Function

For individual and group therapy

5.14.2 Area

Room: 48.6 m² (540 ft²)

Store: 8.0 m² (90 ft²)

5.14.3 Furniture and equipment

Fixed	Movable
Coat hooks	Bench seat
Non-slip floor	Chairs

Wall-bars
 Wash hand basin
 Paper towel dispenser

Couch steps
 Examination couch
 Disposal bin
 Stools
 Table
 Fixed bicycle
 Heat therapy equipment
 Parallel bars
 Steps (for exercises)
 Mobile mirror
 Mats

Store

Fixed
 Adjustable shelving
 Wall hooks

Movable
 Trolley or mats storage box

Note: The specialised equipment will need to be agreed for each centre. There may be special requirements for ceiling heights, floor loadings and ceiling and wall fixings depending upon the equipment specified for a particular centre. Windows, light fittings and clock should be protected.

See Plate 504

5.15 Physiotherapists' and/or Radiographers office/reception room

5.15.1 Function

For the reception of patients, for clerical duties associated with physiotherapy and radiography, for reporting on films and for the storage of current films.

5.15.2 Area

17.5 m² (195 ft²)

5.15.3 Relationship

Conveniently sited in relationship to the physiotherapy and radiodiagnostic rooms with the reception window overlooking the waiting area.

5.15.4 Furniture and equipment

Fixed	Movable
Coat hooks	Low cupboard
Double X-ray viewing box	Chairs
Reception window	Dictating machine
Work top with low level storage drawers and knee spaces	Filing cabinets
Mirror	Waste paper bins

See Plate 505

5.16 Radiodiagnostic Room

5.16.1 Function

To afford facilities for the radiological examination of patients, including dental examination where this is necessary.

5.16.2 Area

30 m² (336 ft²)

5.16.3 Relationship

Convenient to a waiting area. Patients coming to this room should not have to pass through a clinical area.

5.16.4 Furniture and equipment

Fixed	Movable
Wash hand basin	Disposal bin
Paper towel dispenser	Equipment trolley
	Cupboard with drawer
	Steps

Technical

The specialised equipment required will need to be agreed for each centre; it may include a dental radiodiagnostic unit.

The weight of the heaviest units may be in the order of:

Transformer	300 kg (660 lbs)
Control panel	300 kg (660 lbs)
Table	200 kg (440 lbs)
Top rail side thrust	75 kg (165 lbs)

A ceiling height of 3 m (9' 10") is required to accommodate the equipment.

Special electrical services are required for the radiodiagnostic equipment.

5.16.5 Protection from Radiation

Advice on protection against harmful radiation is contained in the British Standard 4094:Pt 2:1971. (Recommendations for Data on Shielding from Ionizing Radiation: Shielding from X-radiation.)

Protection standard for walls, ceilings and floors are dependent on relative position of X-ray rooms to other accommodation, distance of X-ray source from walls and wall thicknesses etc. Detailed advice should be sought from the manufacturer of the specific X-ray equipment to be installed.

See Plate 505

5.17 Changing cubicles

5.17.1 Function

To permit patients to undress and dress in privacy. The cubicles should be totally enclosed with doors at both ends, lockable from the inside on the corridor side and with adequate ventilation.

5.17.2 Area

2.16 m² (24 ft²).

5.17.3 Relationship

Communicating with both the radiodiagnostic room and the corridor or waiting area.

5.17.4 Furniture and equipment

Fixed
Coat hooks
Bench seat
Mirror

See Plate 505

5.18 Dark Room

5.18.1 Function

To provide facilities for loading and unloading cassettes and processing exposed films.

5.18.2 Area

10 m² (112 ft²)

5.18.3 Relationship

Communicating with the radiodiagnostic room and connected to it by a cassette hatch.

5.18.4 Furniture and equipment

Fixed

Film draining rack above sink
Film hanger brackets 1.8 m (6 ft) above floor
Film marker let into work top
Processing unit
Sink unit (fireclay) with cupboard under drainer
Viewing box 1.35 m (4' 6") above floor
Work top with cassette storage and film hopper below
Paper towel dispenser

Movable

Disposal bin
Drying cabinet
Film storage bin

5.18.5 Special requirements

Light excluding door at entrance
Impervious floor
Extract fan with light-proof protection
Safe lighting on ceiling and wall with precautions to secure against inadvertent switching on of normal lighting
Plumbing must be of a material impervious to chemicals used in processing.

See Plate 505

5.19 Dental Surgery

5.19.1 Function

For dental treatment. It is recommended that there should be three surgeries for every two dentists practising in the centre.

5.19.2 Area

17.5 m² (195 ft²)

5.19.3 Relationship

Convenient to a waiting area and recovery room. Surgeries should be grouped in multiples of three and should intercommunicate. The entrance doors to the surgeries should not open directly off a waiting room

5.19.4 Furniture and equipment

Fixed

Low level lockable storage
Wash hand basin sited on the right side of the chair and serviced by hot and cold water with a mixing valve and wrist action control
Combined sink and drainer on left side

5.19.4 Furniture and equipment (cont'd)

Fixed (cont'd)

Lockable cupboard for scheduled poisons
Paper towel dispenser

Movable

Chairs
Desk
Disposal bin
Instrument trolley
Pedal operated waste bins
Dental equipment cabinet
One dental anaesthetic machine will be required per six dental surgeries
Small autoclave

Technical

Dental chair: the centre of the chair base should be 1.50 m (5 ft) from the window wall and central in the room. There must be adequate room around the dental chair for the surgeon and dental surgery assistant and sufficient space behind the chair when the back is in a horizontal position.

Fixed Dental Unit: to be at the left side of the chair with connections for water, waste, gas, electricity and compressed air. The position of the grouped services where they pass upwards from the floor depends upon the type of unit. The position should be at a point 400-450 mm (16-18 inches) from the centre of the chair towards the window and from that point 400-450 mm (16-18 inches) to the left.

Typical weights to be taken as a guide for calculating floor loadings:

Chair: 165.1-203.2 kg (3¼-4 cwts)

Unit: 50.8 kg (1 cwt)

The bracket arm of the unit may project 1800 mm (6 ft) from its centre thus exerting a considerable bending moment and calling for a firm floor fixing.

See Plate 506

5.20 Recovery Room

5.20.1 Function

For the recovery of patients after anaesthesia or treatment. It should have a curtained couch cubicle and a sitting area.

5.20.2 Area

11.88 m² (132 ft²)

5.20.3 Relationship

Convenient to dental surgeries

5.20.4 Furniture and equipment

Fixed

Coat hooks
Ceiling mounted curtain track
Low level storage with worktop
Wash-hand basin
Mirror
Paper towel dispenser

5.20.4 Furniture and equipment (cont'd)

Movable

Disposal bin
Recovery couch
Easy chairs

See Plate 506

5.21 Dental Laboratory

5.21.1 Function

For the making of prosthetic and orthodontic appliances, dental splints, inlays, crowns, bridges and other items relating to dental treatment.

This type of laboratory is required where commercial facilities are not available.

5.21.2 Area

Should be based on 28 m² (300 ft²) for one or two technicians and 3.7 m² (40 ft²) for each additional technician. The laboratory should be partitioned to provide within the total area a 7.5 m² (80 ft²) bay for plaster work and polishing and 7.5 m² bay for casting and processing.

5.21.3 Relationship

Convenient to dental surgeries and convenient to service and staff entrance/exit for the reception of bulk stores and for the disposal of waste.

5.21.4 Furniture and equipment

Fixed

Bulk material storage for plaster and denture materials
Coat hooks
Cupboard with adjustable shelves
High level storage
Technicians' bench with melamine top and bench bins

Plaster Bay

Double sink with trap to collect plaster and wax
Duckboard (movable) or Grating (fixed)
Dust and fume extract
Melamine work top with waste hole and bin below
Plaster trough
Compressed air supply
Bottled gas supply (movable)

Casting Bay

Dust and fume extract
Melamine work top
Compressed air supply
Bottled gas supply (movable)
Screens around casting and polishing bays
Paper towel dispenser

Movable

Disposal bins
Acid resistant trays
Bench-top acrylic resin water bath
Bench-top mechanical model trimmer
Technicians' chairs

See Plate 506

5.22 Dental Workroom

5.22.1 Function

Where there is no dental laboratory in the centre a dental workroom will be required for laboratory work which will be carried out by the dental surgeons. One workroom should be provided for every four dentists.

5.22.2 Area

9.72 m² (108 ft²)

5.22.3 Relationship

Convenient to dental surgeries

5.22.4 Furniture and equipment

Fixed

Coat hooks

High and low storage

Melamine worktop

Plaster bench with melamine top, waste hole and bin below and inset sink

Technicians' bench with melamine top and bench pin

Wash-hand basin

Dust and fume extract

Paper towel dispenser

Movable

Bottled gas supply

Disposal bin

See Plate 506

5.23 Dispensary

5.23.1 Function

The storage, dispensing and issuing of medicines.

A dispensary is not included in reference 16, as in the UK it is customary to take the prescription given by the doctor to a chemist shop which provides a dispensing service.

A suggested layout for a dispensary is included as it is assumed this would be required in most, if not all, clinics and health centres in the Islands of the Caribbean.

5.23.2 Area

10.53 m² (117 ft²)

5.23.3 Relationship

Convenient to the patients' waiting space and the entrance

5.23.4 Furniture and equipment

Fixed

Coat hooks

High level storage

Melamine worktop with low level storage below

Stainless steel sink and drainer

Dangerous drugs cupboard

Writing shelf

Paper towel dispenser

Pinboard

Hatch to waiting space or corridor

5.23.4 Furniture and equipment (cont'd)

Movable

Refrigerator

Disposal bin

Stool

See Plate 507

5.24 District Nurse/Midwife's House

5.24.1 Function

The Revised Standard Health Centre for St Lucia, see Plate 501, includes living accommodation which it is assumed is for a resident nurse. It is considered that for the smaller clinic or health centre this is desirable. The plan shown in this document is adapted from the St Lucia one.

5.24.2 Area

57.42 m² (638 ft²)

5.24.3 Relationship

Either attached, or in close proximity, to the centre.

5.24.4 Furniture and equipment

Fixed

Sink and drainer with storage under

Worktop with storage under

High level storage

Built-in wardrobe

Bath

WC suite

Wash-hand basin

Airing cupboard with hot water cylinder and electric immersion heater.

Movable

Refrigerator

Cooker

5.25 Basic Clinic

See Plate 507 for suggested accommodation schedule and plan for a Basic Clinic based on an analysis of the average accommodation required as shown on Plate 501.

See Plate 507

5.26 Health Centres

See Plate 508 for suggested accommodation schedule and plan for a Health Centre

5.27 Larger Health Centres

Suggested accommodation schedules and plans for larger Health Centres are not provided. They may include any combination of the units detailed in this document such as Radiodiagnostic Room and Physiotherapy Room. Each project would require a design team as mentioned in para 5.1 and it is hoped that this document will provide some guidance.

In the UK, operating facilities are not normally provided in clinics or health centres as it is more economical to provide operating suites, of a minimum of four theatres to each suite, in hospitals.

5.27 Larger Health Centres (cont'd)

In the Caribbean, where access to a fully equipped hospital is not always as convenient, it may be a requirement to include this facility at a centre together with some overnight accommodation. Paragraph 5.28 gives some information on planning and suggested layout for a minimum theatre suite and 5.29 details for accompanying ward accommodation.

5.28 Operating Theatre Suite

5.28.1 Function

To provide facilities for minor surgical operations to avoid the necessity of sending patients long distances to a hospital for such treatment and, on occasion, to enable work of a more serious kind to be undertaken in an emergency when time is of the essence.

5.28.2 Area	m ²	ft ²
Theatre	30.72	332
Ante Room	8.91	96
Staff Changing Room	12.87	139
Theatre Sterile Supply Unit	11.88	128
Disposal and Cleaning Room	9.9	107

5.28.3 Relationship

Together with some ward accommodation the Theatre Suite could be a separate wing of the centre but within reasonable reach of the X-ray department. Within the suite the relationship of the rooms is such to ensure that the theatre is divided into a sterile zone at the foot end of the operating table and an unsterile zone at the other end. This is not a precise demarcation but indicates the kind of activities permitted in the different parts of the room. It concerns the movements linking with the ancillary rooms as much as the activities within the theatre.

In the unsterile zone the anaesthetist and the theatre assistant can move freely without interfering with the operation. The patients' entrance and the access to Disposal and Cleaning Room should be at this end of the Theatre to prevent unsterile items and persons passing through the sterile zone. The surgeon and theatre nurse operate in the sterile zone and access from the Sterile Supply Unit and from the Staff Changing and Scrub-up should be located in this half of the theatre¹⁷.

5.28.3.1 Ante Room: a lobby immediately adjacent to the theatre where the patient can be prepared and wait for admission to the theatre. It should be of a size to allow the parking of an incoming patient and the removal of the ward blankets whilst an outgoing patient may pass.

5.28.3.2 Changing and Scrub-up Room: if nearby changing rooms are available this could be omitted and scrub-up facilities provided within the theatre.

As shown on the plan, Plate 509, the shower has two adjacent changing rooms; this is suitable if the timing can be so arranged that male and female can change separately. If not, lockable doors should be used rather than curtains and, if the theatre is to be used extensively, the room should be increased in size to give separate male and female changing and showers.

A window is provided so that the surgeon can see the patient on the operating table while he is scrubbing-up. Scrub-up basins should be mounted at a height, 1 m (3' 3") from floor to rim, to avoid stooping. The taps high

5.28.3.2 (cont'd)

enough above the basins, 1.4 m (4' 6") above the floor, to ensure that both hands and elbows can be kept above the basin with the hands always higher than the elbows¹⁷.

5.28.3.3 Disposal and Cleaning Room together with Theatre Sterile Supply Unit: as this operating suite is to be independent of other hospital facilities, such as central sterilising plant, this room is indispensable. Its working is self explanatory on the drawing.

5.28.4 Furniture and equipment

5.28.4.1 Theatre

Fixed

Operating table

Scalytic operating lamp fixed to ceiling and movable in all directions

Screen for viewing X-rays (2 Plates)

Clock

Movable (to be brought in)

X-ray apparatus

Instrument trolleys

Diathermy apparatus

Swab rack

Containers for used swabs and soiled instruments

Anaesthetist's trolley

5.28.4.2 Ante Room

Fixed

Sink and drainer

High level cupboard, space below for storing special gas cylinders

Paper towel dispenser

Movable

Disposal bin

(to be brought in)

Patients trolley

Anaesthetist's trolley

5.28.4.3 Changing and Scrub-up Room

Fixed

Coat hooks

Shoe rail

Shower

Seats

Two splash-screened scrub-up stalls or basins

Glazed panel between scrub-up and theatre

Writing shelf

Mirror

Paper towel dispenser (cleaning up after operation)

Movable

Two chairs

Disposal bin

5.28.4.4 Disposal and Cleaning Room

Fixed

Coat hooks
Sink and drainers
Worktop with storage under
High level shelving
Paper towel dispenser

Movable

Disposal bins
Containers for soiled linen

(to be brought in)
Instrument trolleys

5.28.4.5 Theatre Sterile Supply Unit

Fixed

Sink and drainers
Steriliser
Worktop with storage below
High level storage
Heated cupboard for sterile water
Glazed screen
Paper towel dispenser

Movable

Disposal bin

(to be brought in)
Instrument trolleys

Reference Nos 17 and 18. See Plate 509.

5.29 Ward Accommodation

5.29.1 Function

To provide short term bed accommodation with necessary ancillary rooms so that, when considered desirable, patients may be kept under observation for a few days, or post operative care be given to patients not sufficiently seriously ill to require full hospitalisation or, in an emergency, too seriously ill to be moved to a hospital some considerable distance away

5.29.2 Area		m ²	ft ²
Wards:	4-bed	28.08	312
	2-bed	12.87	143
	1-bed	9.36	104
Total	7-bed	50.31	559
Average per bed		7.19	80
Toilets		9.72	108
Duty Room		8.64	96
Sluice Room		5.04	56
Kitchen		6.93	77
Corridor and Stores		16.56	184

5.29.3 Relationship

As mentioned in para 5.28.3 this block can, together with the Operating Suite, form a separate wing of the Centre but should be within reasonable reach of all its facilities.

5.29.3.1 Wards: it is suggested that wards should be provided as 4-bed, 2-bed and 1-bed to give flexibility of use. The 4 or 2-bed being male or female depending on the number of each sex requiring beds at one time. Again, the single room can be used for patients of either sex, it can also be used for an isolation case, a seriously ill patient or a VIP.

5.29.3.2 Toilets: one toilet opens from each of the 4 and 2-bed wards thus allowing for male and female.

5.29.3.3 Duty Room: is positioned to allow duty nurse to see into the main ward from her desk and to keep an eye on the patient in the single ward.

5.29.3.4 Sluice Room: reasonably convenient to all wards.

5.29.3.5 Kitchen: reasonably convenient to all wards and to entrance to block. To provide three meals a day for up to seven patients and two staff, ie duty nurse and cook. If the kitchen has to provide in addition meals for the staff of a fairly large health centre and/or clinic it will need to be considerably larger, will need food stores in addition to the cupboard storage, staff rest room/dining room and staff toilets.

5.29.4 Furniture and equipment

5.29.4.1 Wards, 4-bed and 2-bed:

Fixed

Coat hooks
Ceiling mounted curtain tracks, for hanging curtains to allow screening bed places
Call system from each bed place to duty room

Movable

Beds
Patients' lockers
Tables
Chairs

5.29.4.2 Ward, 1-bed:

Fixed

Coat hooks
Wash-hand basin
Mirror
Call system from bed place to duty room

Movable

Bed
Locker
Table
Chair

5.29.4.3 Toilets

Fixed

Coat hooks
WC suite
Toilet paper holder
Shower
Fixed seat
Curtains
Wash hand basin
Mirror

Movable

Disposal bin

5.29.4.4 Duty Room

Fixed

Coat hooks
Desk
Sink and drainer
Melamine working top with storage under
High level shelves
Glazed panel to wards on each side
Paper towel dispenser

Movable

Chair

Semi-easy chair

Disposal bin

5.29.4.5 Sluice Room

Fixed

Sink and drainer
Work top with storage below
High level storage
Sluice or bed-pan washing machine
Paper towel dispenser

Movable

Disposal bin

5.29.4.6 Kitchen

Fixed

Coat hooks
Sink and drainers
Melamine working top with storage under
High level storage
Cooker hood with extract fan
Paper towel dispenser

Movable

Cooker, electric or bottle gas

) Large domestic size

) should be adequate

Refrigerator and freezer cabinet

) for 9 persons

Disposal bin

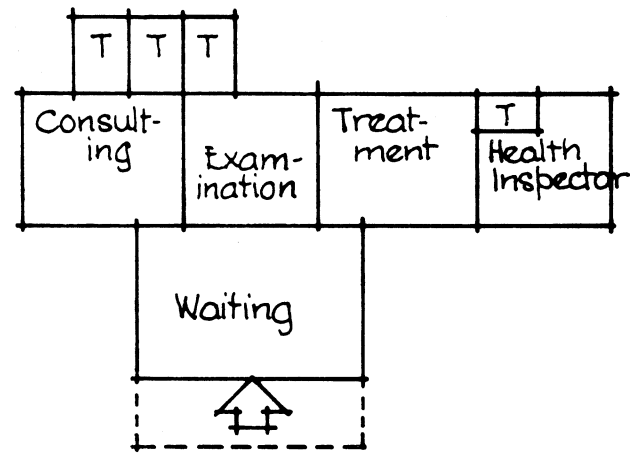
5.29.4.7 Storage Cupboards

Fixed

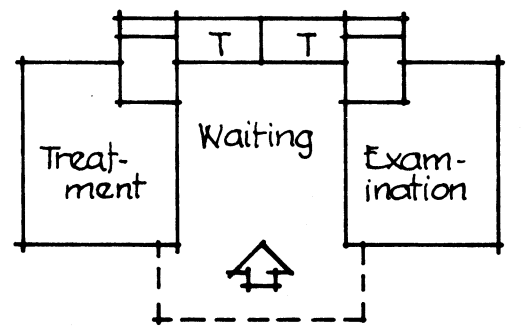
Shelving

Water storage cylinder with electric immersion heater (preferably properly insulated such as 'Sadia') unless central hot water boiler is provided in the Centre.

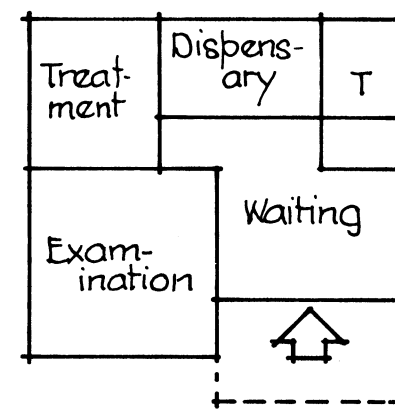
See Plate 510



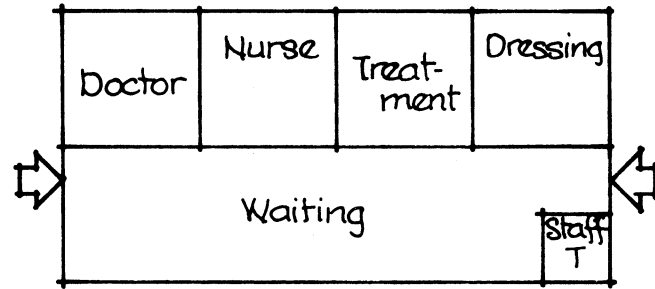
Proposed modernisation of Clinic Health Centre St Kitts February 1975



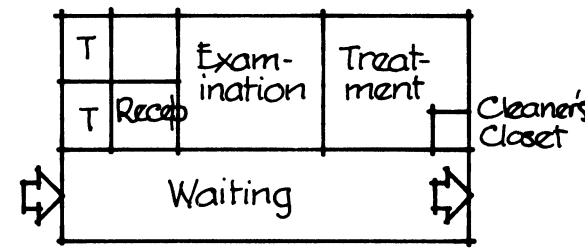
Proposed Health Centre Cane Garden Bay Tortola BVI



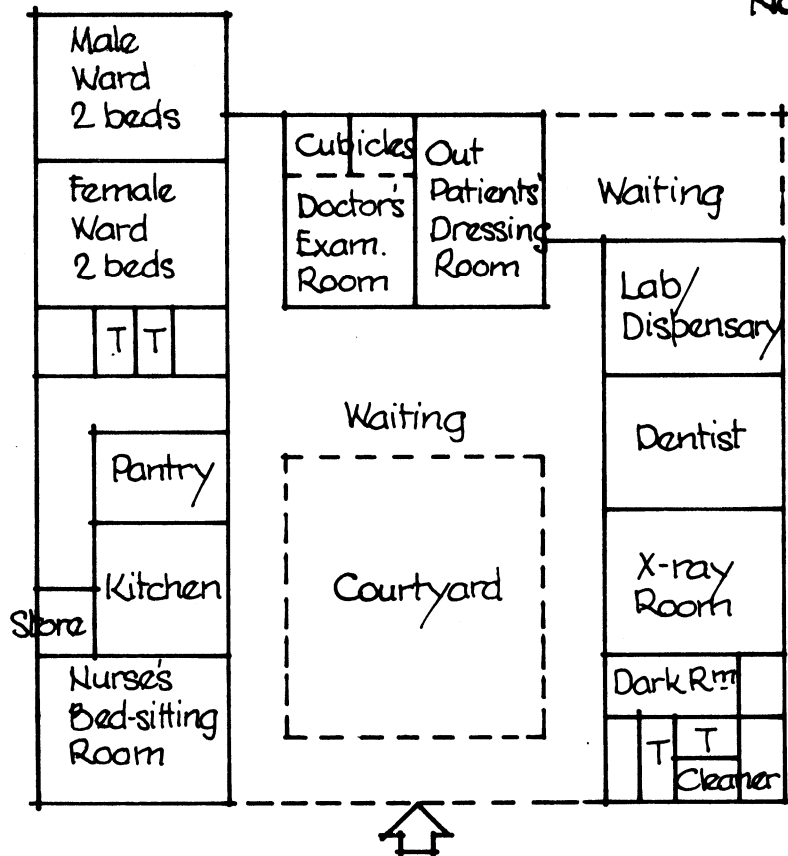
Proposed Clinic Anegada BVI



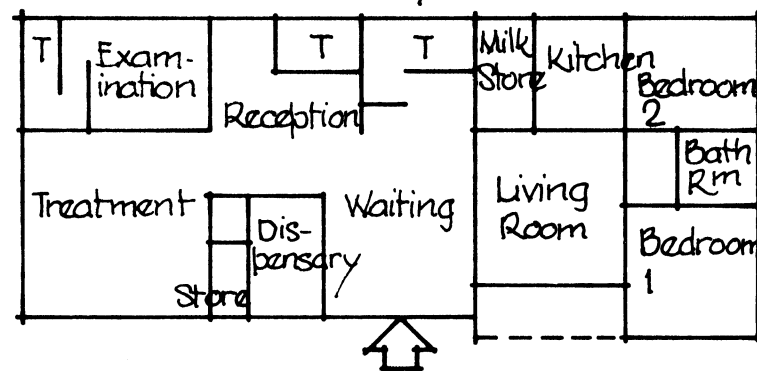
Health Centre Grand Bras St Andrews Grenada November 1968



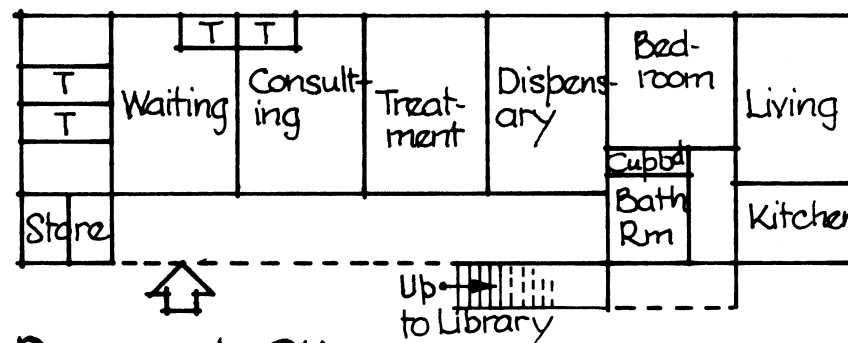
Proposed Clinic West Bay Cayman Islands



Design for a Clinic Virgin Gorda Alfie Franco ARIBA July 1970



Revised Standard Health Centre St Lucia



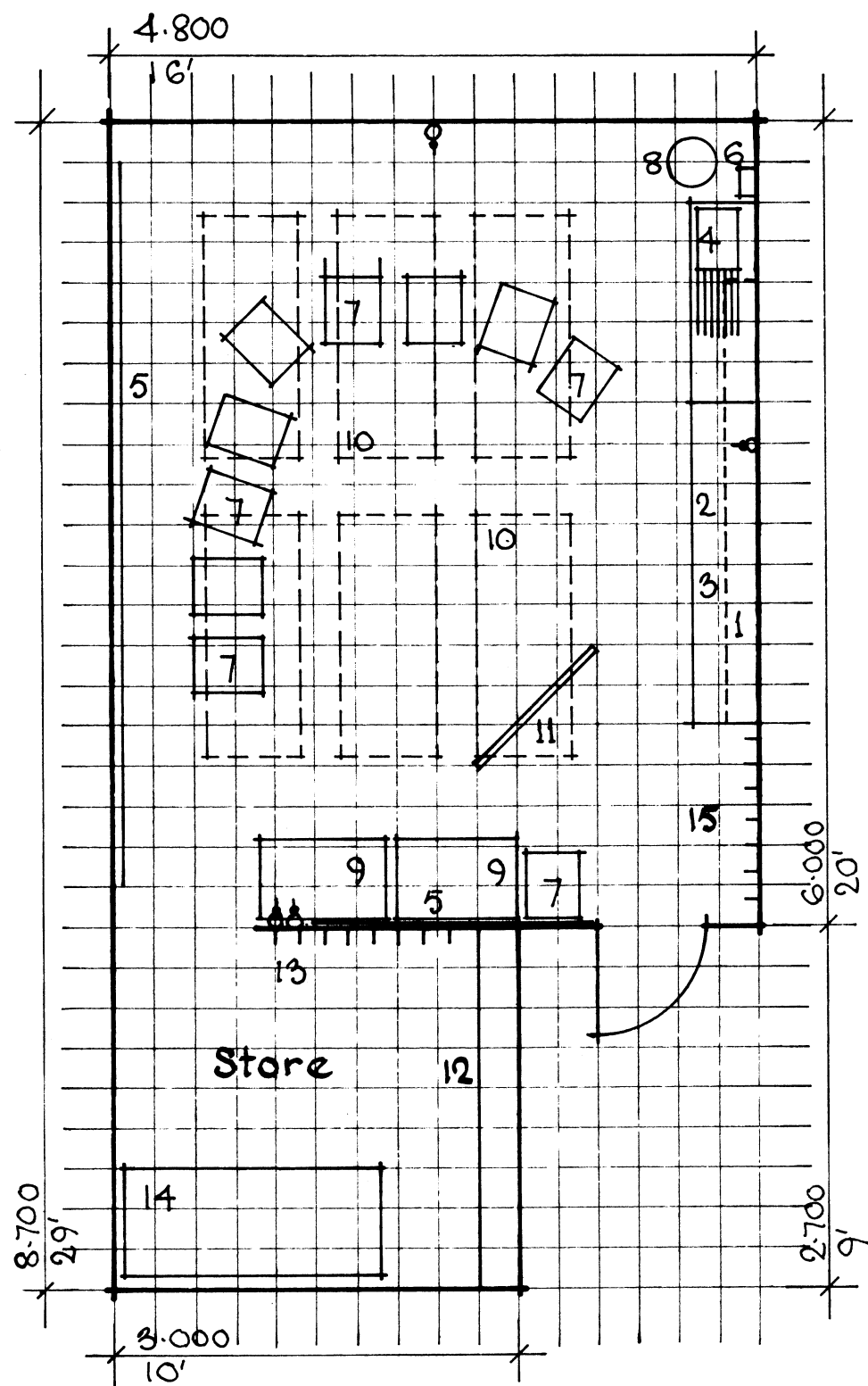
Proposed Clinic Hometown St James Barbados July 1968

Notes:

These sketches are taken from drawings provided by relevant PWDs and show the type of accommodation that has been requested in the past

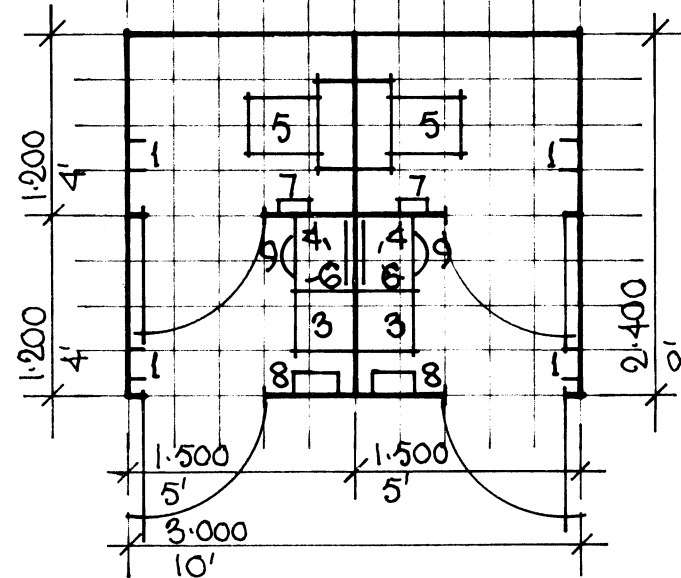
T Toilets

Scale 1:200



Scale 1:50

Adapted from reference 16

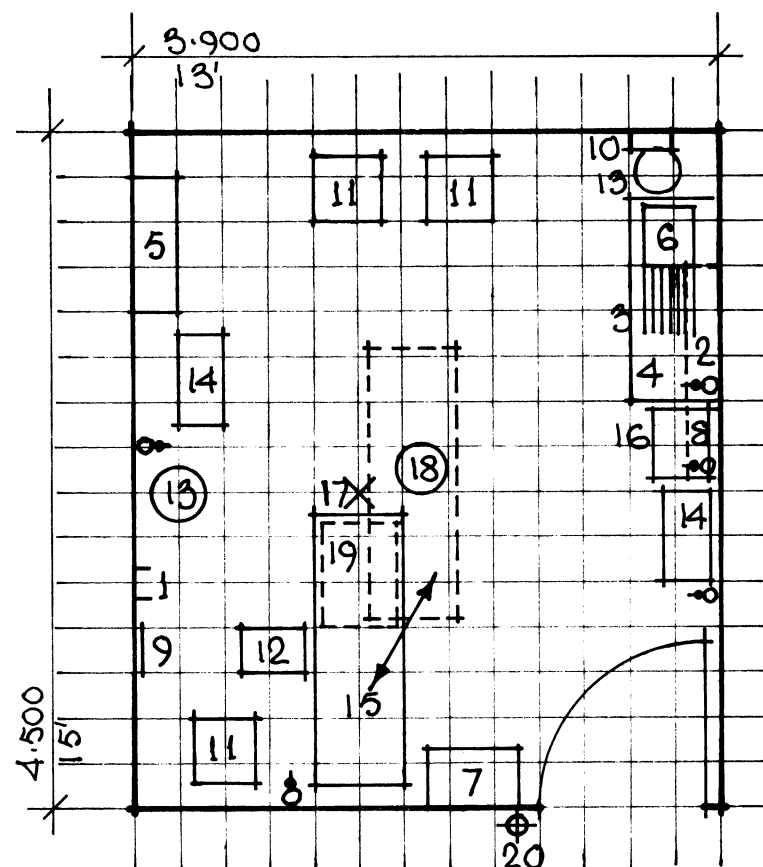


PATIENTS' TOILETS

- 1 Coat hooks
- 2 Disposal bin
- 3 Handrinse basin
- 4 Shelf
- 5 W/C pedestal
- 6 Mirror
- 7 Toilet-paper holder
- 8 Paper-towel dispenser

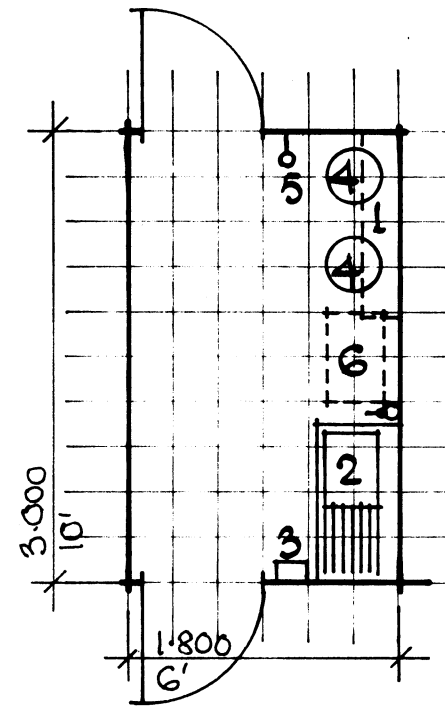
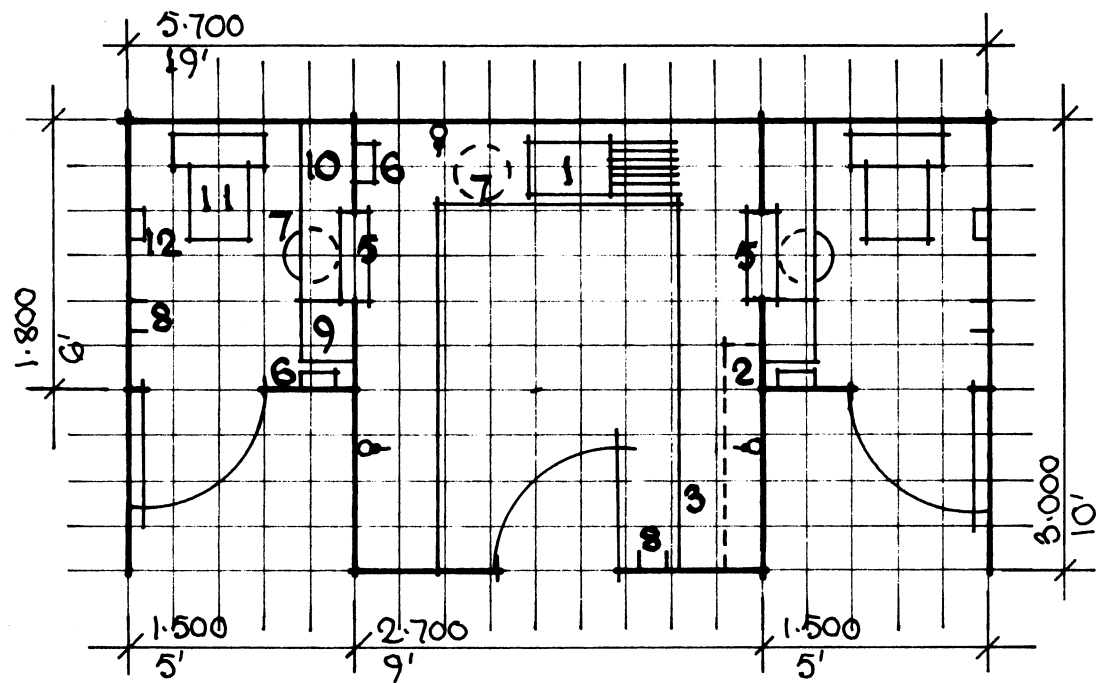
HEALTH EDUCATION ROOM & STORE

- 1 High level storage
- 2 Worktop
- 3 Low-level storage
- 4 Sink & drainer
- 5 Pinboard
- 6 Paper-towel dispenser
- 7 Chair
- 8 Disposal bin
- 9 Table
- 10 Mat
- 11 Mobile blackboard
- 12 Adjustable shelving
- 13 Wall hooks
- 14 Trolley or mat storage box
- 15 Coathooks



TREATMENT ROOM

- 1 Coat hooks
- 2 High level storage
- 3 Worktop
- 4 Low level storage
- 5 Shelving
- 6 Sink & drainer
- 7 Writing shelf
- 8 Dangerous Drugs cupboard
- 9 Mirror
- 10 Paper-towel dispenser
- 11 Chair
- 12 Couch steps
- 13 Disposal bin
- 14 Equipment trolley
- 15 Examination couch
- 16 Refrigerator
- 17 Mobile examination lamp
- 18 Stool
- 19 Couch-cover dispenser
- 20 Warning light

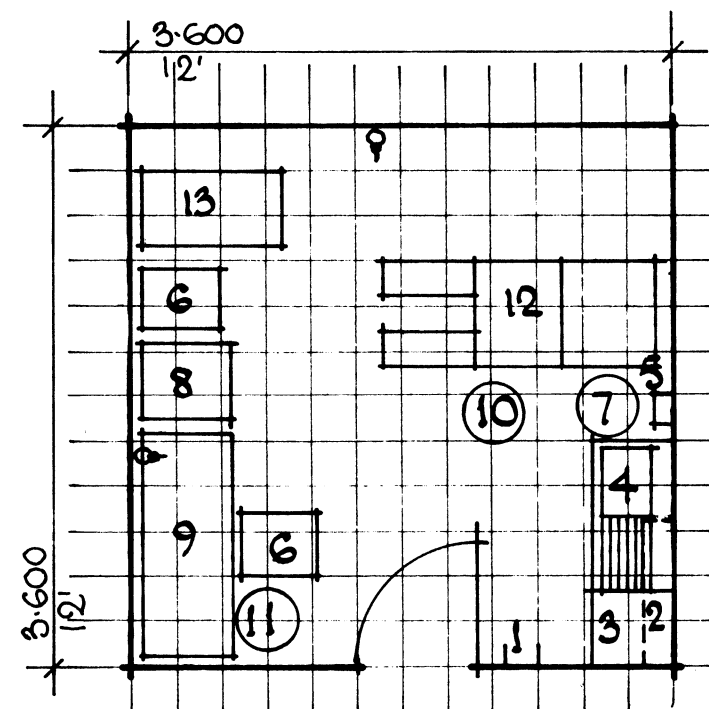


TREATMENT DISPOSAL ROOM

- 1 Shelf
- 2 Sink and drainer
- 3 Paper-towel dispenser
- 4 Mobile bag-holder
- 5 Stapler
- 6 Space for trolley

TEST ROOM/CLINETTE

- 1 Sink and drainer
- 2 High-level storage
- 3 Low-level storage
- 4 Worktop
- 5 Shelf within hatch
- 6 Paper-towel dispenser
- 7 Disposal bin
- 8 Coathooks
- 9 Handrinse basin
- 10 Shelf
- 11 Urine specimen collector (or W/C pedestal)
- 12 Toilet-paper holder

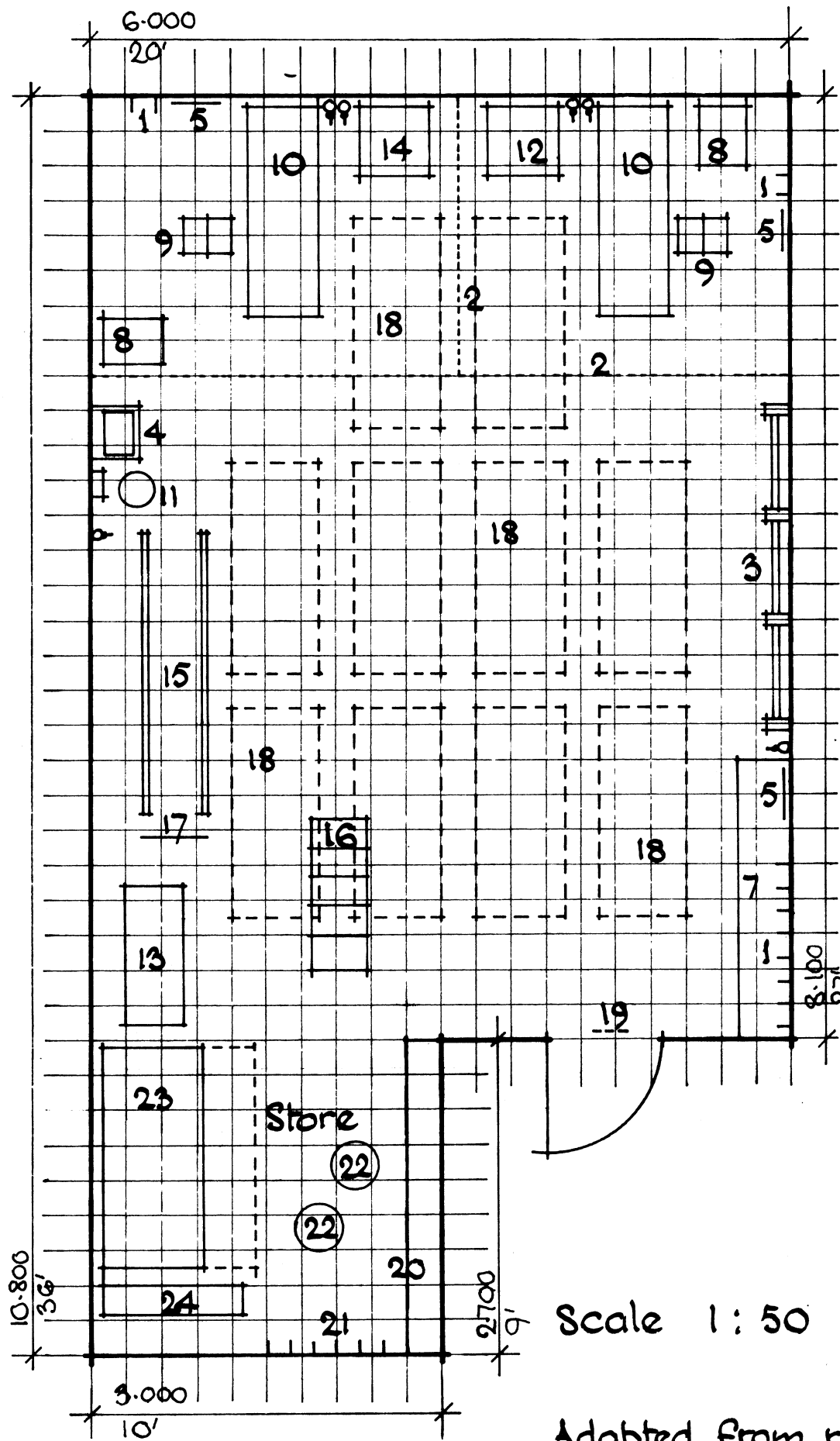


CHIROPODY ROOM

- 1 Coathooks
- 2 High-level storage
- 3 Low-level storage
- 4 Sink & drainer
- 5 Paper-towel dispenser
- 6 Chair
- 7 Disposal bin
- 8 Filing cabinet
- 9 Table
- 10 Stool
- 11 Waste-paper bin
- 12 Chiropody chair & footstool
- 13 Chiropody equipment trolley with lamp and drill

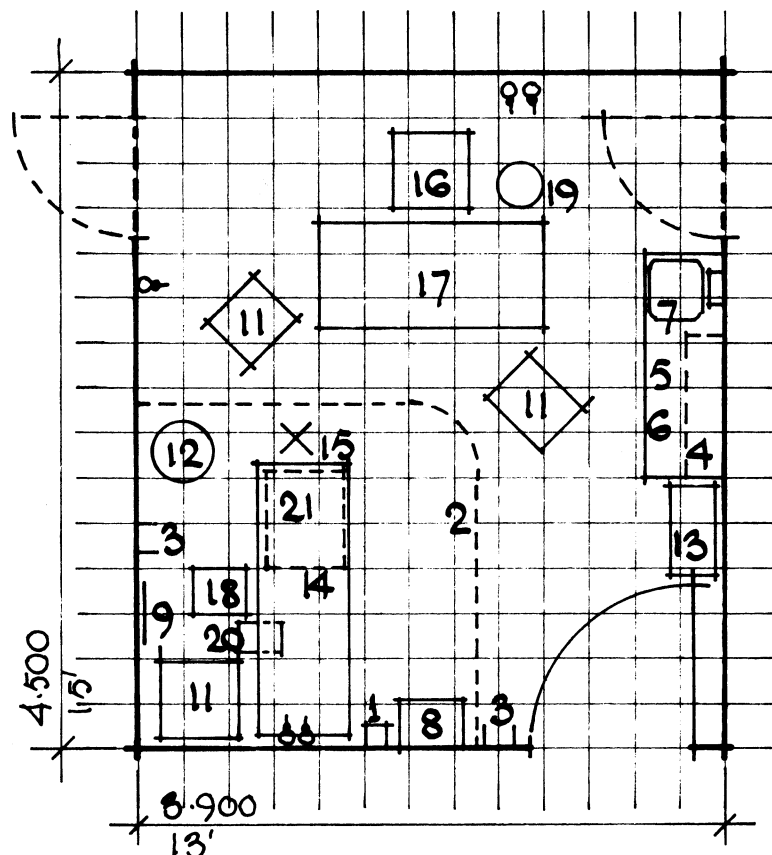
Scale 1:50

Adapted from reference 16



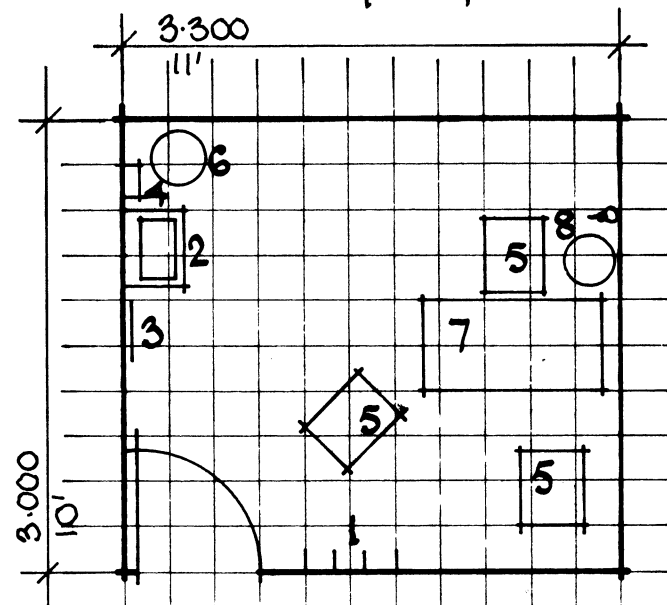
Scale 1:50

Adapted from reference 16



PHYSIOTHERAPY/REHABILITATION & STORE

- | | | | |
|----|---------------------------------|----|----------------------|
| 1 | Coathooks | 13 | Fixed bicycle |
| 2 | Ceiling suspended curtain track | 14 | Heat therapy |
| 3 | Wall bars | 15 | Parallel bars |
| 4 | Washhand basin | 16 | Exercise steps |
| 5 | Mirror | 17 | Mobile mirror |
| 6 | Paper-towel dispenser | 18 | Mat |
| 7 | Bench seat | 19 | Clock |
| 8 | Chair | 20 | Adjustable shelving |
| 9 | Couch steps | 21 | Wall hooks |
| 10 | Couch | 22 | Stool |
| 11 | Disposal bin | 23 | Trolley |
| 12 | Table | 24 | Space for wheelchair |

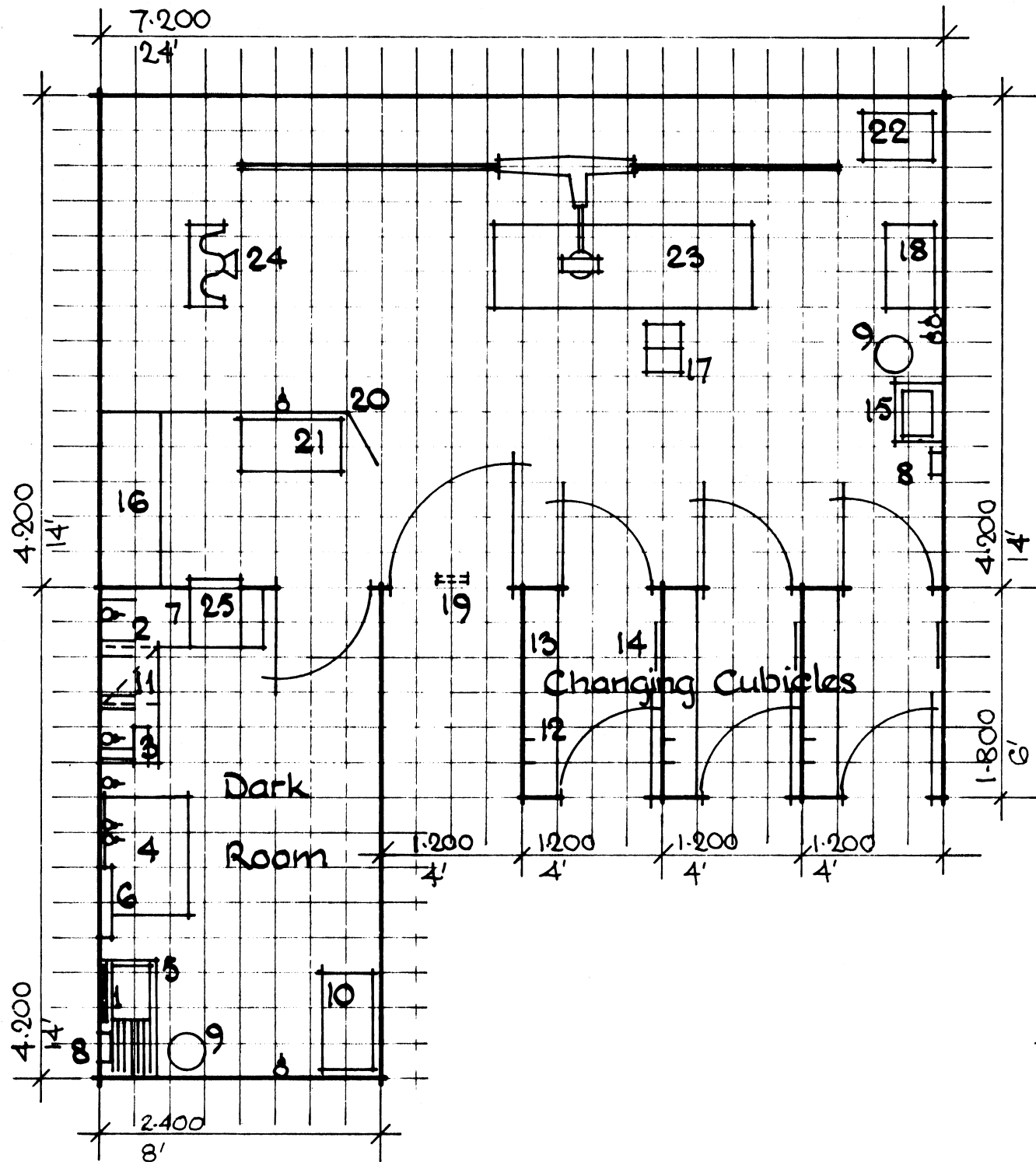


COMBINED CONSULTING/
EXAMINATION ROOM

- | | |
|----|-------------------------------|
| 1 | Bracket for sphygmomanometer |
| 2 | Ceiling mounted curtain track |
| 3 | Coat Hooks |
| 4 | High-level storage |
| 5 | Worktop |
| 6 | Low-level storage |
| 7 | Washhand basin |
| 8 | Writing shelf |
| 9 | Mirror |
| 10 | Paper-towel dispenser |
| 11 | Chair |
| 12 | Disposal bin |
| 13 | Equipment trolley |
| 14 | Examination couch |
| 15 | Mobile examination lamp |
| 16 | Swivel chair |
| 17 | Desk |
| 18 | Couch steps |
| 19 | Waste-paper bin |
| 20 | Scales |
| 21 | Couch-cover dispenser |

INTERVIEW ROOM

- | | |
|---|-----------------------|
| 1 | Coathooks |
| 2 | Washhand basin |
| 3 | Mirror |
| 4 | Paper-towel dispenser |
| 5 | Chair |
| 6 | Disposal bin |
| 7 | Table |
| 8 | Waste-paper bin |

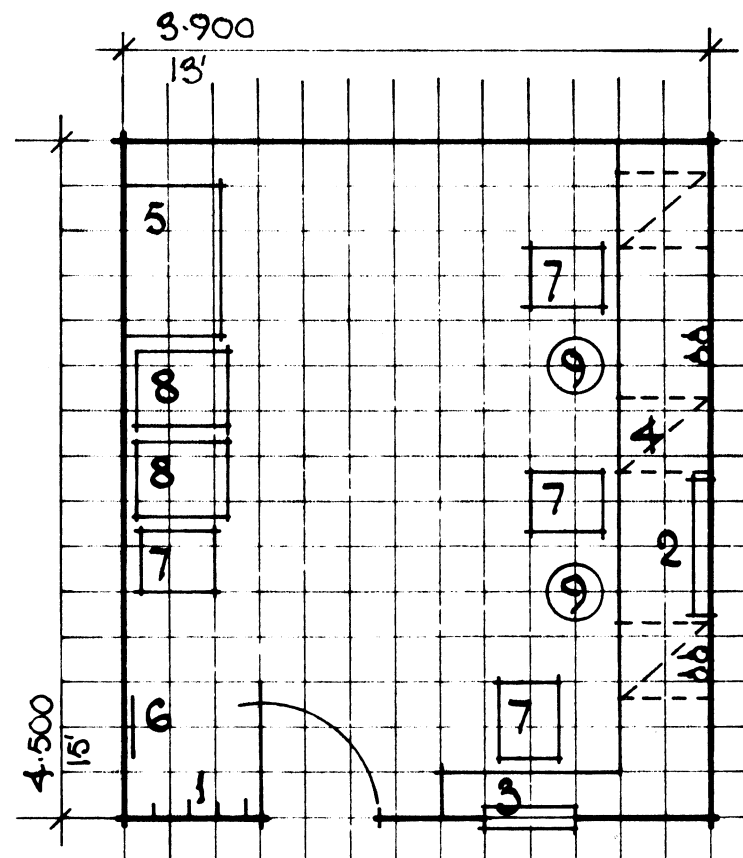


Scale 1:50

Adapted from reference 16

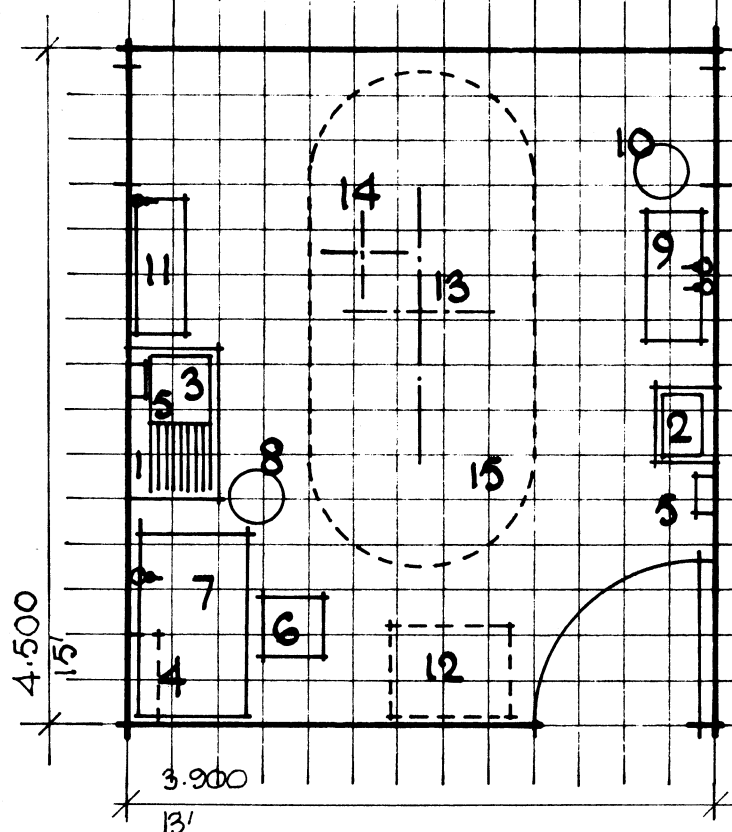
RADIODIAGNOSTIC ROOM CHANGING CUBICLES & DARK ROOM

- 1 Film draining racks
- 2 Film hanger brackets
- 3 Film marker
- 4 Processing unit
- 5 Sink & drainer
- 6 Viewing box
- 7 Worktop: cassette storage, film hopper below
- 8 Paper-towel dispenser
- 9 Disposal bin
- 10 Drying cabinet
- 11 Film storage bin
- 12 Coat hooks
- 13 Bench seat
- 14 Mirror
- 15 Washhand basin
- 16 Low-level cupboard
- 17 Couch steps
- 18 Equipment trolley
- 19 Clock
- 20 Safety screen
- 21 Control unit
- 22 Transformer
- 23 X-ray table
- 24 X-ray chest stand
- 25 Cassette hatch to darkroom



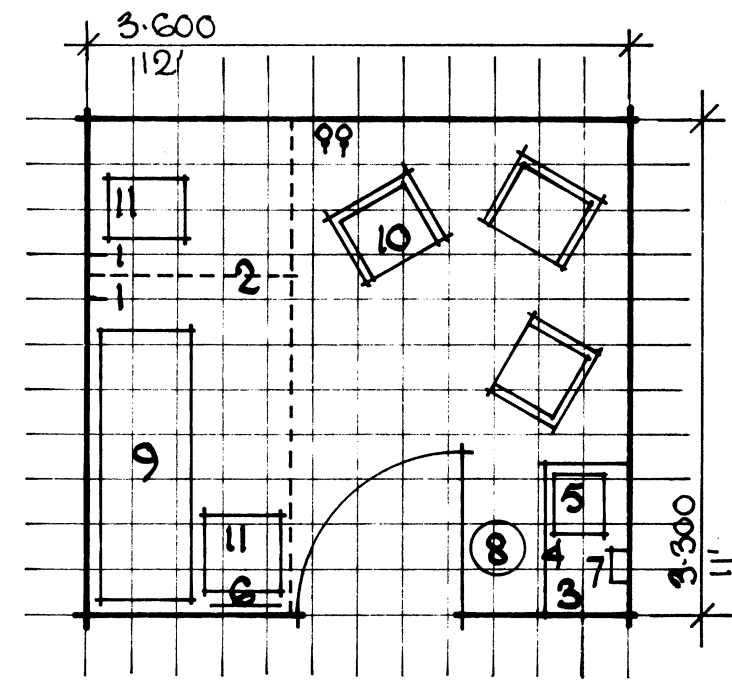
PHYSIOTHERAPIST AND/OR RADIOGRAPHERS' OFFICE & RECEPTION ROOM

- 1 Coathooks
- 2 X-ray viewer
- 3 Reception window
- 4 Worktop with low-level storage, drawers & knee spaces under
- 5 low cupboard
- 6 Mirror
- 7 Chair
- 8 Filing cabinet
- 9 Waste-paper bin



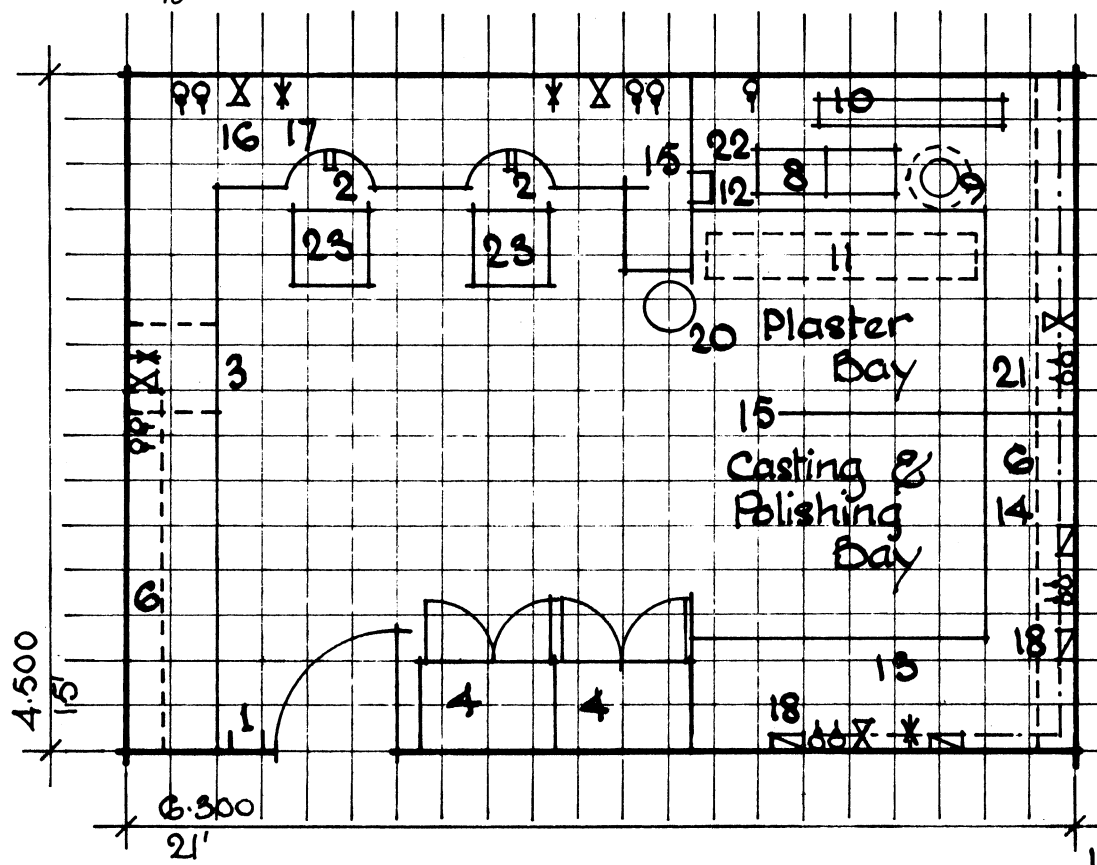
DENTAL SURGERY

- 1 Low-level storage
- 2 Washhand basin
- 3 Sink & drainer
- 4 Lockable cupboard for scheduled poisons
- 5 Paper-towel dispenser
- 6 Chair
- 7 Desk
- 8 Disposal bin
- 9 Instrument trolley
- 10 Pedal waste bin
- 11 Dental equipment cabinet
- 12 Space for anaesthetic machine
- 13 Dental chair
- 14 Dental unit
- 15 Dentists seat or stool



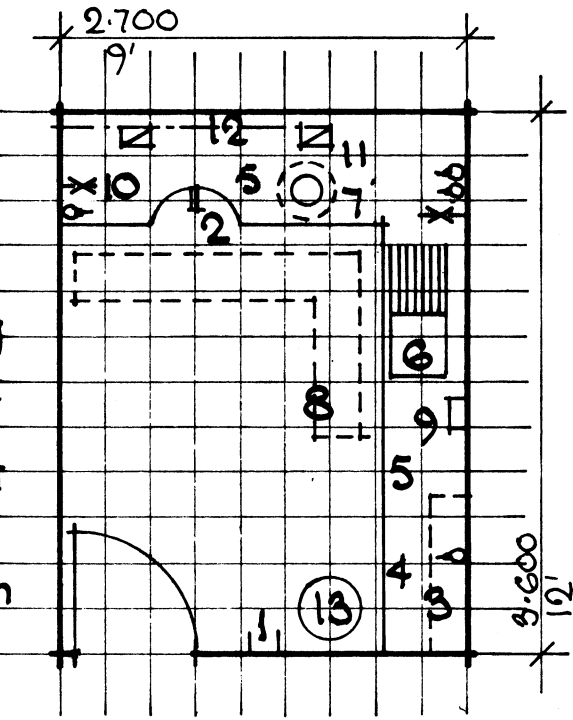
RECOVERY ROOM

- 1 Coat hooks
- 2 Ceiling mounted curtain track
- 3 Low-level storage
- 4 Worktop
- 5 Washhand basin
- 6 Mirror
- 7 Paper-towel dispenser
- 8 Disposal bin
- 9 Recovery couch
- 10 Easy chair
- 11 Chair



DENTAL LABORATORY

- 1 Coat hooks
- 2 Technicians bench with bench pin
- 3 Spare technicians working space
- 4 Bulk materials storage
- 5 Cupboard with adjustable shelving
- 6 High-level storage
- 7 Worktop for plaster trimming
- 8 Double sink with plaster trap
- 9 Waste hole with bin below
- 10 Plaster trough
- 11 Duckboard or grating
- 12 Paper-towel dispenser
- 13 Worktop for casting
- 14 Worktop for polishing
- 15 Screen
- 16 Compressed air supply
- 17 Bottled gas supply
- 18 Dust and fume extract
- 19 Ducting
- 20 Disposal bin
- 21 Bench-top acrylic resin water bath
- 22 Bench-top mechanical model trimmer
- 23 Technician's chair

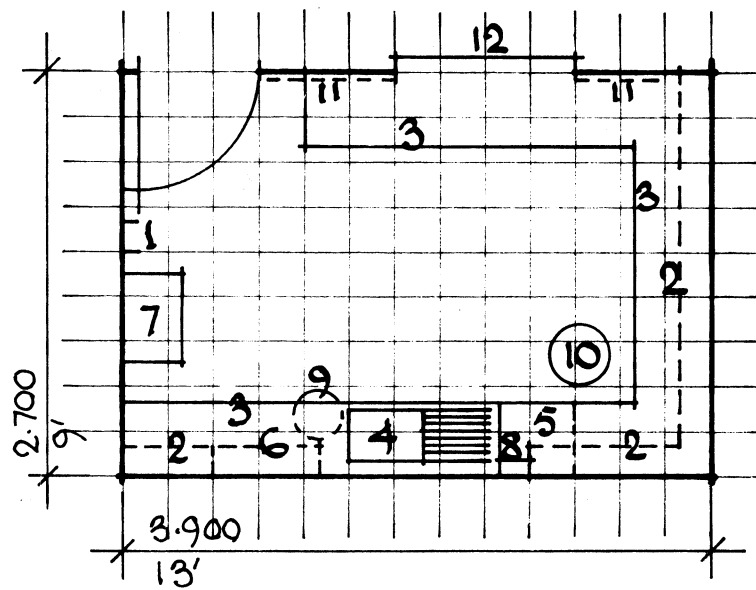


DENTAL WORKROOM

- 1 Coat hooks
- 2 Bench with bench pin
- 3 High-level storage
- 4 Low-level storage
- 5 Worktop
- 6 Sink with plaster trap & drainer
- 7 Waste hole with bin below
- 8 Duckboard or grating
- 9 Paper-towel dispenser
- 10 Bottled gas supply
- 11 Dust & fume extract
- 12 Ducting
- 13 Disposal bin

Scale 1:50

Adapted from reference 16



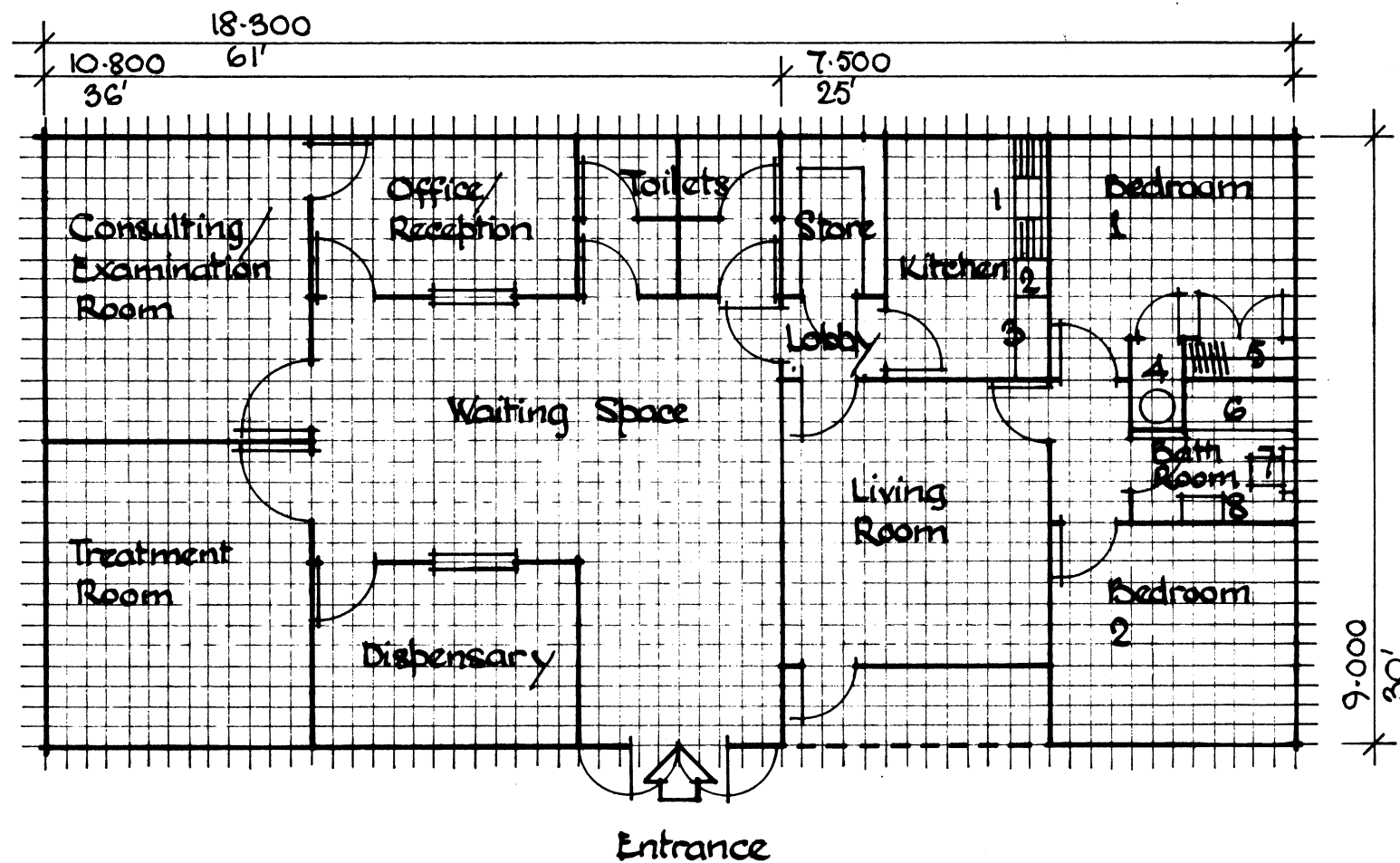
Dispensary Scale 1:50

DISPENSARY

- 1 Coat hooks
- 2 High level storage
- 3 Melamine work top, low level storage below
- 4 Stainless steel sink & drainer
- 5 Refrigerator under worktop
- 6 Dangerous drugs cupboard
- 7 Writing shelf
- 8 Paper towel dispenser
- 9 Disposal bin
- 10 Stool
- 11 Pinboard
- 12 Hatch

BASIC CLINIC

	m ²	ft ²
Waiting space	35	389
Office/reception	9.30	104
Toilets	7.20	80
Dispensary	10.55	117
Treatment room	17.55	195
Consulting/examination room	17.55	195
Store & lobby	5.40	60
Total area	102.59	1140



DISTRICT NURSE/MIDWIFE'S HOUSE

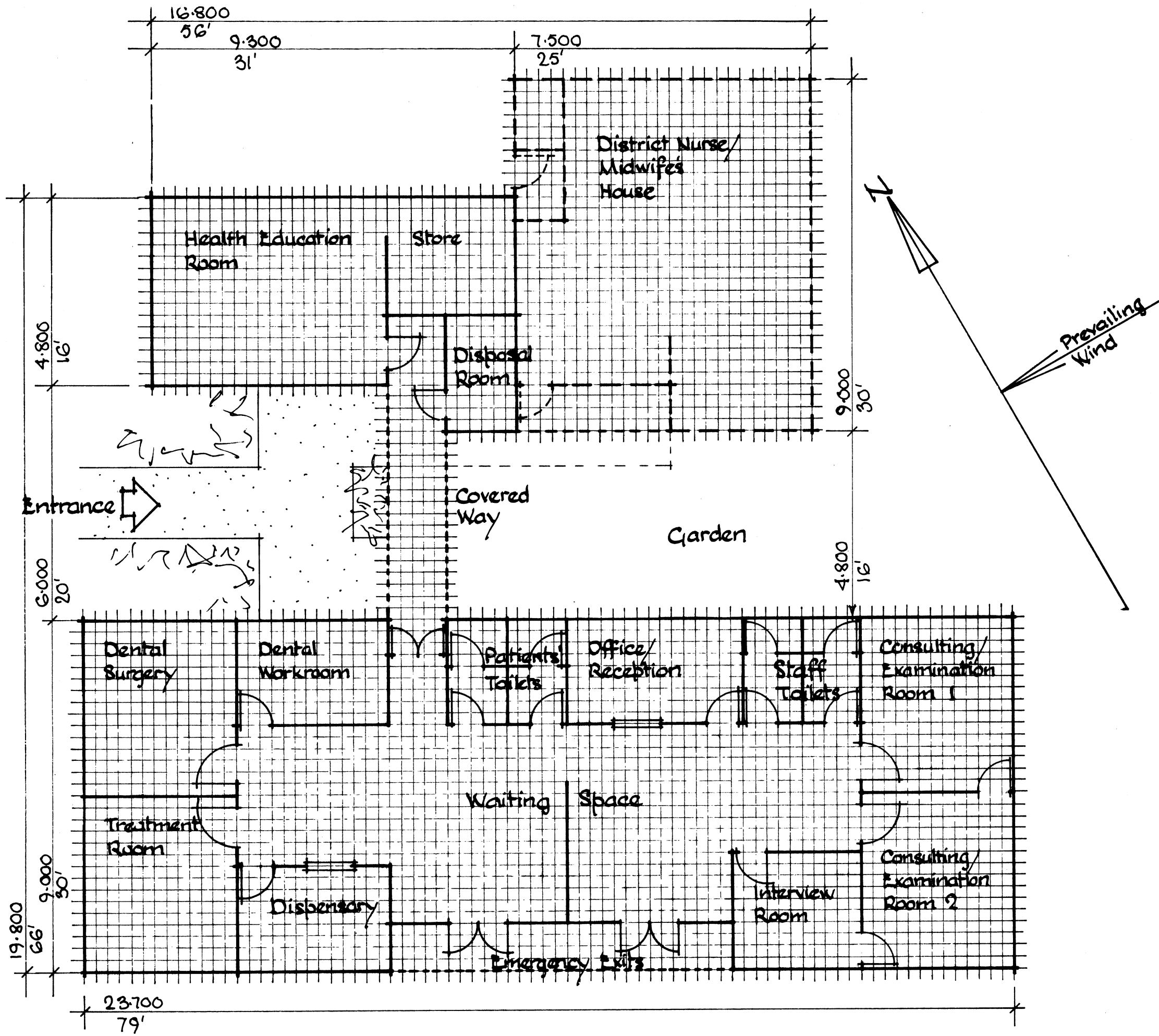
- 1 Sink & drainer
- 2 Cooker
- 3 Worktop with refrigerator & storage under, high level storage above
- 4 Airing cupboard & hot water cylinder
- 5 Wardrobe
- 6 Bath
- 7 WC suite
- 8 Washhand basin

Area	m ²	ft ²
	57.42	638

BASIC CLINIC

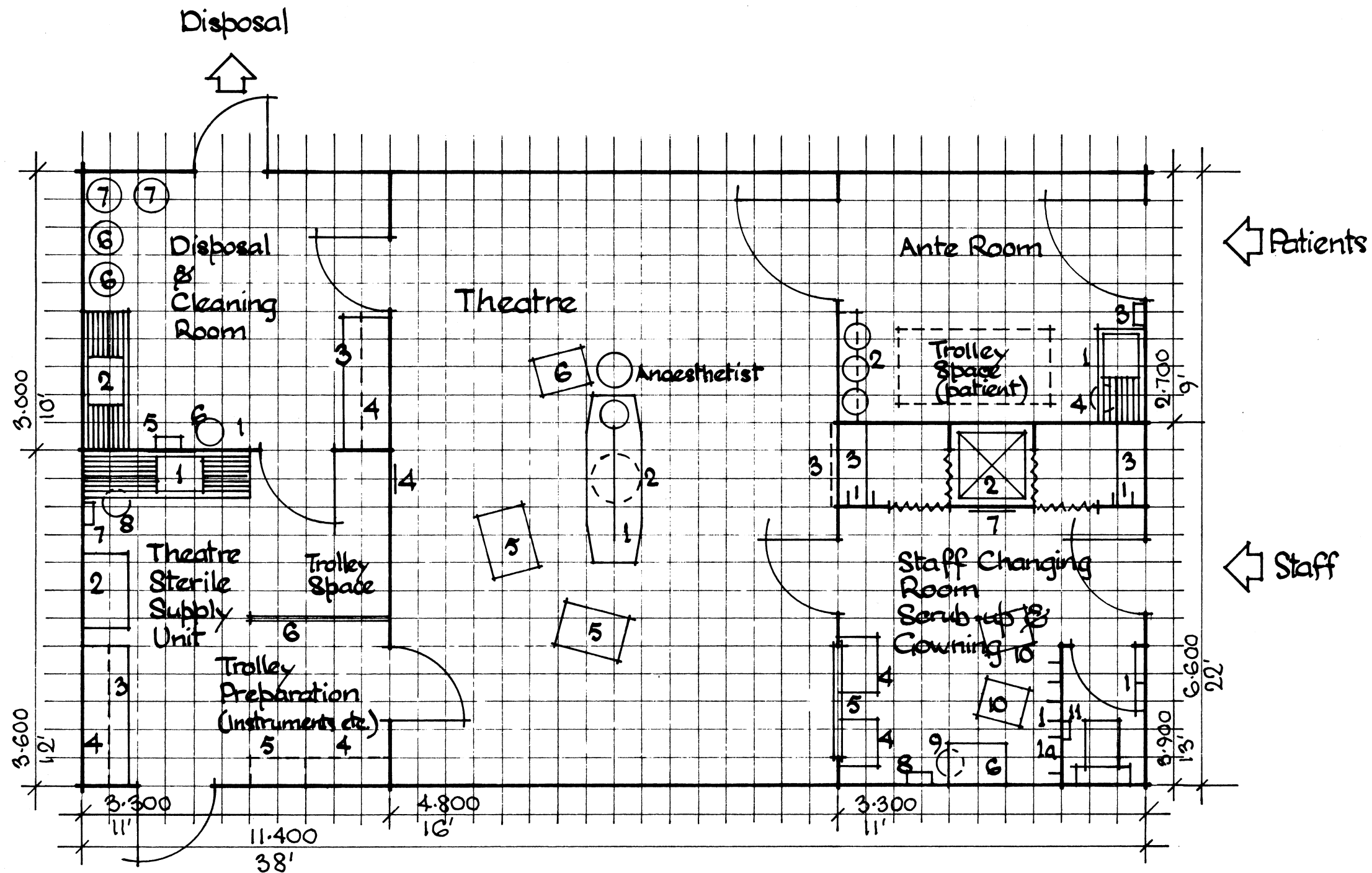
District Nurse/Midwife's House

Scale 1:100



	m ²	ft ²
Consulting/Examination Room 1	17.55	195
Consulting/Examination Room 2	17.55	195
Interview Room	9.00	110
Dispensary	10.53	117
Treatment Room	17.55	195
Dental Surgery	17.55	195
Dental Workroom	10.53	117
Office/Reception	12.15	135
Waiting Space	70.83	787
Patients' Toilets	8.10	90
Staff Toilets	8.10	90
Health Education Room	28.80	320
Store	9.90	110
Disposal Room	5.40	60
Total	243.54	2716
Covered Way	11.70	130
District Nurse/Midwives House	62.82	698

Scale 1:100



THEATRE

- 1 Operating table
- 2 Scalytic operating lamp fixed to ceiling & moveable in all directions
- 3 Screen for viewing X-rays (2 plates)
- 4 Clock
- 5 Instrument trolleys
- 6 Anaesthetist's trolley

ANTE ROOM

- 1 Sink & drainer
- 2 High level cupboard, space for storage of special gas cylinders under
- 3 Paper towel dispenser
- 4 Disposal bin

CHANGING & SCRUB-UP ROOM

- 1 Coat hooks & shoe rail (1a)
- 2 Shower
- 3 Seats
- 4 Splash-screened scrub-up stalls or basins
- 5 Glazed panel
- 6 Writing shelf
- 7 Mirror
- 8 Paper towel dispenser
- 9 Disposal bin
- 10 Chairs
- 11 Toilet paper holder

DISPOSAL & CLEANING ROOM

- 1 Coat hooks
- 2 Sink & drainers
- 3 Worktop with storage under
- 4 High level shelving
- 5 Paper towel dispenser
- 6 Disposal bins
- 7 Containers for soiled linen

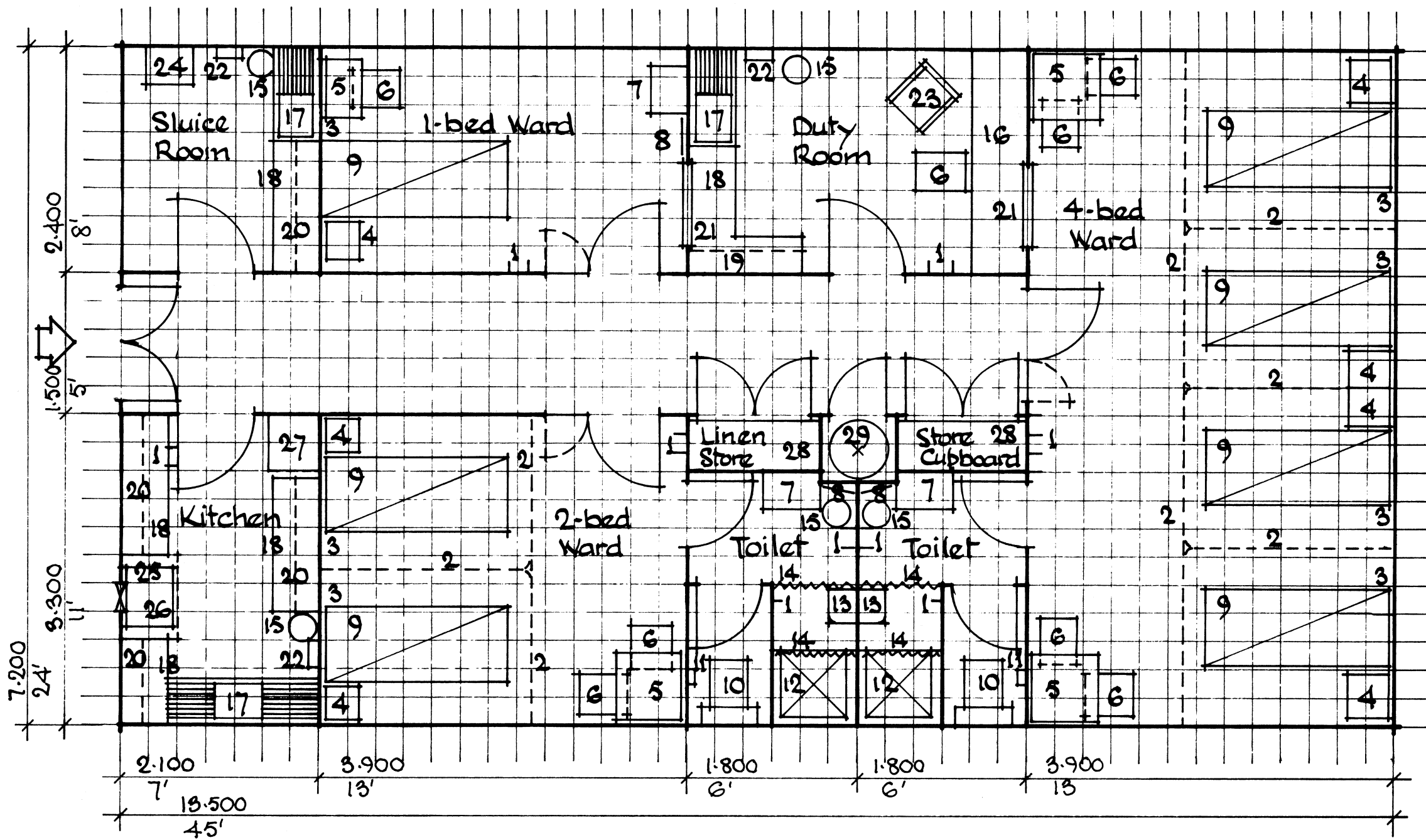
THEATRE STERILE SUPPLY UNIT

- 1 Sink & drainers
- 2 Steriliser
- 3 Worktop with storage below
- 4 High level storage
- 5 Heated cupboard for sterile water
- 6 Glazed screen
- 7 Paper towel dispenser
- 8 Disposal bin



Scale 1:50

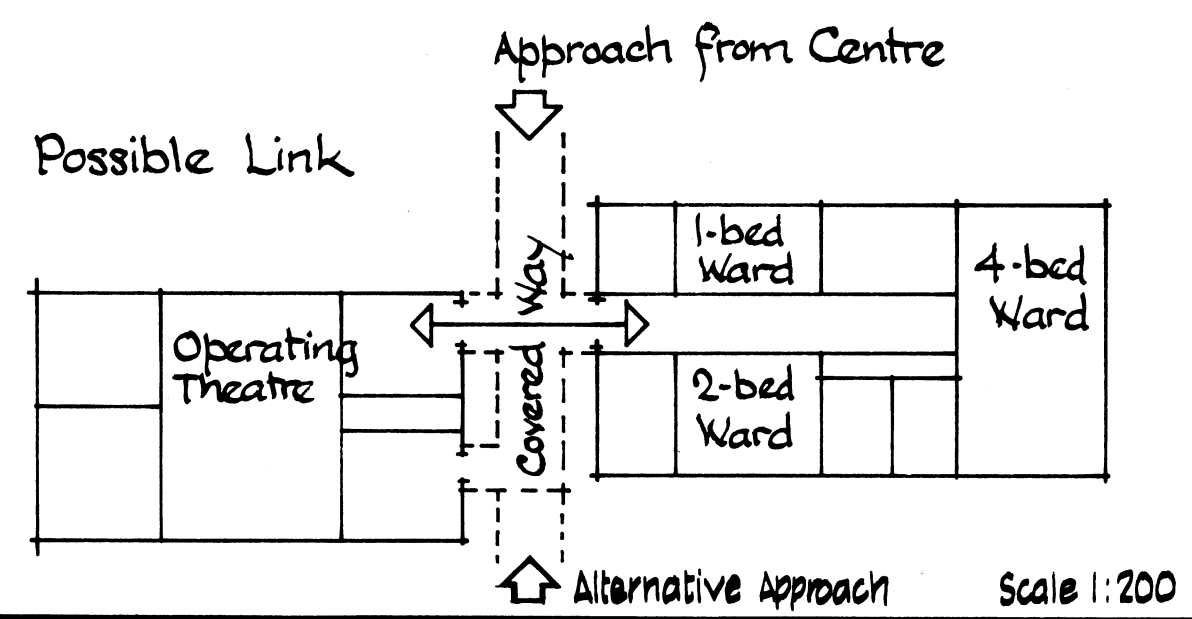
References Nos 17 & 18



- Notes:
- 1 Coat hooks
 - 2 Ceiling mounted curtain tracks
 - 3 Call system to duty room
 - 4 Patient's locker
 - 5 Table
 - 6 Chair
 - 7 Wash hand basin
 - 8 Mirror
 - 9 Bed
 - 10 W/C suite
 - 11 Toilet paper holder
 - 12 Shower
 - 13 Fixed seat
 - 14 Curtain
 - 15 Disposal bin
 - 16 Desk
 - 17 Sink and drainer
 - 18 Working top with storage under
 - 19 High level shelves
 - 20 High level storage
 - 21 Glazed panel
 - 22 Paper towel dispenser
 - 23 Semi-easy chair
 - 24 Sluice or bed-pan washing machine
 - 25 Cooker hood with extract fan
 - 26 Cooker
 - 27 Refrigerator with freezer cabinet
 - 28 Shelving
 - 29 Hot water cylinder

Scale 1:50

Reference 17



Scale 1:200

GOVERNMENT OFFICES

6

6 GOVERNMENT OFFICES

6.1 Brief:

- 6.1.1 The responsibility for the efficiency, cost-effectiveness, programme, quality and durability of the office building rests not only with the design and construction team but also with those who provide the Brief and set out the constraints within which the design and building process will operate.

It is essential that the designer should be furnished with all relevant information at the outset if the resultant building is going to satisfy the users, the financing agency, the public and the design team.

It cannot be emphasised too strongly how important is the Brief. Any attempts to rush through or skimp this stage may well prove disastrous at a later stage. Conversely, if the Brief can be developed as a productive dialogue between user department and designer, the result will pay handsome dividends in cost savings, efficiency, staff satisfaction, morale, safety and welfare.

- 6.1.2 In the preliminary stages of the Brief-preparation it should be possible to build up a set of accommodation requirements covering
- a) present staff, likely male/female ratio, the nature of their work, special requirements and a projection of staff numbers forecast for say, 10 years hence.
 - b) What facilities in addition to their office working space they will need as a consequence of their operational functions.

It is suggested that the Client Department issues this information to the designer and estimator on a standard form (developed from Reference 19) a typical layout of which is shown (and completed for example) on Plate 601.

Refer also to Section 6.2 Accommodation Standards before preparing Client Department Brief.

6.2 Accommodation Standards

- 6.2.1 Though many of the items considered during the preparation of the Brief will be a matter for individual treatment on a particular project, it is recognised that a framework of accommodation standards and furniture entitlements related to grades and functions of staff is a useful device for planning layouts and preparing cost estimates in the early stages.

For this purpose, an alphabetical list of job-titles commonly held in Government offices of the Commonwealth Caribbean (extracted from References 20-24) and a series of plates showing the entitlement of the groups (developed from Reference 25) in which the jobs are classified are set out for reference.

For operational reasons, some of the posts listed will need to be provided with more space and/or different furniture relating directly to the commission of their work. Where such posts involve an element of work normally carried out in an office (eg administrative, clerical, draughting etc) the entitlements quoted may be applied for that particular aspect of their work.

Firstly, find in the alphabetical list the title of the job for which entitlement is sought.

Secondly, read off in which group it is classified.

Thirdly, if it is accompanied by an asterisk(*) it is possible that in some countries the group may be varied to suit local grading structures.

6.2.1 (Cont'd)

Fourthly, refer to Plate showing Group entitlement for floor space and furniture. It is recommended that the minimum quoted is attained. Groups A to H inclusive are covered by Plates 602 to 609 respectively.

Minor grade posts (below group H: Clerical officers) will not generally be found in the alphabetical list. These posts are diverse and often based outside the office building either in an industrial or open air environment. For those which involve full or part-time work in an office carrying out some or all of the clerical, administrative, supervisory or typing activities, reference should be made to group J on Plate 601 which, in any event, recommends the same minimum floor area per person as that set out in the UK Shops, Offices and Railway Premises Act 1963 (Chapter 41, Section 5).

Other recommendations from the Act which might reasonably be applied are (a) the capacity of the room should be not less than 11.33 m² (400 cub ft) per person, (b) no room may be so overcrowded as to cause injury to health.

Note: Figures quoted in the Act should be based on the number of persons habitually employed in a room at one time.

6.2.2 List of job titles in alphabetical order classified by staff group:

F*	Accountant	H	Assistant Foreman	H	Bursar
C*	Accountant General	H	Assistant Forest Officer	F	Cadet, Civil Service
E	Administration Officer	H	Assistant Forms Printer	H	Cadet, Police
E	Administration Superintendent	F*	Assistant Government Printer	E	Captain
G	Administrative Assistant	G	Assistant Information Officer	C*	Casualty Officer
G*	Administrative Cadet	D*	Assistant Labour Commissioner	H	Catering Supervisor
G	Administrator	E	Assistant Lands Officer	H	Charge Nurse
H*	Agricultural Assistant	F	Assistant Lecturer	E	Chemist
F*	Agricultural Assistant I	H	Assistant Machine Supervisor	D	Chief Accountant
F	Agricultural Assistant II	G	Assistant Manager	B*	Chief Agricultural Officer
H	Agricultural Assistant III	F	Assistant Matron	B*	Chief Architect
E	Agricultural Engineer	E	Assistant Nutrition Officer	D	Chief Audio-visual Aids Officer
E	Agricultural Extension Officer	H	Assistant Personnel Officer	E	Chief Community Development Officer
H	Agricultural Instructor	H	Assistant Photographer	G	Chief Compositor
E	Agricultural Officer	E	Assistant Postmaster	E	Chief Dispenser
E	Agronomist	E	Assistant Postmaster General	D	Chief Economist
F	Aide de Camp	E	Assistant Price Control Officer	C*	Chief Education Officer
E	Airport Manager	H	Assistant Programmer	E	Chief Electoral Officer
H	Air Traffic Control Officer	E	Assistant Quantity Surveyor	E	Chief Electrical Inspector
G	Air Traffic Control Officer I	H	Assistant Records Officer	B*	Chief Engineer
H	Air Traffic Controller	E	Assistant Secretary	B*	Chief Establishments Officer
H*	Air Traffic Controller II	F	Assistant Sister Tutor	F	Chief Estimator-Draughtsman
E	Analyst	E	Assistant Social Development Officer	E	Chief Fire Officer
H	Animal Health Assistant	H	Assistant Social Welfare Officer	E	Chief Forestry Officer
E	Animal Husbandry Officer	E	Assistant Statistician	E*	Chief Information Officer
E	Architect	G	Assistant Statistical Officer	E	Chief Laboratory Technician
E	Architectural Assistant	E	Assistant Superintendent (Aerodromes)	C*	Chief Magistrate
H	Archives Technical Assistant	H	Assistant Superintendent (Hospitals)	E	Chief Marine Engineer
G	Area Public Health Nursing Sister	F*	Assistant Superintendent (Police)	H	Chief Matron
H	Armourer	F	Assistant Superintendent (Printing Office)	A	Chief Medical Officer
H	Assistant Accountant	F*	Assistant Superintendent (Prisons)	E	Chief Nursing Officer
E	Assistant Accountant General	H	Assistant Superintendent (Works)	A	Chief Parliamentary Counsel
E	Assistant Administration Improvement Officer	E	Assistant Supervisor of Insurance	B	Chief Personnel Officer
H	Assistant Air Traffic Control Officer	H	Assistant Supervisor of Markets	E	Chief Planning Assistant
F	Assistant Airport Manager	G*	Assistant Surveyor	C*	Chief Planning Economist
E	Assistant Analyst	E	Assistant Tax Officer	D	Chief Price Control Officer
E	Assistant Architect	H	Assistant Teacher	H*	Chief Prison Officer
E	Assistant Archivist	E	Assistant Town Planner	E	Chief Probation Officer
F	Assistant Building Superintendent	H	Assistant Tutor	E	Chief Process Officer
E	Assistant Chief Audiovisual Aids Officer	H	Assistant Valuer	E	Chief Public Health Inspector
H	Assistant Chief Officer (Prisons)	A	Attorney General	E	Chief Public Health Nurse
F	Assistant Chief Valuation Officer	G	Audio-visual Aids Technician	E	Chief Public Health Officer
E	Assistant Collector of Taxes	F*	Auditor	E	Chief School Meals Officer
E	Assistant Commissioner, Inland Revenue	B	Auditor General	D	Chief Statistician
E*	Assistant Commissioner of Police	G	Auxilliary Dental Officer	B	Chief Supply Officer
E	Assistant Community Development Officer	H	Bailiff	D*	Chief Surveyor
E	Assistant Comptroller, Customs and Excise	E	Bank Manager	B*	Chief Technical Officer
E	Assistant Comptroller, Inland Revenue	E	Berthing Master	B	Chief Town Planner
H	Assistant Cypher Officer	H	Binder	B	Chief Training Officer
E	Assistant Director of Audit	E	Broadcast Officer	D*	Chief Veterinary Officer
E	Assistant Director of Music (Police)	H	Broadcasting Assistant	E	Chief Youth Development Officer
E	Assistant Education Officer	E	Budget Analyst	F	Child Guidance Officer
F	Assistant Electrical Inspector	H	Building Inspector	H	Chlorination Assistant
G	Assistant Executive Secretary	H	Building Maintenance Supervisor	J	Clerical Assistant
H	Assistant Fisheries Officer	F	Building Supervisor	H	Clerical Officer
		E	Buildings Officer	G	Clerk Assistant, House of Assembly
				E	Clerk of House of Assembly

E	Clerk to Parliament	D	Deputy Chief Labour Officer	B	Economic Adviser
H	Clerk — Typist	E	Deputy Chief Librarian	E	Economist
G	Collections Officer	E	Deputy Chief of Police	E*	Economist I
H	Collector, Inland Revenue	C	Deputy Chief Parliamentary Counsel	G*	Economist II
E*	Collector of Customs and Excise	E	Deputy Chief Process Officer	E	Education Planning Officer
D	Collector of Taxes	E	Deputy Chief Public Health Nurse	E	Education Officer
E*	Commanding Officer	D	Deputy Chief Supply Officer	F	Electrician
B	Commissioner Land Valuation	C	Deputy Chief Technical Officer	C	Electrical Engineer
B	Commissioner of Inland Revenue	E	Deputy Chief Welfare Officer	G	Electrical Foreman
C	Commissioner of Lands	E	Deputy Collector of Customs and Excise	H	Electrical Inspector
B	Commissioner of Police	E*	Deputy Commissioner of Inland Revenue	H	Employment Officer
F	Community Development Field Officer	D*	Deputy Commissioner of Police	E*	Engineer
H	Community Development Field Worker	D	Deputy Comptroller of Customs	H*	Engineering Assistant
H*	Community Development Officer	D	Deputy Crown Solicitor	H	Equipment Operator
H	Community Development Worker	B	Deputy Director of Public Prosecutions	E*	Executive Engineer
G	Community Health Sister	B	Deputy Director of Social Services	G	Executive Officer
H	Community Nutrition Officer	D	Deputy Director of Statistical Research	E	Executive Secretary for Tourism
H	Compiler of Official Gazette	F	Deputy Electrical Inspector	D	Examinations Officer
H	Compositor	C	Deputy Financial Secretary	G*	Examiner of Accounts
G	Comptroller	E	Deputy Hospital Administrator		
C*	Comptroller of Customs and Excise	E	Deputy Labour Commissioner	F	Family Case Worker
C*	Comptroller of Inland Revenue	E*	Deputy Postmaster General	H	Field Investigator
H	Computer Operator	E*	Deputy Registrar	H	Field Nutrition Officer
H	Computer Programmer	B	Deputy Solicitor General	H	Field Officer
H	Control Officer	E	Deputy Superintendent, Lands and Survey	H*	Field Technician
G	Control Supervisor	D	Deputy Town Planner	H	Films Assistant
H	Co-operative Field Officer	H	Design Officer	D	Financial Controller
H*	Co-operative Officer	D	Development Officer	A	Financial Secretary
F*	Co-ordinator	H	Dietician	H	Fireman
H	Copy Holder	B	Director of Agriculture	H	First Class Officer (Prisons)
E	Cotton Officer	B*	Director of Audit	B	First Deputy Chief Parliamentary Counsel
H	Court Interpreter	E*	Director of Culture	H	Fisheries Assistant
G	Court Stenographer	E	Director of Employment Exchange	H	Fisheries Cadet
G	Credit Officer	A	Director of Finance and Planning	E*	Fisheries Officer
C*	Crown Counsel	E	Director of Meteorological Services	H	Food Service Supervisor
E	Crown Lands Officer	E	Director of Music (Police)	E	Forecaster of Weather
B	Crown Solicitor	B	Director of Planning	G	Foreign Services Officer
C	Crown Surveyor	E	Director of Prices and Consumer Affairs	H	Foreman
F	Curator	A	Director of Public Prosecutions	G	Foreman Binder
F*	Customs Officer I	B	Director of Public Works	F	Foreman Carpenter
H*	Customs Officer II	B	Director of Social Security	G	Foreman Machine Operator
H	Customs Officer III	B	Director of Sports	G	Foreman Mechanic
H	Cypher Officer	B	Director of Statistical Services	H	Foreman Plumber
		E	Director of Tourism	D	Forensic Pathologist
H	Dark Room Technician	E	Director of Training School	H	Forest Ranger
G	Data Librarian	E	Director of Women's Affairs	F*	Forest Supervisor
E	Data Operations Controller	H*	Dispenser	H	Forest Technician
E	Data Processing Manager	E	District Engineer	H	Forestry Assistant
H	Dental Hygienist	E	District Medical Officer	E	Forestry Officer
E	Dental Surgeon	H	District Nurse		
G*	Departmental Sister	E	District Officer	C	General Manager
E*	Deputy Accountant General	E	Divisional Officer, Fire Service	E	Government Chemist
E	Deputy Airport Manager	H*	Draughtsman	E	Government Printer
D	Deputy Auditor General	H	Draughtsman — Technician	H	Governor's Orderly
D*	Deputy Chief Agricultural Officer	H	Drawing Office Assistant	E	Governor's Secretary
D	Deputy Chief Engineer			E	Guidance Counsellor
D	Deputy Chief Establishment Officer				
F*	Deputy Chief Fire Officer				

H	Handicraft Officer	H	Leading Fireman	H	Police Sergeant
H	Handicraft Organiser	E*	Legal Assistant	F	Port Health Inspector
E	Harbour Master	H	Letter Press Operator	D	Port Officer
G	Head Bailiff	F*	Librarian	G	Postal Superintendent
G	Head Teacher II	H	Library Assistant	E	Postmaster
E	Health Education Officer	E	Licensing Officer	G	Postmaster I
H*	Health Educator	F	Lieutenant	H	Postmaster II
E	Health Planning Officer	E	Livestock Extension Officer	D*	Postmaster General
F	Health Sister	E	Livestock Officer	G	Preventive Officer
H	Health Visitor	E	Local Government Officer	H	Price Control Enforcement Officer
E	Horticulturist			H*	Price Control Officer
E	Hospital Administrator	H	Machine Operator	H	Price Inspector
E	Hospital Manager	G	Machine Supervisor	E	Principal Administration Officer
G	Hospital Steward	D	Magistrate	D	Principal Assistant Secretary
E	Hospital Superintendent	F	Maintenance Officer	E	Principal Auditor
H	Housekeeper	C	Manager of Computer Centre	C	Principal Crown Counsel
H	Housemother	H	Market Supervisor	E	Principal Health Educator
		H	Master	F*	Principal Nursing Officer
G*	Income Tax Inspector	G	Matron (Hospital)	G	Principal Officer (Prisons)
B	Industrial and Development Adviser	H	Matron (Prison)	F	Principal, Primary School
B	Industrialisation Commissioner	F	Meat and Food Inspector	G*	Private Secretary
F*	Information Officer	G	Mechanical Engineer	G	Probation Officer
C	Inland Revenue Adviser	E	Mechanical Superintendent	H	Process Officer
F	Insect Pest Control Officer	F	Mechanical Supervisor	H	Processing Assistant
E	Inspector (Customs and Excise)	B	Medical Director	E	Produce Chemist
E	Inspector (Fire Brigade)	E	Medical Equipment Engineer	E	Programme Director (Broadcasts)
G	Inspector (Inland Revenue)	D*	Medical Officer	F	Programme Producer
E	Inspector of Accounts	A	Medical Officer of Health	G	Programmer
H	Inspector of Postmen	H	Medical Secretary	H	Proof Reader
H	Inspector of Works	G	Medical Storekeeper	F*	Property Valuation Officer
G*	Inspector (Police)	E	Medical Supplies Officer	E	Protocol Officer
H	Inspector (Transport)	H	Meteorological Assistant	E	Provost Marshall
F	Instructor (Civil Aviation)	E	Meteorological Officer	F	Public Health Engineer
F	Instructor (ITS)	E	Meteorologist	G	Public Health Engineering Assistant
H	Instructor (Schools)			H	Public Health Inspector
F	Instructor (Technical)	H	News Reporter	H	Public Health Nurse
E	Investigation Officer (Inland Revenue)	G	Night Superintendent	E	Public Health Superintendent
		F	Nurse Co-ordinator	F	Public Health Technician
H	Junior Draughtsman	H	Nursing Sister	E	Public Relations Officer
F	Junior Electronics Engineer	E	Nutrition Officer	G	Punch Room Supervisor
H	Junior Marine Engineer				
H	Junior Statistical Assistant	E	Office Manager	G	Quantity Surveying Assistant
H	Junior Technician	F	Operations Officer	E	Quantity Surveyor
		H	Operator	F	Quarry Supervisor
H	Keypunch Operator	H	Operator, Computer		
		H	Orthopaedic Technician	F	Radiographer
H	Laboratory Assistant	B	Parliamentary Counsel	H	Receptionist — Typist
E	Laboratory Superintendent	A	Permanent Secretary	G	Recording Draughtsman
H*	Laboratory Technician	G	Personnel Officer	G	Records Officer
D*	Labour Commissioner	E	Pharmacist	H	Regimental Sergeant Major
H*	Labour Inspector	H	Photographer	E*	Registrar
G	Labour Officer	E	Physical Planner	D*	Registrar-General
H	Labour Relations Officer	G	Physiotherapist	E	Registrar of Insurance
H	Labour Statistical Officer	H	Planning Assistant	H	Registry Assistant
E	Land Settlement Officer	G*	Police Inspector	G	Relieving Officer
E	Lands Officer	E	Police Instructor	H	Repair Technician
H	Laundry Manager			G	Research Assistant

E	Research Officer	E	Senior Labour Officer	E	Social Welfare Officer
G	Revenue Officer	E	Senior Librarian	H	Social Worker
H*	Road Supervisor	H	Senior Machine Operator	A	Solicitor-General
		H	Senior Machinist	F	Specialist Teacher
H	Sales Attendant	G	Senior Marine Engineer	E	Specialist Supervisor
E	Sanitary Engineer	A	Senior Medical Officer	H	Sports Assistant
H	Scavenging Supervisor	H	Senior Messenger	H	Sports Coach
H	School Attendance Officer	G	Senior Meteorological Assistant	H*	Sports Officer
H	Second Class Officer (Prisons)	F	Senior Nursing Officer	H	Staff Nurse
H	Second Class Assistant, House of Assembly	H	Senior Nurse	E	Staff Officer
H*	Secretary	E	Senior Personnel Officer	E	Staff Surveyor
A	Secretary to Cabinet	G	Senior Photographer	H	Station Foreman
E	Security Officer I	F	Senior Planning Assistant	F	Station Manager
G	Security Officer II	E	Senior Postal Superintendent	G*	Station Officer (Fire Service)
E	Senior Accountant	E	Senior Preventive Officer	H*	Station Sergeant (Police)
D	Senior Administration Officer	H	Senior Price Control Inspector	H*	Statistical Assistant
G*	Senior Agricultural Assistant	E	Senior Price Control Officer	H	Statistical Clerk
E	Senior Agricultural Officer	G	Senior Price Inspector	E	Statistical Officer
D*	Senior Assistant Secretary	H	Senior Printing Officer	H	Statistical Trainee
E	Senior Auditor	H	Senior Printing Technician	E	Statistician
H	Senior Bailiff	H*	Senior Prison Officer	E	Statistician I
E	Senior Berthing Master	E	Senior Probation Officer	G	Statistician III
E	Senior Budget Analyst	G	Senior Process Officer	H	Stenographer-Secretary
F	Senior Building Inspector	E	Senior Programmer	H	Stenographer-Typist
G	Senior Charge Nurse	F	Senior Public Health Inspector	H	Steward
H	Senior Clerk	E	Senior Radiographer	F	Steward Dispenser
H*	Senior Community Development Officer	H	Senior Records Sorter	G	Stock Verifier
E	Senior Community Health Sister	C	Senior Research and Industry Officer	H	Storekeeper
H	Senior Compositor	E	Senior Revenue Officer	G	Stores Supervisor
H	Senior Computer Operator	G	Senior Sergeant (Police)	E	Studio Engineer
H	Senior Control Clerk	G	Senior Sergeant (Fire Brigade)	H	Sub-Officer (Fire Service)
E	Senior Co-operative Officer	E	Senior Sports Assistant	H	Sub-Station Officer (Fire Service)
C*	Senior Crown Counsel	H	Senior Station Foreman	E	Superintendent (Building)
H	Senior Customs Officer	E	Senior Statistician	E	Superintendent (Electrical)
F*	Senior Dispenser	G*	Senior Statistical Assistant	H	Superintendent (Home for Aged)
H	Senior District Overseer of Roads	G*	Senior Statistical Officer	F	Superintendent (Hospital)
G	Senior Draughtsman	H	Senior Storekeeper	F	Superintendent, ITS
E	Senior Economist	E	Senior Superintendent	E	Superintendent (Mechanical)
D*	Senior Education Officer	E	Senior Superintendent of Police	E	Superintendent of Aerodromes
G	Senior Electrical Inspector	E	Senior Superintendent of Works	F	Superintendent of Markets
E	Senior Electronic Technician	E	Senior Supply Officer	E	Superintendent of Police
E	Senior Employment Officer	E	Senior Surveyor	E	Superintendent of Prisons
G	Senior Engineering Assistant	E	Senior Systems Analyst	E	Superintendent of Public Health Nurses
E	Senior Examiner of Accounts	E	Senior Technical Officer	G*	Superintendent of Works
E	Senior Executive Officer	F	Senior Technician	E	Superintendent (Plant)
G	Senior Field Investigator	D	Senior Town Planner	E	Superintendent (Printing Office)
E	Senior Field Officer	E*	Senior Veterinary Officer	E	Superintendent (Roads)
H	Senior Foreman	H	Senior Warden	F	Superintending Health Nurse
F	Senior Forestry Assistant	F	Senior Welfare Officer	E	Supervisor of Customs and Excise
E	Senior Health Planning Officer	H	Sergeant	A	Supreme Court Judge
E	Senior Health Sister	H	Sergeant, Fire Brigade	G	Supply Officer
F	Senior Health Visitor	G	Sergeant Major	H	Surveying Assistant
B	Senior House Officer	H	Sergeant, Police	E	Surveyor
E	Senior Information Officer	E	Services Commission Secretary	G	Surveyor-Draughtsman
H	Senior Inspector	G	Shipping Superintendent	E	Surveyor-Supervisor
E	Senior Inspector, Inland Revenue	G*	Sister Tutor		
G	Senior Laboratory Assistant	F	Slaughterhouse Supervisor	H	Tax Officer
F*	Senior Laboratory Technician	E*	Social Development Officer	G	Tax Relief Investigator

E Teacher-Presenter
 H Technical Assistant
 C Technical Director
 H* Technical Officer
 H Technical Operator
 H Technician, Grade I
 E Telecommunications Assistant
 E* Telecommunications Engineer
 H Third Class Officer (Prisons)
 F Theatre Technician
 B Town Planner
 E Trade and Industrialisation Officer
 G Training Officer
 H Transport Foreman
 H Transport Officer
 E Tug Master
 F Tutor
 J Typist

 F Valuer
 G Vehicle Examiner
 H Veterinary Assistant
 E* Veterinary Officer

 H Ward Sister
 H Warden
 H Warrant Officer, Class II
 H Water Rates Supervisor
 H* Welfare Officer
 H Wharf Supervisor
 E Workshop Manager
 F Workshop Senior Technician
 E Workshop Supervisor

 G* Youth Employment Officer
 G Youth Officer

6.3 Office Layout

6.3.1 The internal layout of the office space will be determined by many factors not least of which will be the particular department(s) using the building.

In general terms, there is the choice of an open-office layout (formally planned or landscaped) or the cellular (divided into smaller individual or group offices) or a combination of the two. What suits one department may be totally unsuitable for another. It should be established if there is a likelihood of change in the department to use the building being designed so that provision can be made for such an eventuality.

6.3.2 Open-office layouts

Advantages are: flexibility, better intercommunication; encouragement of through ventilation; improved lighting near centre of building; easier supervision; space-saving; sharing of environmental services; more informal layouts possible.

Disadvantages are: noisier from inside and outside building; more distraction; less privacy; longer span structure or intermediate columns necessary; partial air-conditioning impracticable.

6.3.3 Cellular offices:

Advantages are: noise transmission reduced; concentration assured; affords privacy; intermediate partitions between offices may be used as load bearing walls to reduce floor spans and cost; air-conditioning can be localised and confined for economy; security more easily attained.

Disadvantages are: Future re-positioning is costly and disruptive; less effective communication and supervision; reduction of natural light at centre; breakdown of through ventilation; takes up more space; duplication of services; formalised layout is likely.

6.3.4 The overall shape of the office block, its shell, the location of the core within it and the arrangement of the circulation will be major influences on the way in which the office interior can be laid out.

The resultant floor plans will give a variety of depths of space (distance between the main core to perimeter of building). For convenience, these are broken down into three main depths of space: shallow space (up to 7 m); medium space (7-16 m); deep space (over 16 m). The characteristics and application of these categories are discussed in turn on the succeeding pages (drawn from References 27 and 28). Any two or three may, of course, be used in combination if the building and its function demand it. The overall dimensions of the office-block will be subject to the recommendations on means of escape set out under section 6.5 of the guide.

Typical floor plans classified by the three main depths of space are illustrated on Plate 611.

6.3.5 FLOOR PLANS providing shallow space up to 7 m

Application:

Most suitable for individual and small group working.

Characteristics:

1) Floor plans cannot produce a large quantity of space at any one level without long circulation routes.

2) There is a high ratio of external wall to floor area.

- 3) There is a high proportion of total area devoted entirely to circulation.
- 4) The plans usually have some kind of central barrier dividing the spaces into at least two distinct 'office spaces'.
- 5) Easily divided into separate parts for different occupying departments.

6.3.6 FLOOR PLANS providing medium depth space (between 7 and 16 m)

Application:

Suitable for large working groups, library and conference areas, managerial and executive suites.

Characteristics:

(i) of spaces with fenestration on two opposite sides:

- 1) Floor plans cannot produce a large quantity of space at any one level without long circulation routes.
- 2) There is a high ratio of external wall to floor area.
- 3) Need not have a large proportion of area permanently allocated to circulation.
- 4) No central barrier dividing total space.
- 5) Mechanical ventilation is not essential, which facilitates sub-division into separate departments.

(ii) of spaces with fenestration on one side only:

- 1) Provides large space at one level in a compact form.
- 2) Considerable width available: consequently has lower wall to floor ratio but higher mechanical costs.
- 3) A central barrier usually divides the space into a least two distinct 'office spaces'.
- 4) They are not easy to divide into separate small user departments.

(i) and (ii)

- 1) More flexible than shallow spaces for systems of furniture and less demanding in the use of furniture systems than deep spaces.

6.3.7 FLOOR PLANS providing deep space (over 16 m)

Application:

It can be sub-divided into small offices, group spaces or left undivided. The open layout is most useful for large organisations with considerable interaction between working groups and subject to frequent change. Open layout within deep space is unsuitable for machine rooms because of the spread of noise.

Characteristics

- 1) Provide large space at constant level with minimum circulation.
- 2) Low-wall/floor ratio but high cost of services.

- 3) Office space is often unified with no dividing barriers.
- 4) Very small proportion of floor area is devoted to circulation.
- 5) Sub-division into separate small department-tenancies is almost impossible.

Additional notes:

- 1) With deep-space plans, the strongest limitation on the location of circulation routes is the position of the points of access.
- 2) It must be air conditioned and artificially lit.
- 3) It requires an overall distribution of services in floor and ceiling.
- 4) Carpeted floors and absorbent ceilings are needed to achieve a satisfactory acoustic environment.
- 5) It has the advantage of flexible planning.
- 6) Sub-divisions may be provided by screens and furniture rather than partitions.

6.4 Hygiene and Welfare facilities in offices

6.4.1 Hygiene facilities:

These may be based on the UK legal requirements as set out under the Offices, Shops and Railway Premises Act 1963²⁶ which lays down minimum standards for lavatory facilities. There appears to be no experimental basis for these requirements. A study was made by members of the UK Building Research Establishment of lavatory accommodation in use at a number of office buildings from which data collected was incorporated in a computer simulation model²⁹. Stemming from this work, a revised scale of hygiene facilities in offices has been proposed which offers a consistent standard of service.

Both the minimum UK legal requirements and the BRE minimum recommendations are listed on Plate 612 to which reference may be made in design.

6.4.2 Space Requirements

In the preliminary stages the following areas and sizes are a rough guide²⁷:

- 0.33 m² (3.5 sq ft) per man for WC's, urinals and wash basins) if
- 0.30 m² (3.0 sq ft) per woman for WC's and wash basins) combined
- 1.8 m × 0.9 m (6' × 3') size of a WC cubicle (without incinerator).

Additional space allowance should be made for other facilities such as drying, sanitary towel disposal, waste bins and clothes hanging.

Cleaners sinks, preferably in or next to the sanitary fittings area should number one per floor.

6.4.3 Rest-rooms

Should be located away from major sources of noise. Lighting, ventilation and some means of communication with other people should be easily controlled by room's occupant²⁷.

UK Civil Service Scale of Provision:

Buildings with over 2,000 staff	Normally with 37.2 m ² (400 sq ft) in two rooms plus a treatment room and a separate lavatory and WC.
1,001—2,000	: 23.2 m ² (250 sq ft) in two rooms etc, as above.
501—1,000	: 18.6 m ² (200 sq ft) divided by a screen into separate treatment area and rest area, normally sited close to women's lavatory.
41—500	: 11.2 m ² (120 sq ft) combined treatment and rest room, sited close to women's lavatory.
10—40	: 5.6 m ² (60 sq ft) may, if necessary, be provided as a screened off portion of a room, close to women's lavatory.
less than 10	: First aid box with chair and leg-rest.

6.4.4 *Disabled persons:*

These require special provisions: wheelchair access to both the lavatory area and the cubicle and a means for a disabled person to hoist himself/herself from the wheelchair on to the fitting must be provided. The minimum clearance of access or doorway to allow for a wheelchair should be 0.800 m²⁷ (2' 8").

6.5 **Fire Precautions**

- 6.5.1 Detailed guidance on measures to be taken to minimise the risk of fire, to confine its spread and to facilitate the escape to safety of occupants within an office building is given in British Standard Code of Practice CP3 Chapter IV Pt 3 (1968): 'Precautions against Fire: Office Buildings'³⁰ and in BRS Tropical Building legislation: 'Model Fire Regulations for Buildings of not more than six storeys'³¹.
- 6.5.2 In addition, it is strongly recommended that the Fire Officer is consulted from the outset of the design process and that liaison is maintained between him and the Design Team throughout the design, working drawing stage, construction and period of occupation of the building.
- 6.5.3 Fire Prevention: The likelihood of a fire or explosion occurring in the first place can be minimised by discouraging illegal entry to all or parts of the building by physical barriers or security checks; by controlling, reducing or excluding possible fire-sources; by limiting the use of combustible materials in the structure and finishes.
- 6.5.4 Fire Spread: In the event of fire or explosion, the flames, smoke and fumes should be confined to a limited area (compartment) for the maximum period to prevent spread, buying time and maintaining the integrity of escape routes outside and from that area.
- 6.5.5 Fire Warning and Fighting: The equipment, apparatus and water hydrants should be suitable for their application, strategically sited, regularly inspected and maintained to ensure they are in working order. Access to, and within the building for fire fighting operatives and their vehicles should be allowed for in the layout and such access should be unobstructed throughout the life of the building.
- 6.5.6 Means of Escape: If the occupants of the office building, whether staff or public, are to have a reasonable chance of escaping the effects of a fire or

6.5.6 (cont'd)

explosion inside the building their escape route should be carefully worked out to cater for any possible location they may be in at the time of the fire. It is equally important that their escape-route should remain unobstructed, protected and well defined at all times. It is suggested that occupying departments arranging for subsequent alterations to the layout of their office accommodation should be made aware of this requirement.

The main guide-lines for assessing the location, size, number and nature of these vital escape routes are summarised graphically on Plate 613.

6.6 **Control of the Internal Environment**

- 6.6.1 Natural ventilation: Despite its advantages of low capital cost, low maintenance costs and no energy consumption its use may be limited in certain applications. Such places are where site-restrictions have dictated a deep floor-plan with internal spaces away from external walls; in certain urban locations where the opening of windows would admit excessive noise from outside, atmospheric pollution or excessive winds (such as in high-rise buildings).

If it is found that, after designing the office-building in accordance with the principles set out in Section 2 of this Guide, the occupants of all the rooms would not be comfortable without the use of mechanical ventilation or air-conditioning, the various alternatives (extracted from references 32 and 33) are set out below for areas/offices which are unsatisfactory.

It should be remembered that it is equally important to incorporate these design principles whether the office building is to be air-conditioned or mechanically ventilated instead of naturally ventilated in order to reduce energy consumption, increase efficiency and lower maintenance costs.

- 6.6.2 Desk-fan or Wall-mounted fan: Its contribution to comfort conditions is its induction of air-movement by circulation only. Its advantages are low capital cost, flexible siting and ready availability of local control. Its limitations are high-noise levels, low-service value (air-handling capacity relative to power input) and a range limited to 4.8 metres (15' 9") for the larger models.
- 6.6.3 Built-in wall or Window Fan: Similarly, this type of fan induces air movement by circulation alone. Its advantages are as for the desk-fan but with the additional asset that its concealed power supply contributes to an overall neat appearance internally. Its limitations are as for the desk fan with additionally, the problem of its siting needing to be on an external wall either in the wall or window to which a certain amount of builder's work will be necessary.
- 6.6.4 Ceiling Fan A ceiling sweep fan fitted with three radial blades up to 1.5 metres (5' 0") diameter, hung from the ceiling by a single suspension rod and powered by an integral electrical motor controlled by remote switching again induces air movement by circulation only.
- Its advantages are low-capital cost, ready availability, a service value higher than for desk or wall-fans and a five speed range of controls. Its noise level is equal to the quietest of the desk-fans. It should be used only in rooms high enough to allow 2.4 m (8' 0") from floor to underside of blades.
- 6.6.5 Window/Wall Air-conditioner: Its installation contributes to comfort conditions by reducing the dry bulb and wet bulb temperatures and inducing air movement in the room. It consists of a hermetically sealed compressor which

6.6.5 (cont'd)

serves an extended surface-cooling coil over which air is drawn by a fan. Heat extracted from the room and absorbed by the refrigerant is discharged by another fan blowing air over the refrigerant condensing coil to the outside.

It is simple to install even on existing buildings, local control is readily available and its capital cost is low.

It may be considered too noisy for some executive offices and is unsuitable for densely occupied areas such as reference rooms and heavy-smoking zones. Its service life is limited to five years on average and air-filters are often inefficient in preventing dust from clogging the coil. It has high operating and maintenance costs. There is a tendency for draughts to be caused in its vicinity, which placing at 2 metres (6' 6") above the floor will reduce but will aggravate the maintenance operation.

If more than six closely spaced units are required, it may prove more economical to use a central air-conditioning plant with ducts.

6.6.6 Split System Air-conditioner: Its contribution to comfort conditions is similar to that of the wall-unit.

It consists of a room-unit with a fan, air-cooler and filter plus a separate cooling condenser with an air-cooled liquifier set up at about 15 m (50 ft) from the room unit. It re-circulates a high percentage of air in the room as it can only take up to 35 per cent fresh air without a reduction in performance. It is designed to be efficient in a sealed environment having non-opening windows.

It has a low noise-level and the position of the cooling condenser is flexible to suit a short-run of ducting to the room unit.

However, it will require expert installation for which there will be very high initial costs. Running costs too are high. Careful detailing is required to cope with drainage of considerable condensation water which occurs. In the event of a breakdown or cut in power supply, the sealed environment of the office rapidly becomes too hot for occupation.

6.6.7 Package Unit: It controls the internal environment by means of regulating the air-temperature, humidity and air-movement.

Essentially, it is a large edition of a home conditioner. Some types use evaporative condensers in which the refrigerant gas is condensed in tubes over which water is sprayed and air is drawn in counterflow. It is designed to be efficient in a sealed environment having non-opening windows.

It has a lower capital cost than central, custom-built plant and no full time attendant is necessary. Cooling and air-handling plant is brought together in a compact space-saving combination which may be accommodated in a roof space or on the roof.

Most of these units have water-cooled condensers requiring a separate cooling tower. A drainage connection is required. Duct-work routes have to be carefully pre-planned for integration with the structure. Compared with custom-built plant these units have higher running and maintenance costs and a shorter economic life. In the event of a breakdown or cut in power supply the sealed environment of the office rapidly becomes too hot for occupation.

6.6.8 Custom-built air-conditioning plant: Central plant controlling the internal environment by means of regulating the air-temperature, humidity and air-movement.

Since full air-conditioning entails substantial capital, running and maintenance costs, all practical means of avoiding or reducing its necessity should be considered at planning stage. However, once a need has been established, full advantages of its benefits should be taken.

These are its long economic life, opportunity to tailor-make the system to suit all prevalent conditions however complex, flexible choice of location on site to suit economic arrangement of ducting which used with water-cooled plant produces low noise levels in rooms. Compared with package units its running and maintenance costs are low.

Set against these advantages are its high capital cost, need to have a full time attendant if over a certain size and for only qualified experts to undertake servicing and inspection of cooling system and electrics. Water-cooled machines have to be connected to a cold water system in order to transfer heat away from condensers (although an economic cooling tower will keep water consumption low).

A central plant becomes more economic only for larger installations requiring more than one or two package units.

OFFICE ACCOMMODATION REQUIREMENT

authorised by: William Smith

date: 19 APRIL 1982

project title:

PROPOSED NEW OFFICES FOR DEPTS OF DIRECTION AND POLICY FORMULATION / PUBLIC BUILDINGS, BEACHTOWN, UTOPIA

ministry or department:

COMMUNICATIONS AND WORKS

STAFF NUMBERS:		current space req't.		forecast space req't (10 yrs)			approx percentage female staff 38%	ANCILLARY FACILITIES:			
title of post	staff group	staff nos.	entitlement m ²	total m ²	staff nos.	entitlement m ²	total m ²	remarks	facility required	scale and justification for facility	area m ²
permanent secretary	A	1	23.2/32.5	23.2/32.5	1	23.2/32.5	23.2/32.5	private office essential	RECEPTION AREA	based on average of 100 callers per day max.	AS NECESS.
senior asst. secretary	D	1	13.9/18.6	13.9/18.6	1	13.9/18.6	13.9/18.6	to communicate with perm. sec.	WAITING SPACE	to seat 15 persons at any one time	"
financial controller	D	1	13.9/18.6	13.9/18.6	1	13.9/18.6	13.9/18.6		LETTER-BOX IN ENTRANCE	to be large enough for small parcels	
assistant secretary	E	2	11.1/13.9	22.2/27.8	2	11.1/13.9	22.2/27.8		INTERVIEW ROOM	sited near waiting space/reception	7.4
administrative asst.	H	4	5.1/6.0	20.4/24.0	5	5.1/6.0	25.5/30.0		GENERAL PURPOSES ROOM	for use by staff associations/survey teams.	23.2
executive officer	G	1	7.0/8.4	7.0/8.4	3	7.0/8.4	21.0/25.2		STORAGE PROVISION	stationery cupboards	20
senior accountant	E	1	11.1/13.9	11.1/13.9	2	11.1/13.9	22.2/27.8		"	drawing office equipment	15
accountant	F	2	9.3/11.1	18.6/22.2	4	9.3/11.1	37.2/44.4		"	waste paper	10
storekeeper	H	2	5.1/6.0	10.2/12.0	1	5.1/6.0	5.1/6.0	rationalization of storage area planned	"	cleaner's equipment and sink	2
chief technical officer	B	1	18.6/23.2	18.6/23.2	1	18.6/23.2	18.6/23.2	private office essential	COMMITTEE ROOMS	TWO REQ'D EACH NEXT TO DIVISIONAL HEADS	30 (x 2)
dep. chief technical officer	C	3	18.6/23.2	55.8/69.6	2	18.6/23.2	37.2/46.4	private office essential	FIRST AID ROOM		AS NECESS.
senior clerk	H	1	5.1/6.0	5.1/6.0	2	5.1/6.0	10.2/12.0		RECREATION ROOM		"
clerical officer	H	46	5.1/6.0	234.6/276	54	5.1/6.0	275.4/324		STAFF LAVATORIES		"
secretary	H	2	5.1/6.0	10.2/12.0	3	5.1/6.0	15.3/18.0	to communicate with chf + dep chf tech off.	PUBLIC LAVATORIES	Accessible from RECEPTION AREA.	"
stenographer-typist	H	12	5.1/6.0	61.2/72.0	15	5.1/6.0	76.5/90	include provision for filing cabinets	CYCLE ACCOMMODATION	covered parking for 20 cycles	"
messenger	J	3	3.7/5.6	11.1/16.8	2	3.7/5.6	7.4/11.2		CAR-PARKING PROVISION	for 15 visitors cars	"
engineer	E	3	11.1/13.9	33.3/41.7	4	11.1/13.9	44.4/55.6		"	40 staff cars	"
quantity surveyor	E	1	11.1/13.9	11.1/13.9	2	11.1/13.9	22.2/27.8		"	5 official cars	"
draughtsman	H	10	5.1/6.0	51.0/60.0	13	5.1/6.0	66.3/78				
senior supt of works	E	1	11.1/13.9	11.1/13.9	1	11.1/13.9	11.1/13.9	direct access to workshop required.			
TOTAL STAFF C/F		98		643.6/783.1	119		768.8/931				

Equivalent to UK civil service grades listed under Treasury groups 1 and 2

Space entitlement is 23.2 - 32.5 square metres (250 - 350 square feet) per person.

Minimum space provision is indicated by the area contained within the heavy dotted line on layout opposite :

LAYOUT DRAWN 1:20 SCALE ON A 900 (2'-11 1/2") GRID :

Furniture Entitlement listed below and, for illustrative purposes only, is shown shaded on layout opposite :

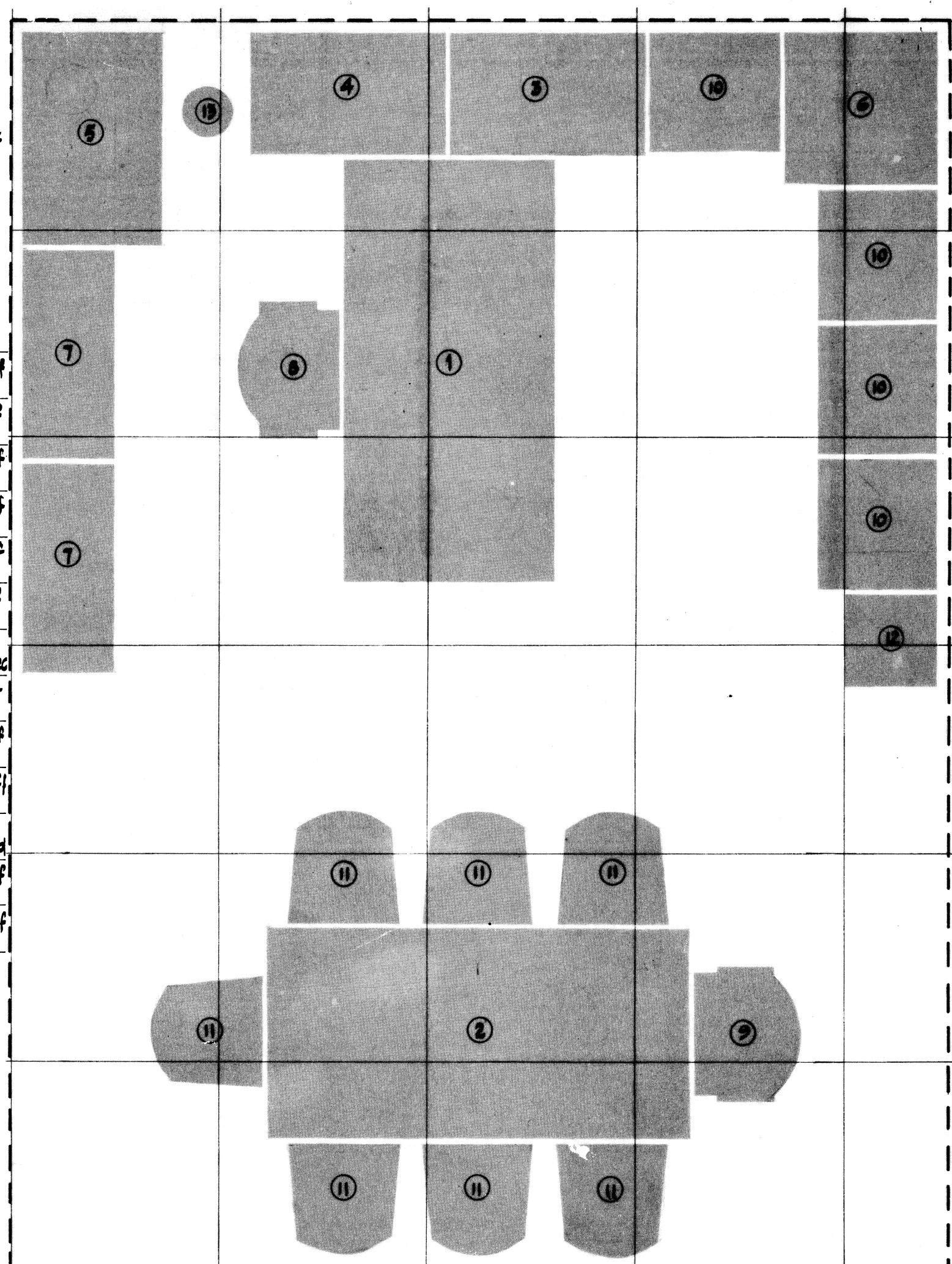
(Actual layouts will vary to suit site and operational conditions)

REFERENCE ON DRAWG :	DESCRIPTION :	SIZE :	NO :
①	double pedestal desk (timber)	1,829 long x 914 wide x 711 high : (6'-0") (3'-0") (2'-4")	1 off
②	committee table (timber)	1,829 long x 914 wide x 711 high : (6'-0") (3'-0") (2'-4")	1 off
③	side table (timber)	838 long x 533 wide x 711 high : (2'-9") (1'-9") (2'-4")	1 off
④	telephone table (timber)	838 long x 533 wide x 711 high : (2'-9") (1'-9") (2'-4")	1 off
⑤	reference table (timber)	914 long x 610 wide x 711 high : (3'-0") (2'-0") (2'-4")	1 off
⑥	low table (timber)	660 long x 660 wide x 305 high : (2'-2") (2'-2") (1'-0")	1 off
⑦	bookcase unit (timber)	914 wide x 406 deep x 1,981 high : (3'-0") (1'-4") (6'-6")	As needed
⑧	swivel desk-chair		1 off
⑨	conference arm chair		1 off
⑩	easy chair single unit		4 off
⑪	small conference chair		As needed
⑫	hat and coat stand		1 off
⑬	metal waste bin	229 diameter x 254 high (9") (10")	1 off

NOTE :

The recommended floor space and items of furniture refer to personalised entitlement only.

Extra furniture and/or space of an operational nature such as filing cabinets, plan chests, etc should be added



Equivalent to UK Civil Service grades listed under Treasury group 3

Space entitlement is 18.6 - 23.2 square metres (200 - 250 square feet) per person.

Minimum space provision is indicated by the area contained within the heavy dotted line on layout opposite:

LAYOUT DRAWN 1:20 SCALE ON A 900 (24 1/2") GRID:

Furniture Entitlement listed below and, for illustrative purposes only, is shown shaded on layout opposite:

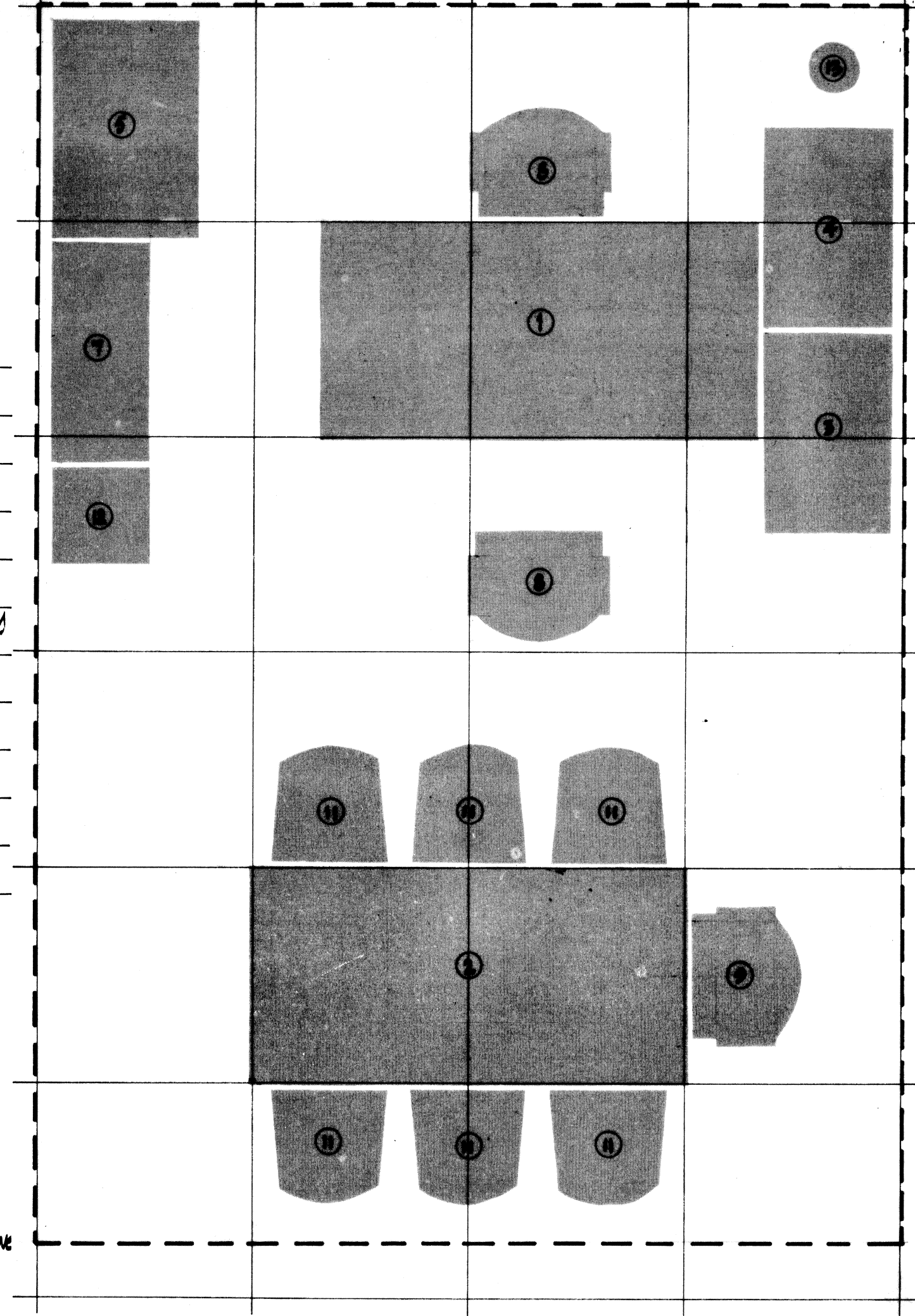
(Actual layouts will vary to suit site and operational conditions)

REFERENCE ON DRAWG:	DESCRIPTION:	SIZE	NUMBER
①	double-pedestal desk (timber)	1,829 long x 914 wide x 711 high (6'0" (3'0" (2'4"	1 off
②	committee table (timber)	1,829 long x 914 wide x 711 high (6'0" (3'0" (2'4"	1 off
③	side-table (timber)	838 long x 593 wide x 711 high (2'9" (1'9" (2'4"	1 off
④	telephone table (timber)	838 long x 593 wide x 711 high (2'9" (1'9" (2'4"	1 off
⑤	reference table (timber)	914 long x 610 wide x 711 high (3'0" (2'0" (2'4"	1 off
⑦	bookcase unit (timber)	914 wide x 406 deep x 1,981 high (3'0" (1'4" (6'6"	as necessary
⑧	swivel desk chair		2 off
⑨	conference arm chair		1 off
⑪	small conference chair		as necessary
⑫	hat and coat stand		1 off
⑬	metal waste bin	229 diameter x 254 high (9" (10"	1 off

NOTE:

The recommended floor space and items of furniture refer to personalised entitlement only.

Extra furniture and/or space of an operational nature such as filing cabinets, plan chests, etc should be added to those quoted above



Equivalent to UK Civil Service grades listed under Treasury group 4

Space entitlement is 18.6 - 23.2 square metres (200 - 250 square feet) per person.

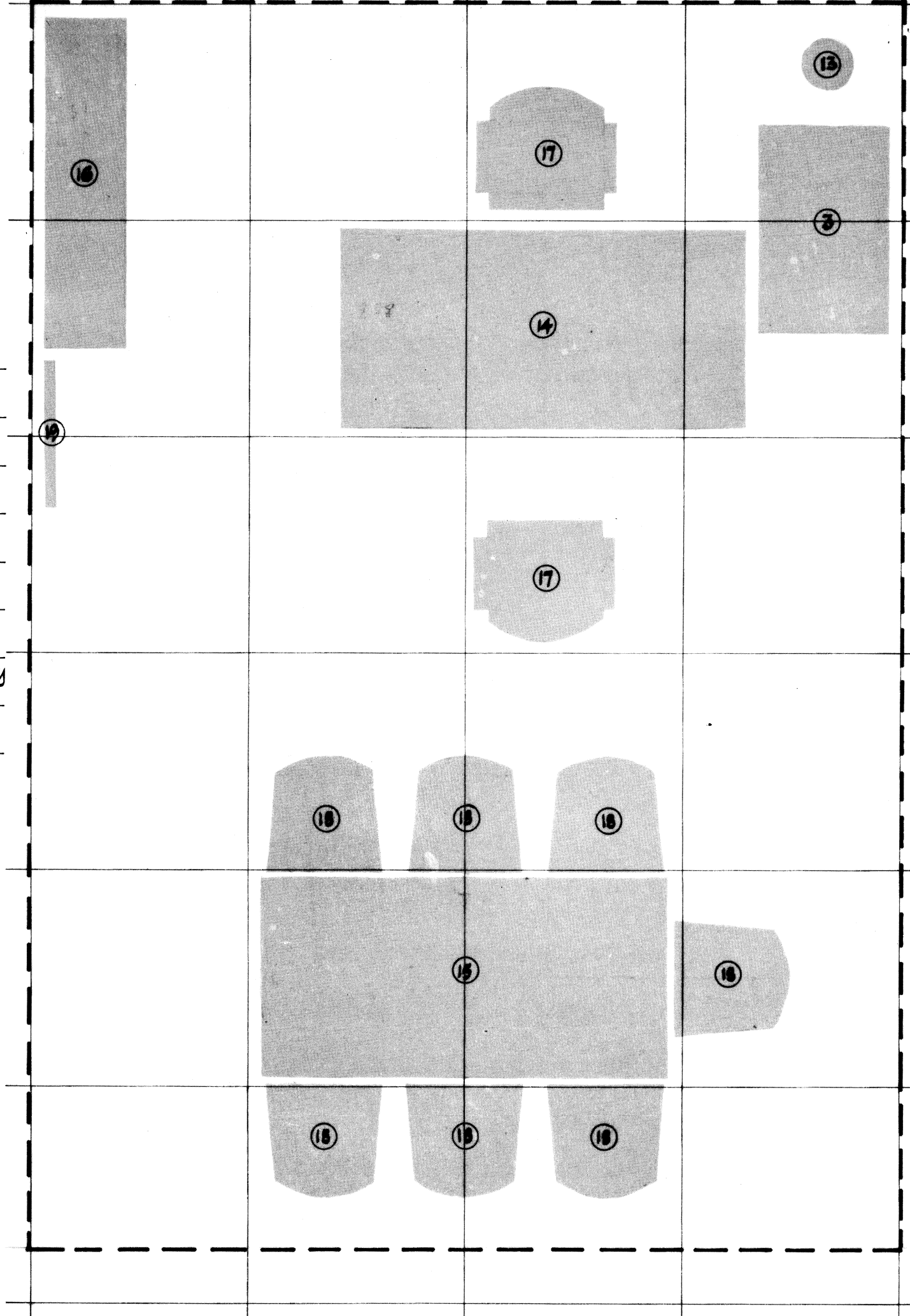
Minimum space provision is indicated by the area contained within the heavy dotted line on layout opposite:

LAYOUT DRAWN 1:20 SCALE ON A 900 (2'-11 1/2") GRID:

Furniture Entitlement listed below and, for illustrative purposes only, is shown shaded on layout opposite:

(Actual layouts will vary to suit site and operational conditions)

REFERENCE ON DRAW	DESCRIPTION:	SIZE:	NUMBER:
③	side table (timber)	838 long x 533 wide x 711 high (2'9") (1'9") (2'4")	1 off
⑬	metal waste bin	229 diameter x 254 high (9") (10")	1 off
⑭	double pedestal desk (timber)	1,676 long x 838 wide x 711 high (5'6") (2'9") (2'4")	1 off
⑮	committee table (timber)	1,676 long x 838 wide x 711 high (5'6") (2'9") (2'4")	1 off
⑯	bookcase unit (timber)	1,372 wide x 330 deep x 656 high (4'6") (1'1") (2'1 3/4")	1 off
⑰	tubular steel arm chair		2 off
⑱	tubular steel small chair		As necessary
⑲	rail with 2 pegs for hat and coats		1 off



NOTE:

The recommended floor space and items of furniture refer to personalised entitlement only.

Extra furniture and/or space of an operational nature such as filing cabinets, plan chests, etc. should be added to those quoted above.

Equivalent to UK Civil Service grades listed under Treasury group 5

Space entitlement is 13.9 - 18.6 square metres (150 - 200 sq.ft) per person.

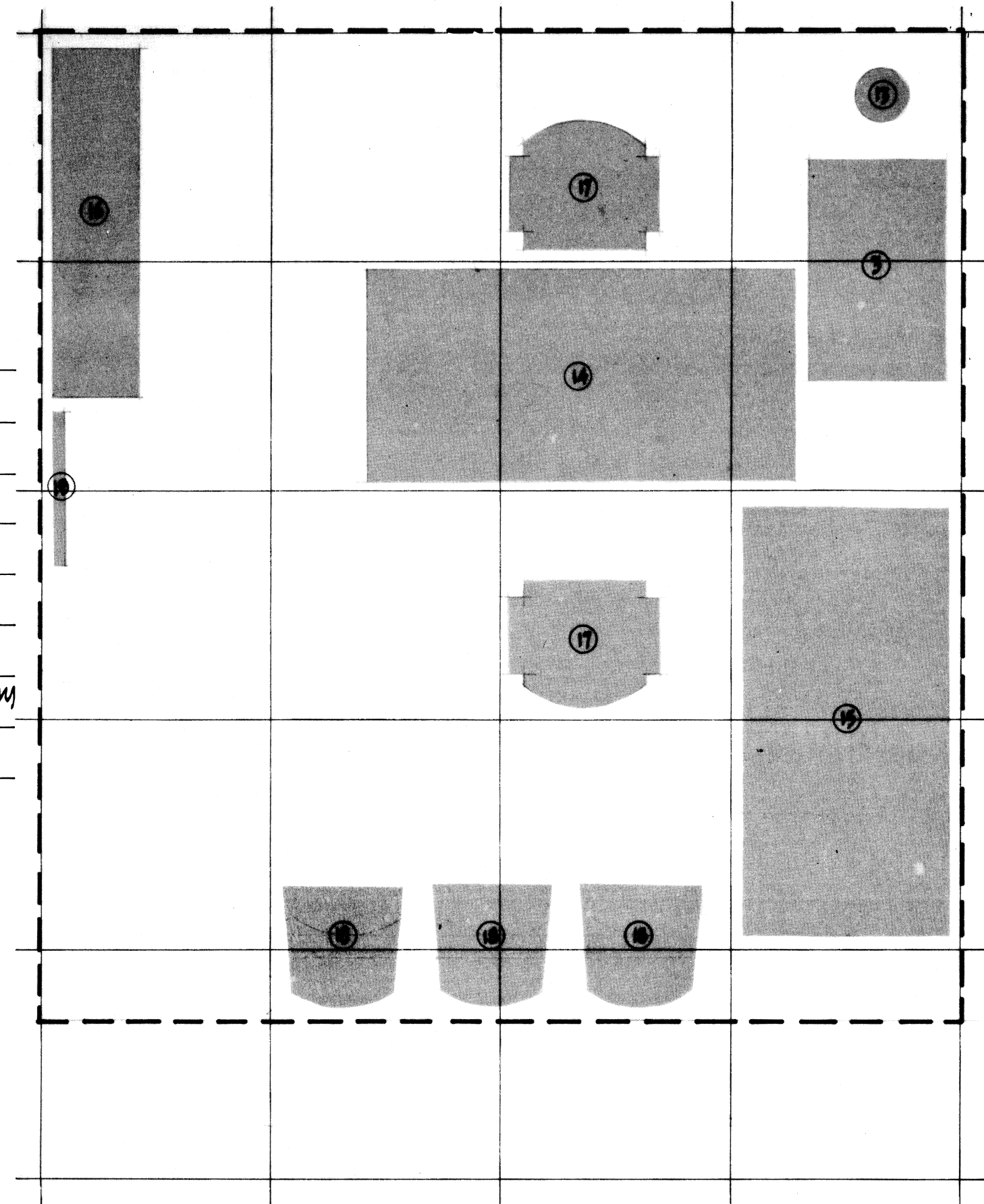
Minimum space provision is indicated by the area contained within the heavy dotted line on layout opposite:

LAYOUT DRAWN 1:20 SCALE ON A 900 (2'11 1/8") GRID:

Furniture entitlement listed below and, for illustrative purposes only, is shown shaded on layout opposite:

(Actual layouts will vary to suit site and operational conditions)

REFERENCE ON DRAWG:	DESCRIPTION:	SIZE:	NUMBER:
③	side table (timber)	838 long x 533 wide x 711 high (2'9") (1'9") (2'4")	1 off
⑬	metal waste bin	229 diameter x 254 high (9") (10")	1 off
⑭	double pedestal desk (timber)	1,676 long x 838 wide x 711 high (5'6") (2'9") (2'4")	1 off
⑮	committee table (timber)	1,676 long x 838 wide x 711 high (5'6") (2'9") (2'4")	1 off
⑯	bookcase unit (timber)	1,972 wide x 330 deep x 856 high (4'6") (1'1") (2'10 1/4")	1 off
⑰	tubular steel arm chair		2 off
⑱	tubular steel small chair		As necessary
⑲	rail with 2 pegs for hats and coats		1 off



NOTE:

The recommended floor space and items of furniture refer to personalised entitlement only.

Extra furniture and/or space of an operational nature such as filing cabinets, plan-chests, etc. should be added to those quoted above.

Equivalent to UK Civil Service grades listed under Treasury group 6

space entitlement is 11.1 - 13.9 square metres (120 - 150 square feet) per person.

Minimum space provision is indicated by the area contained within the heavy dotted line on layout opposite:

LAYOUT DRAWN 1:20 SCALE ON A 900 (2'-11 1/2") GRID:

Furniture entitlement listed below and, for illustrative purposes only, is shown shaded on layout opposite:

(Actual layouts will vary to suit site and operational conditions)

REFERENCE ON DRAWG :	DESCRIPTION :	SIZE :	NUMBER :
13	metal waste bin	229 diameter x 254 high (9") (10")	1 off
17	tubular steel arm chair		1 off
18	tubular steel small chair		As necessary
20	double pedestal desk (steel)	1,600 long x 838 wide x 711 high (5'3") (2'9") (2'4")	1 off
21	side table (steel)	838 long x 533 wide x 711 high (2'9") (1'9") (2'4")	1 off

ADDITIONAL Furniture Entitlement, for those whose work includes draughting, is listed below

and, for illustrative purposes only, is shown in broken shading on the layout opposite:

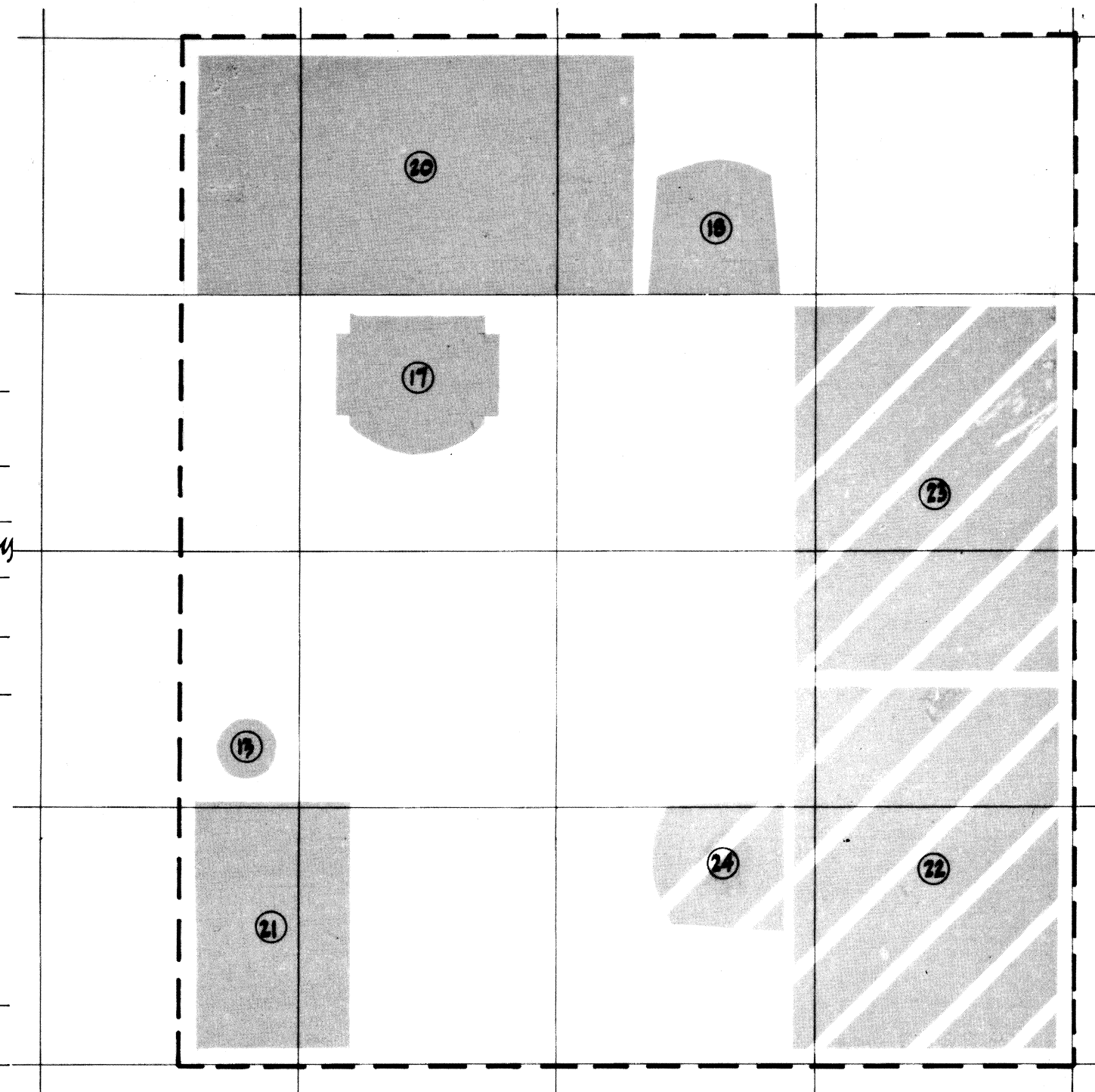
(Actual layouts will vary to suit site and operational conditions).

REFERENCE ON DRAWG :	DESCRIPTION :	SIZE :	NUMBER :
22	A0 size drawing board on stand	1,270 long x 920 wide (4'2") (3'0 1/4")	1 off
23	Draughting reference table with drawers	1,270 long x 920 wide (4'2") (3'0 1/4")	1 off
24	Adjustable height draughting chair		1 off

NOTE :

The recommended floor space and items of furniture refer to personalised entitlement only:

Extra furniture and/or space of an operational nature such as filing cabinets, plan chests, etc. should be added to those quoted above



Equivalent to UK Civil Service grades listed under Treasury group 7.

Space entitlement is 9.3 to 11.1 square metres (100 to 120 square feet) per person.

Minimum space provision is indicated by the area contained within the heavy dotted line on layout opposite :

LAYOUT DRAWN 1:20 SCALE ON A 900 (2'-11 1/2") GRID :

Furniture entitlement listed below and, for illustrative purposes, is shown shaded on layout opposite :

(Actual layouts will vary to suit site and operational conditions)

REFERENCE ON DRAW:	DESCRIPTION:	SIZE:	NUMBER:
(17)	tubular steel arm chair		1 off
(18)	tubular steel small chair		As necessary
(25)	single pedestal desk (steel)	1,524 long x 838 wide x 711 high (5'-0" 2'-9" 2'-4")	1 off

NOTE: waste bins to be shared as necessary between staff

ADDITIONAL Furniture entitlement, for those whose work includes draughting, is listed below

and, for illustrative purposes only, is shown in broken shading on the layout opposite :

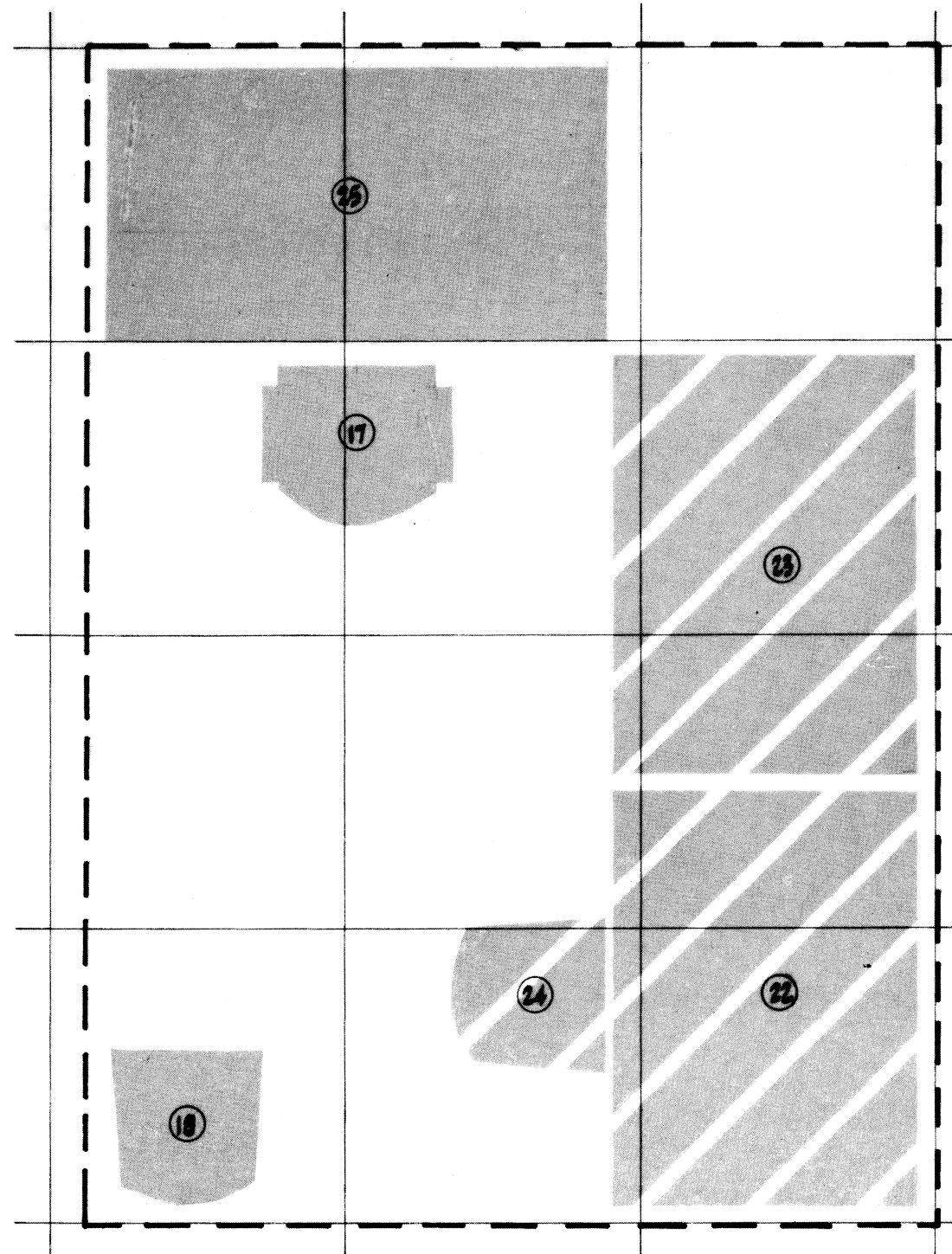
(Actual layouts will vary to suit site and operational conditions)

REFERENCE ON DRAW:	DESCRIPTION:	SIZE:	NUMBER:
(22)	A0 size drawing board on stand	1,270 long x 920 wide (4'-2" 3'-0 1/4")	1 off
(23)	Draughting reference table with drawers	1,270 long x 920 wide (4'-2" 3'-0 1/4")	1 off
(24)	Adjustable height draughting chair		1 off

NOTE :

The recommended floor space and items of furniture refer to personalised entitlement only :

Extra furniture and/or space of an operational nature such as filing cabinets, plan chests, etc. should be added to those quoted above.



Equivalent to U.K. Civil Service grades listed under Treasury group B.

Space entitlement is 7.0 - 8.4 square metres (75 - 90 sq ft) per person .

Minimum space provision is indicated by the area contained within the heavy dotted line on layouts opposite :

LAYOUT DRAWN 1:20 SCALE ON A 900 (2'-11 1/2") GRID :

Furniture entitlement listed below and, for illustrative purposes only, is shown shaded on upper layout for ADMINISTRATIVE STAFF :

(Actual layouts will vary to suit site and operational conditions).

REFERENCE ON DRAWING :	DESCRIPTION :	SIZE :	NUMBER :
⑰	tubular steel arm chair		1 off.
⑳	single pedestal desk (steel)	1,524 long x 838 wide x 711 high (5'-0" (2'-9" (2'-4")	1 off.

NOTE : waste bins to be shared as necessary between staff.

ALTERNATIVE Furniture entitlement for DRAUGHTSMEN/WOMEN is listed below

and, for illustrative purposes only, is shown shaded on lower layout :

(Actual layouts will vary to suit site and operational conditions).

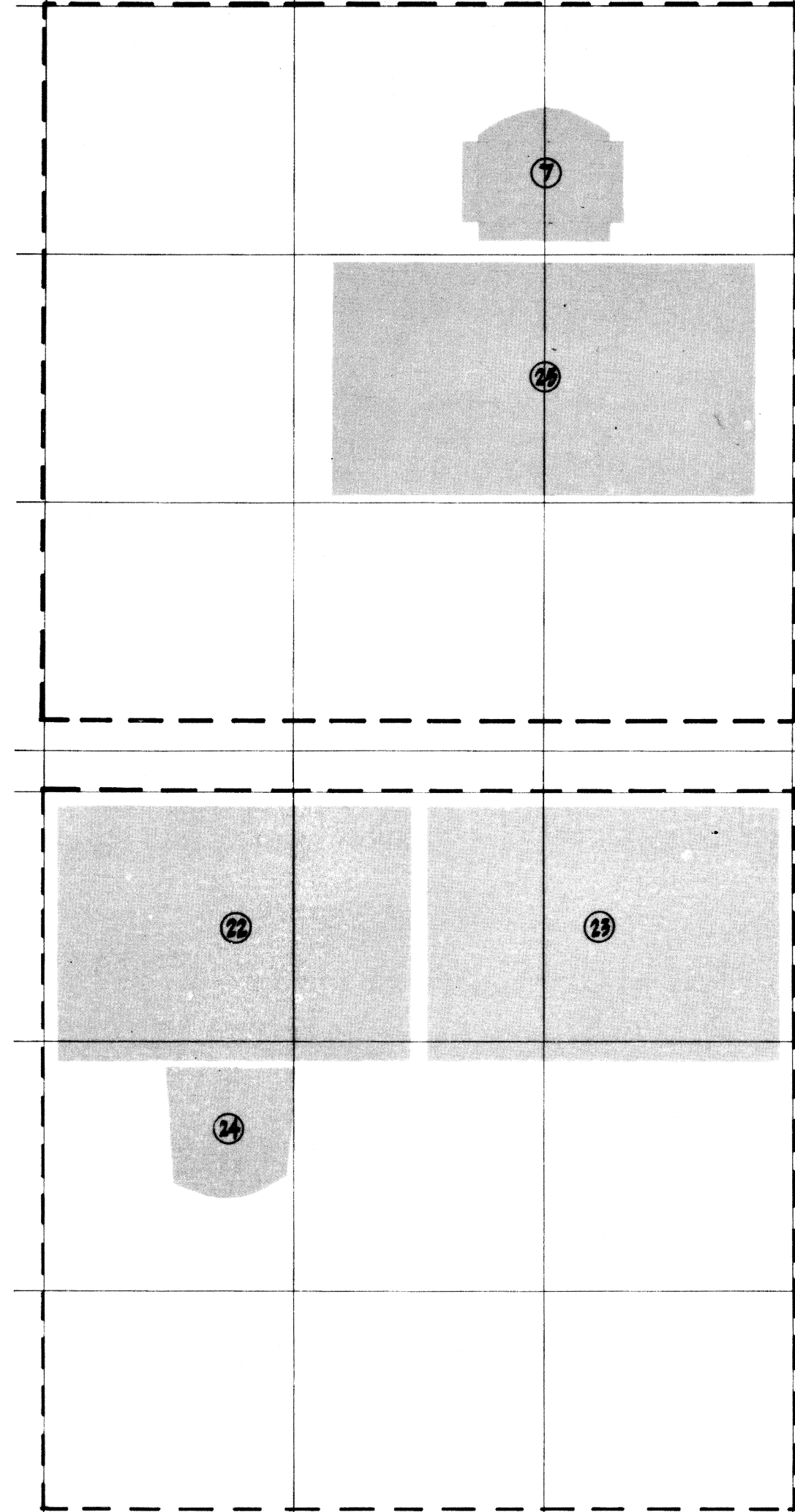
REFERENCE ON DRAWING :	DESCRIPTION :	SIZE :	NUMBER :
㉒	A0 size drawing board on stand	1,270 long x 920 wide (4'-2" (3'-0 1/4")	1 off
㉓	Draughting reference table with drawers	1,270 long x 920 wide (4'-2" (3'-0 1/4")	1 off
㉔	Adjustable height draughting chair		1 off

NOTE : waste bins to be shared as necessary between staff

NOTE :

The recommended floor space and items of furniture refer to personalised entitlement only :

Extra furniture and/or space of an operational nature such as filing cabinets, plan chests, etc. should be added to those quoted above.



Equivalent to U.K. Civil Service grades listed under Treasury group 9.

Space entitlement is 5.1 to 6.0 square metres (55 to 65 sq. ft) per person.

Minimum space provision is indicated by the area contained within the heavy dotted line on layouts opposite:

LAYOUT DRAWN 1:20 SCALE ON A 900 (2'11 1/2") GRID:

Furniture entitlement listed below and, for illustrative purposes only, is shown shaded on upper layout for CLERICAL STAFF:

(Actual layouts will vary to suit site and operational conditions).

REFERENCE ON DRAW:	DESCRIPTION:	SIZE:	NUMBER:
(17)	tubular steel arm chair		1 off
(25)	single pedestal desk (steel)	1,524 long x 838 wide x 711 high (5'0" (24'9") (2'4")	1 off

NOTE: waste bins to be shared as necessary between staff

ALTERNATIVE Furniture entitlement for SECRETARIES is listed below

and, for illustrative purposes only, is shown shaded on lower layout:

(Actual layouts will vary to suit site and operational conditions)

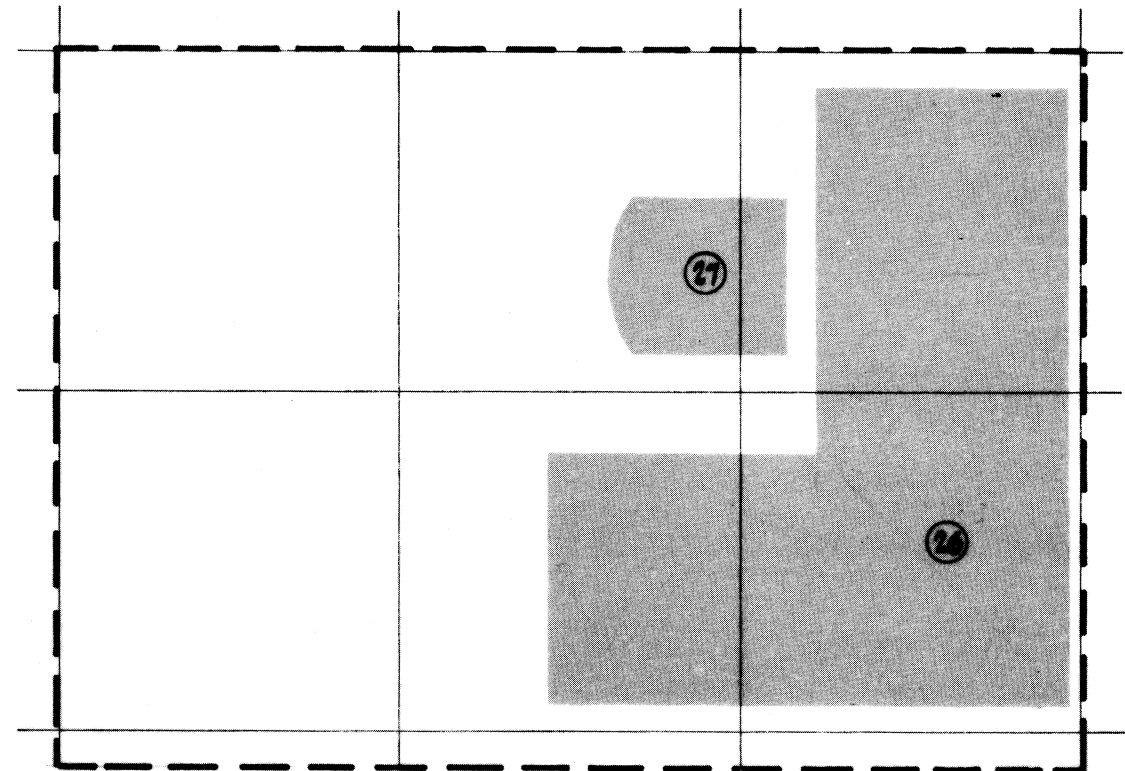
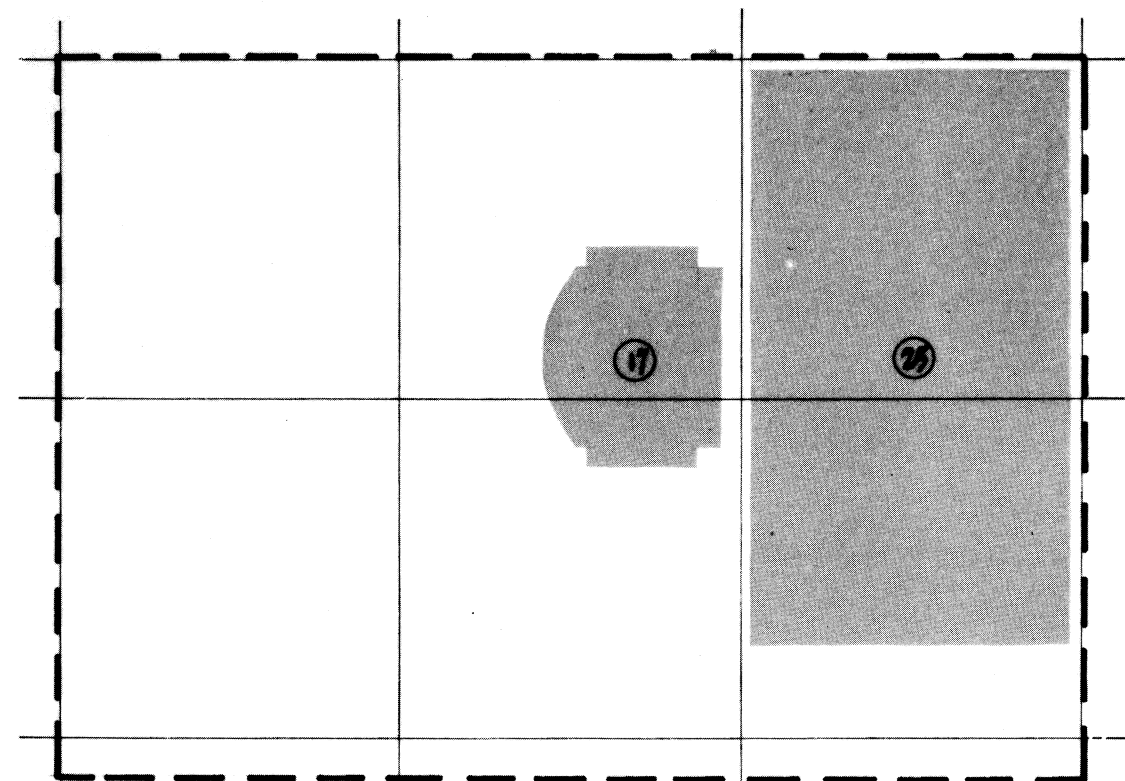
REFERENCE ON DRAW:	DESCRIPTION:	SIZE:	NUMBER:
(26)	'L'-shaped pedestal desk (steel)	1,626 long x 1,321 wide x 711 high (5'4" (4'6") (2'4")	1 no.
(27)	typist's chair		1 no.

NOTE: waste bins to be shared as necessary between staff.

NOTE:

The recommended floor space and items of furniture refer to personalised entitlement only:

Extra furniture and/or space of an operational nature such as filing cabinets, plan chests, etc. should be added to those quoted above.



Equivalent to UK civil service grades listed under Treasury Group 10.

Space entitlement is 3.7 - 5.6 square metres (40-60 sq. ft.)

Minimum space provision is indicated by the area contained within the heavy dotted line on layouts opposite:

LAYOUT DRAWN 1:20 SCALE ON A 900 (2'11 1/2") GRID:

Furniture entitlement listed below, and, for illustrative purposes only, is shown shaded on upper layout for clerical staff:

(Actual layouts will vary to suit site and operational conditions).

REFERENCE ON DRAWG:	DESCRIPTION:	SIZE:	NUMBER:
(18)	tubular steel small chair		1 off
(25)	single pedestal desk (steel)	1,524 long x 838 wide x 711 high (5'0" 2'9" 2'4")	1 off

NOTE: waste bins to be shared as necessary between staff

ALTERNATIVE furniture entitlement for TYPISTS is listed below

and, for illustrative purposes only, is shown shaded on lower layout:

(Actual layouts will vary to suit site and operational conditions).

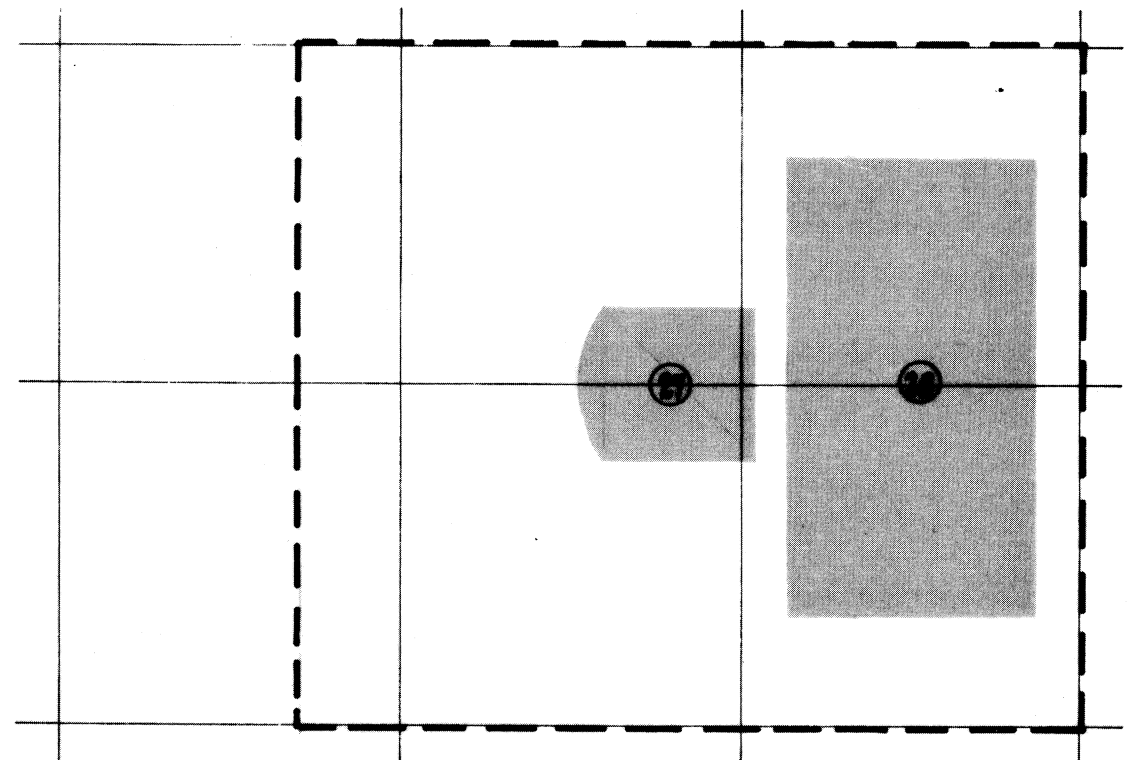
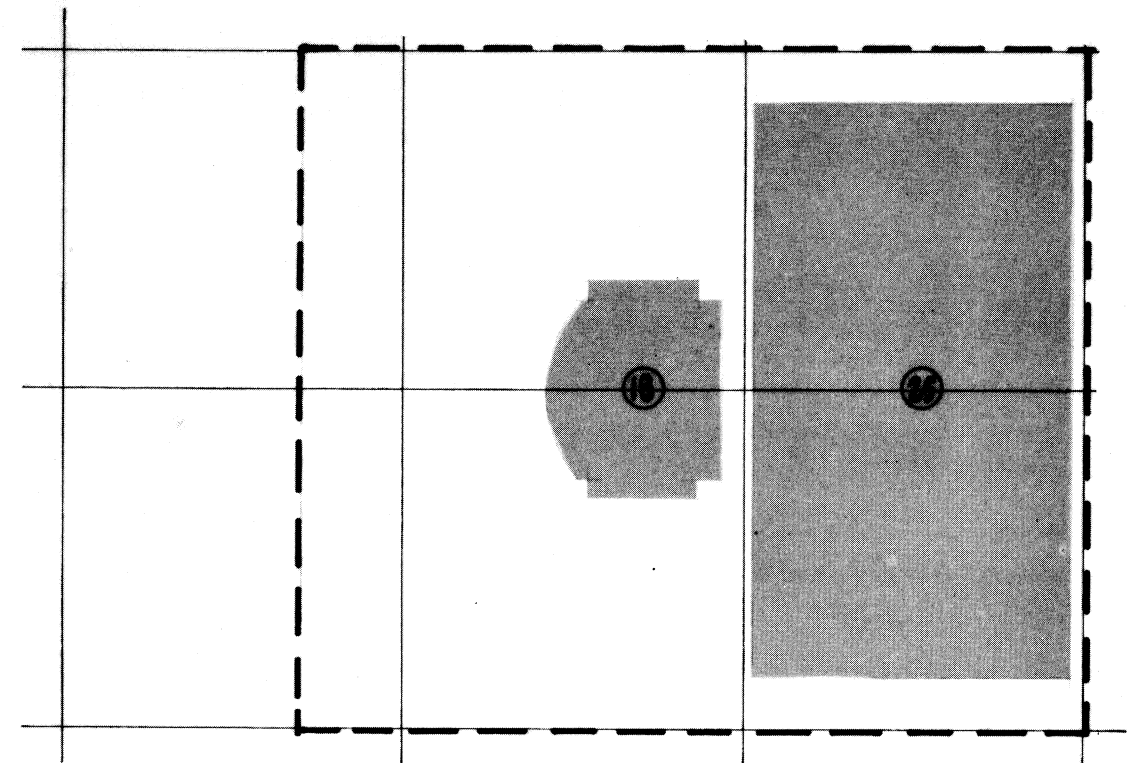
REFERENCE ON DRAWG:	DESCRIPTION:	SIZE:	NUMBER:
(27)	typist's chair		1 off
(28)	single pedestal typist's table (steel)	1,219 long x 660 wide x 673 high (4'0" 2'2" 2'2 1/2")	1 off

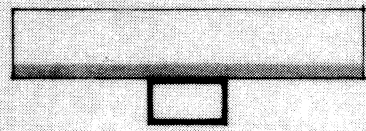
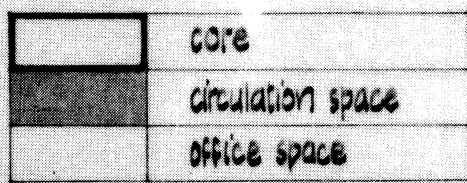
NOTE: waste bins to be shared as necessary between staff

NOTE:

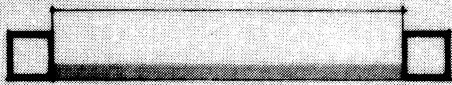
The recommended floor space and items of furniture refer to personalised entitlement only:

Extra furniture and/or space of an operational nature such as filing cabinets, plan chests, etc. should be added to those quoted above.

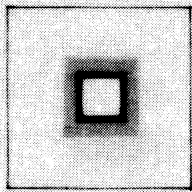




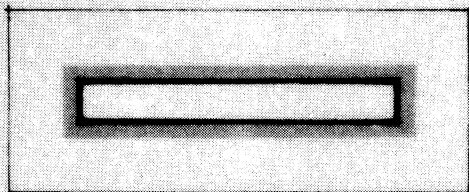
MAX. 9 m (30 ft)



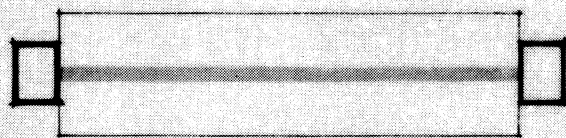
MAX. 9 m (30 ft)



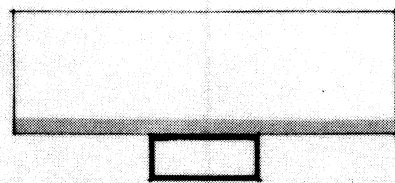
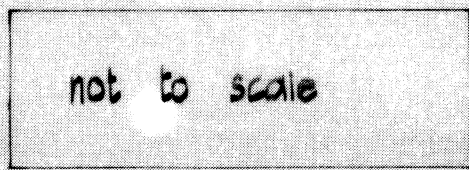
MAX. 18 m + core (60 ft)



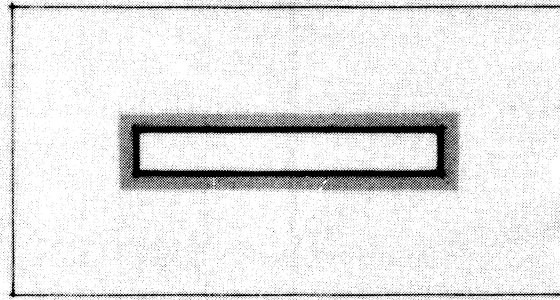
MAX. 18 m + core (60 ft)



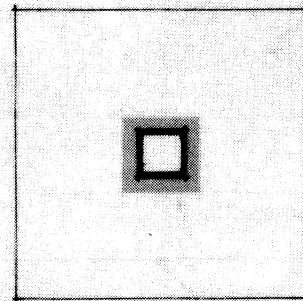
MAX. 16 m (53 ft)



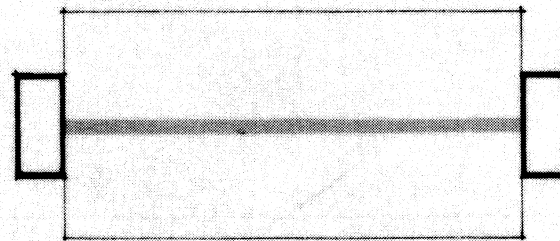
MAX. 18 m (60 ft)



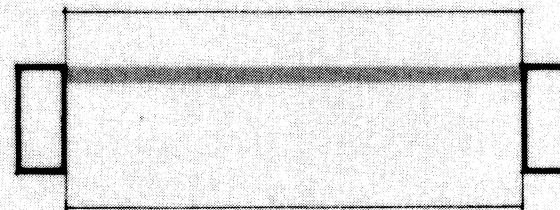
MAX. 36 m + core (120 ft)



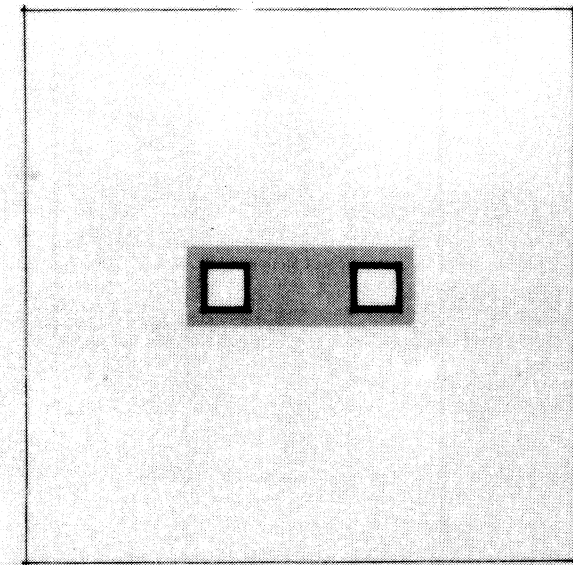
MAX. 36 m + core (120 ft)



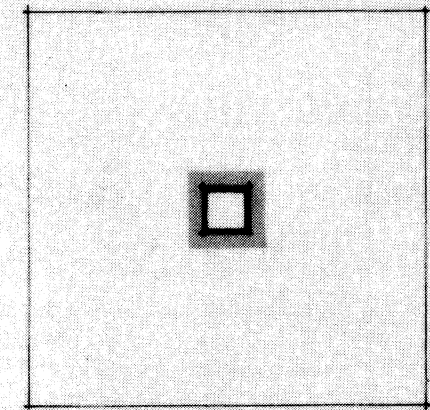
MAX. 34 m (113 ft)



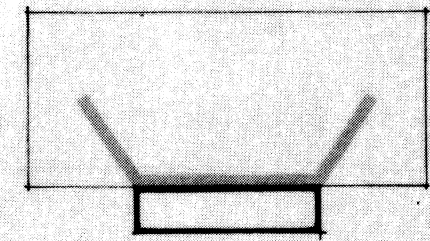
MAX. 25 m (82 ft)



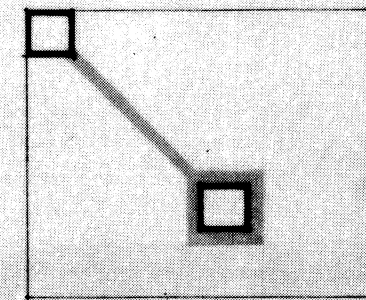
over 36 m + core (120 ft)



over 36 m + core (120 ft)



over 18 m (60 ft)



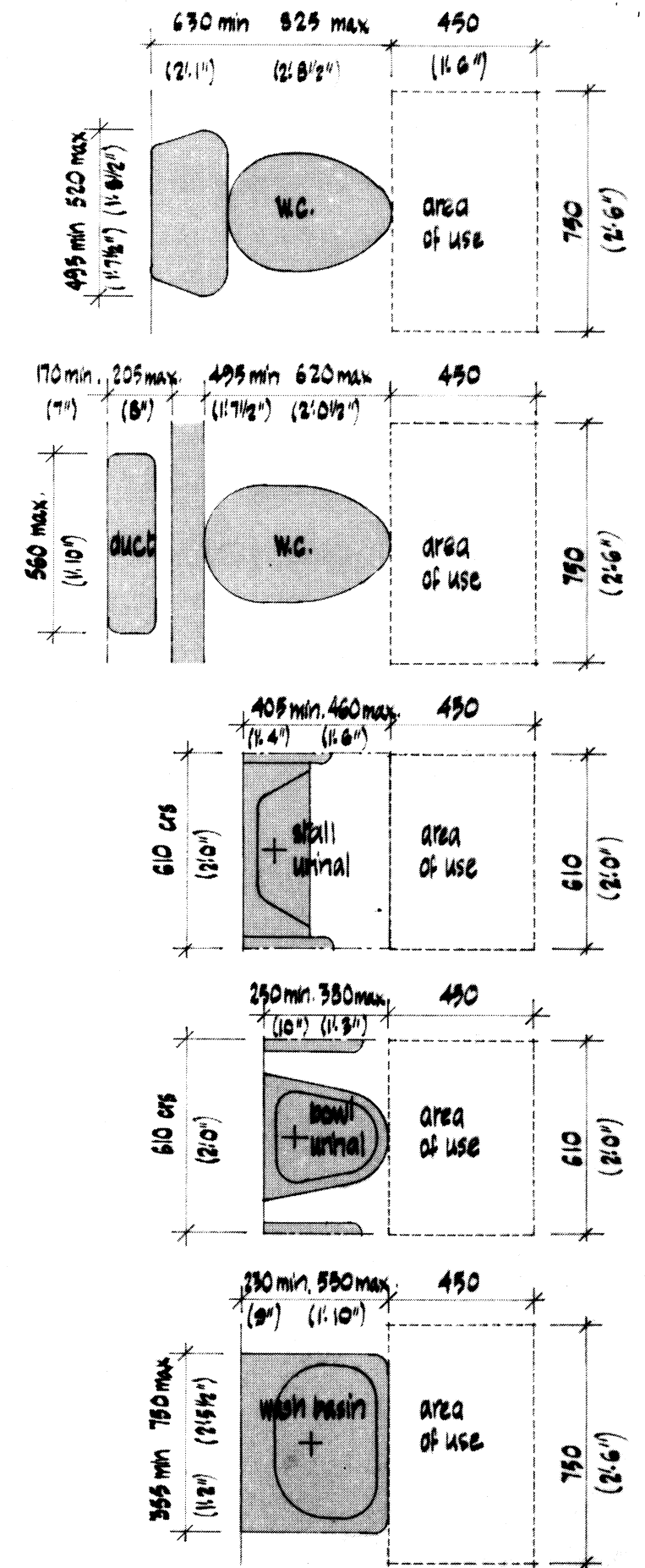
MAX. 9 m (30 ft)
over 18 m (60 ft)

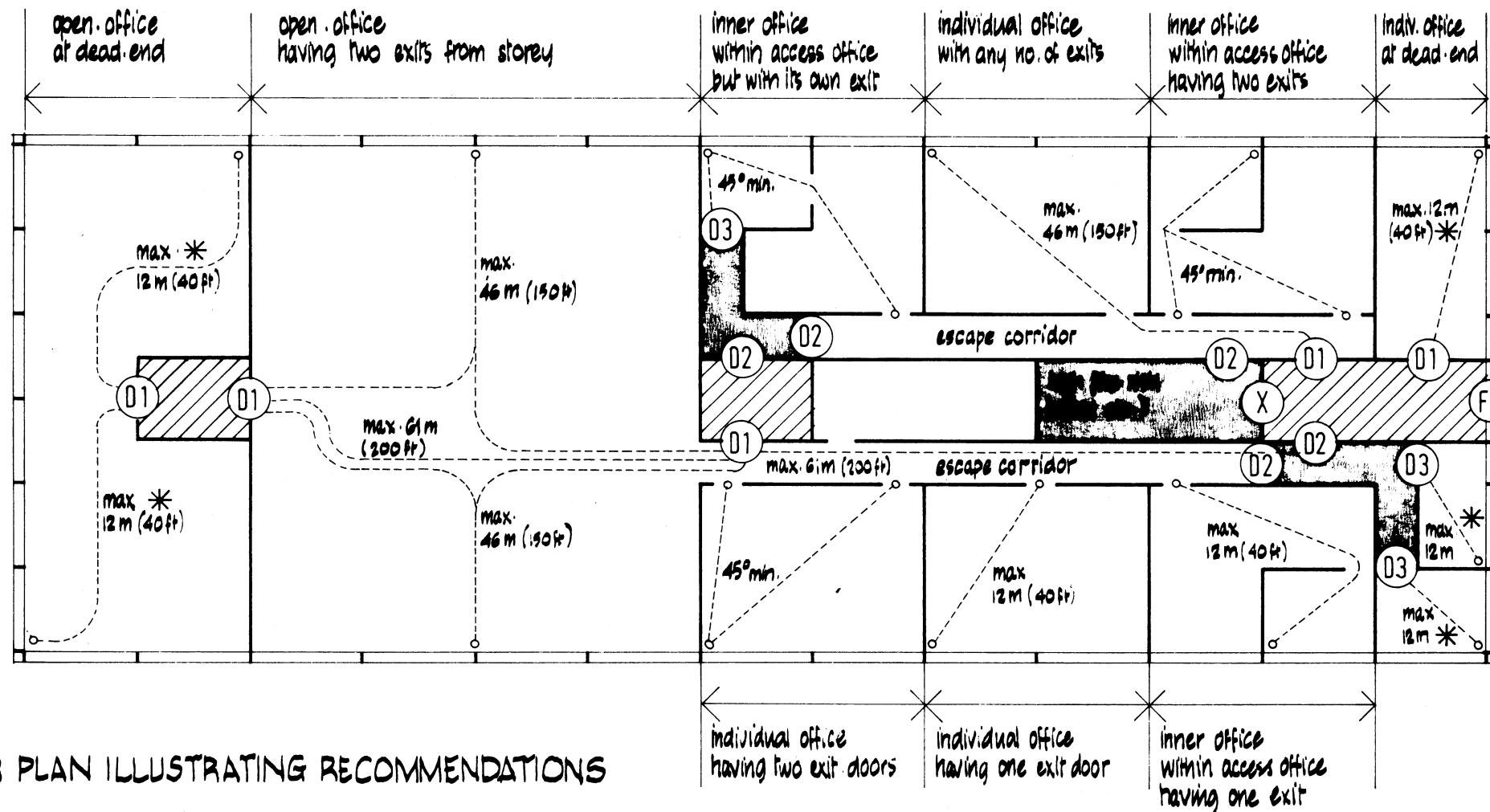
FLOOR PLANS PROVIDING SHALLOW SPACE (UP TO 7m : 23FT)

FLOOR PLANS PROVIDING MEDIUM DEPTH SPACE (7m-16m : 23FT-53FT)

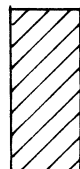




FLOOR PLANS PROVIDING DEEP SPACE (OVER 16m : 53FT)

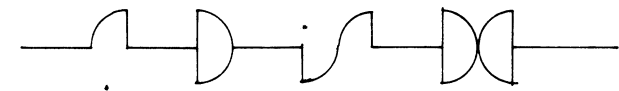
OFFICE POPULATION	W.C.'S IF NO URINALS PROVIDED		W.C.'S IF URINALS PROVIDED TOO		URINALS		WASH. BASINS		
	UK statutory minimum number	BSR recommended minimum number	UK statutory minimum number	BSR recommended minimum number	UK statutory minimum number	BSR recommended minimum number	UK statutory minimum number	BSR recommended minimum number	
1-5	1	1	1	1	NIL	NIL	1	1	MEN
6-10	1	2	1	1	NIL	1	1	1	
11-15	1	2	1	2	NIL	1	1	1	
16-20	1	2	1	1	1	2	2	1	
21-25	2	2	2	2	1	2	2	2	
26-30	2	3	2	2	1	2	2	2	
31-45	3	3	2	3	2	2	3	2	
46-50	3	3	3	3	2	2	3	2	
51-60	4	4	3	3	2	2	4	2	
61-75	4	4	3	4	3	3	4	2	
76-90	5	5	4	4	3	3	5	2	
91-100	5	5	4	4	4	3	5	2	
over 100	add 1 per 25	add 1 per 25	(if in 4 maybe urinals) add 1 per 25	add 1 per 50	(see column 3) add 1 per 100	add 1 per 100	add 1 per 25	add 1 per 50	
1-10	1	1					1	1	WOMEN
11-15	1	2					1	1	
16-25	2	2					2	2	
26-30	2	3					2	2	
31-50	3	3					3	2	
51-75	4	4					4	2	
76-100	5	4					5	add 1 per 150 over 80	
over 100	add 1 per 25	add 1 per 50					add 1 per 25		





KEY TO SYMBOLS :

-  escape staircase or protected shaft in enclosure (to be of fire-resistance required by Fire Regulations for the whole structure) to be continuous throughout height of building but not down to basement if it is only escape staircase in the building.
-  area to be enclosed by a minimum of 1/2 hour fire-resistant construction.
-  dimensions marked thus may be increased to 30m (100ft) provided that opening windows 840mm high x 535mm wide (2'9" x 1'9") are fitted in all offices, their sills are no more than 3.8m (12'6") above outside ground or 915mm (3'0") above inside floor level and the ground outside is unobstructed for a distance of 1.8m (6'0").
-  shortest unobstructed route between furthest point and storey exit (or open air) : max travel distance
-  shortest unobstructed route between 2 storey exits (including exits to open air).
- (D1)** provide a 1/2 hr. 30/30 fire-resistant door automatically self-closing set in 25mm (1") rebated frame all in accordance with BS 476 Sect. 3 Pt I 1953.
- (D2)** provide what would perform as a 1/2 hr. 30/30 fire-resistant door if fitted in frame as above but may be hung to swing.



- (D3)** provide what would perform as a 1/2 hr 30/20 f-res. door if fitted with 25mm (1") glued and screwed stops (as in BS. 476) but may be set in 13mm (1/2") rebated frame and hung on rising bolts to swing in either of these ways:



- (FE)** provide at ground floor level a final-escape door which must open out in direction of escape and be not less than the min. width of escape staircase leading to it: It must be operable from inside at all times without using keys.

- (X)** NO direct link of any kind allowed between two areas.

NOTE : This sheet summarizes the main recommendations of BS CODES OF PRACTICE CHAPTER IV Pt 3 (1968): PRECAUTIONS AGAINST FIRE: OFFICE BUILDINGS which should be consulted for all other and more detailed aspects of fire-prevention and fire-fighting outside the scope of this sheet.

FLOOR PLAN ILLUSTRATING RECOMMENDATIONS

ESCAPE ROUTES :
 All escape routes to be kept clear at all times.
 All doors on escape routes should be kept unlocked at all times.
 All EXIT doors should be clearly indicated by an EXIT sign.
 All escape routes should be clearly indicated till FINAL EXIT is in sight.
 All escape routes from inner offices should pass through no more than one access office (which should be in same occupancy).
 Type D2 doors (fitted with wired glass vision panels) should be inserted across all long escape corridors at 6.1m (200ft) max centres.

STAIRCASE DETAILS :
 min. width of staircase is measured between walls and may be reduced by 76mm (3") where measured between wall and inside of balustrade.
 A continuous handrail should be provided.
 Treads should be not less than 254mm (10") measured from riser to riser and risers no more than 190mm (7 1/2").
 Flights should consist of not less than 3, nor more than 16 risers and winders should be avoided.
 Headroom should be not less than 1,980mm (6'6") measured vertically above line of nosings.
 Staircases wider than 2,130 (7'0") should be provided with a central handrail and exit notices should be provided in each stair enclosure at the level of discharge to the FINAL EXIT.

TABLE FOR DETERMINING WIDTH OF ESCAPE STAIRCASES IN OFFICES											
gross floor area of storey served		max. no. of people on each storey	min. width for each staircase				height of building				
			1 stair	2 stairs	3 stairs	4 stairs					
M ²	FT ²		M	FT	INS	M	FT	INS	M	FT	INS
UP TO 230	UP TO 2,500	25	0.765	2-6							ANY HEIGHT
OVER 230	OVER 2,500	OVER 25	1.070	3-6							
UP TO 1,860	UP TO 20,000	200			1.070	3-6					ONLY ONE FLOOR ABOVE GROUND FLOOR
1,861 - 2,140	20,001 - 23,000	230			1.220	4-0					
2,141 - 2,420	23,001 - 26,000	260			1.372	4-6					
2,421 - 2,700	26,001 - 29,000	290			1.525	5-0					
2,701 - 2,980	29,001 - 32,000	320			1.678	5-6					
UP TO 3,720	32,001 - 40,000	400					1.070	3-6			TWO OR MORE FLOORS ABOVE GROUND FLOOR
UP TO 230	UP TO 2,500	25			0.765	2-6	0.765	2-6	0.765	2-6	
231 - 930	2,501 - 10,000	100			1.070	3-6	1.070	3-6	1.070	3-6	
931 - 1,070	10,001 - 11,500	115			1.220	4-0	1.070	3-6	1.070	3-6	
1,071 - 1,210	11,501 - 13,000	130			1.372	4-6	1.070	3-6	1.070	3-6	
1,211 - 1,350	13,001 - 14,500	145			1.525	5-0	1.070	3-6	1.070	3-6	
1,351 - 1,490	14,501 - 16,000	160			1.678	5-6	1.070	3-6	1.070	3-6	
1,491 - 1,630	16,001 - 17,500	175			1.830	6-0	1.070	3-6	1.070	3-6	
1,631 - 1,860	17,501 - 20,000	200					1.070	3-6	1.070	3-6	
1,861 - 2,140	20,001 - 23,000	230					1.220	4-0	1.070	3-6	