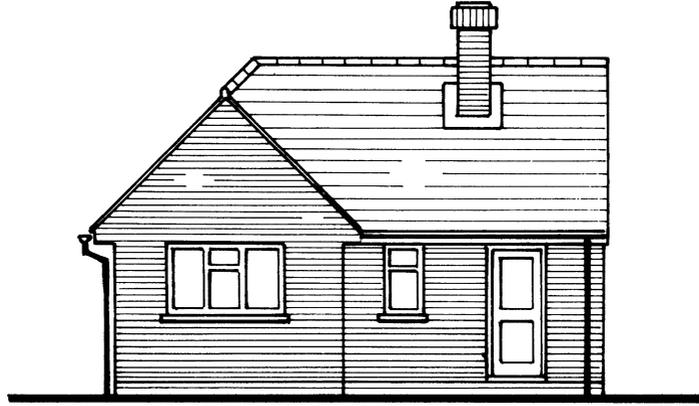


1 GENERAL

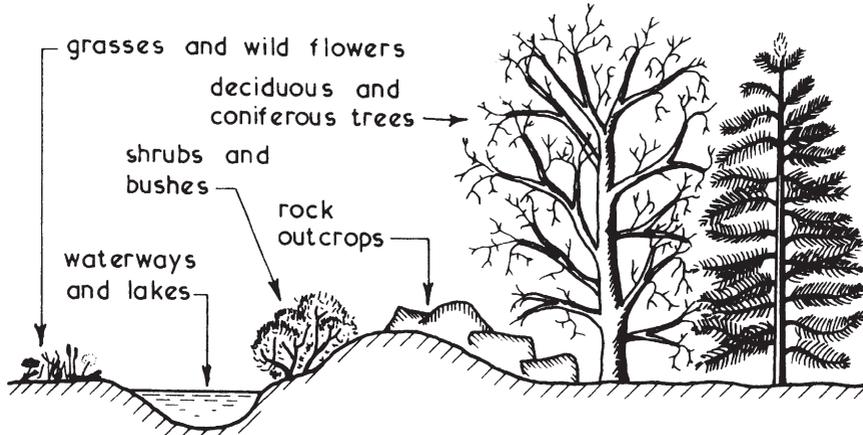


BUILT ENVIRONMENT
THE STRUCTURE
PRIMARY AND SECONDARY ELEMENTS
CONSTRUCTION ACTIVITIES
CONSTRUCTION DOCUMENTS
CONSTRUCTION DRAWINGS
BUILDING SURVEY
HIPs/EPCs
MATERIAL WEIGHTS AND DENSITIES
IMPOSED FLOOR LOADS
PLANNING APPLICATION
MODULAR COORDINATION
CONSTRUCTION REGULATIONS
CDM REGULATIONS
SAFETY SIGNS AND SYMBOLS
BUILDING REGULATIONS
CODE FOR SUSTAINABLE HOMES
BRITISH STANDARDS
EUROPEAN STANDARDS
CPI SYSTEM OF CODING
CI/SFB SYSTEM OF CODING

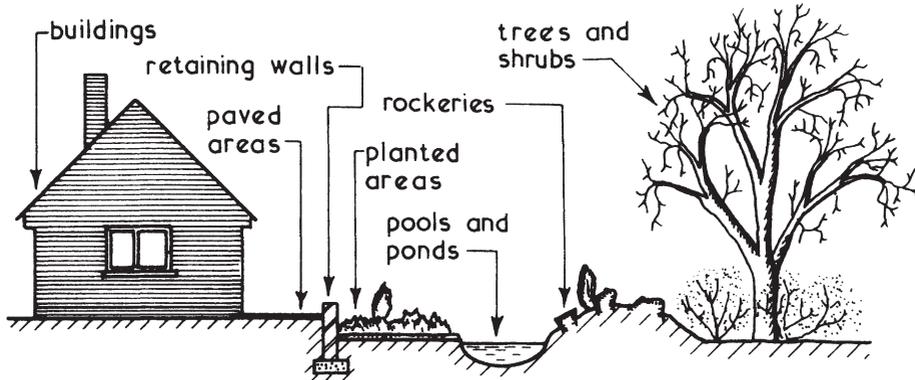
Built Environment

Environment = surroundings which can be natural, man-made or a combination of these.

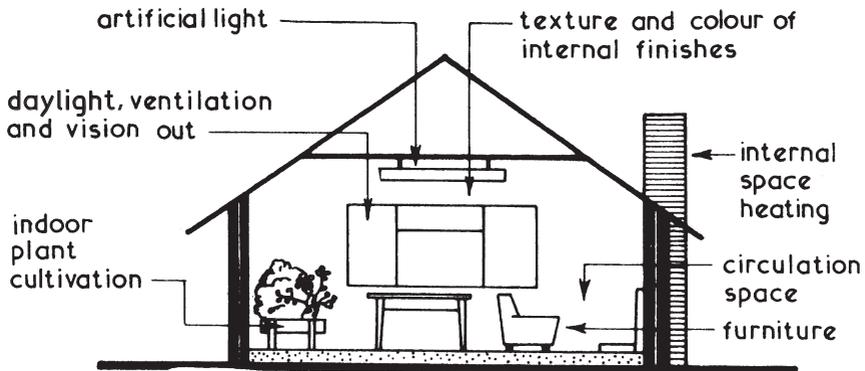
Built Environment = created by man with or without the aid of the natural environment.



ELEMENTS of the NATURAL ENVIRONMENT



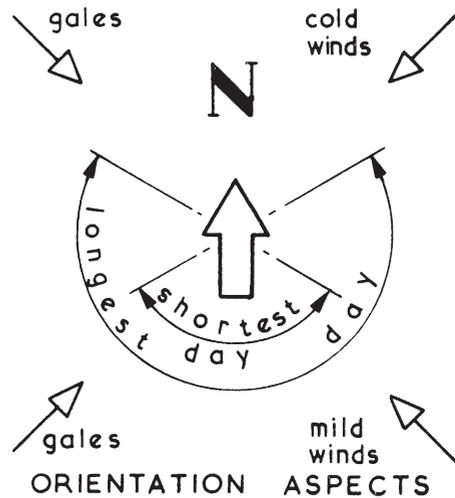
ELEMENTS of the BUILT ENVIRONMENT (EXTERNAL)



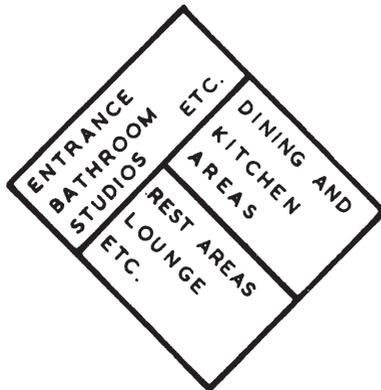
ELEMENTS of the BUILT ENVIRONMENT (INTERNAL)

Environmental Considerations

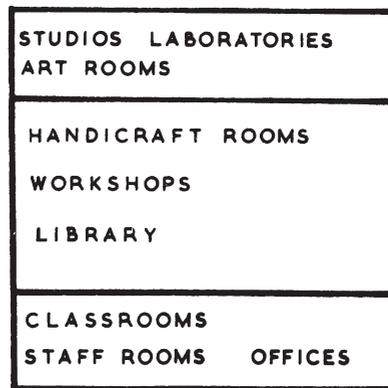
1. Planning requirements.
2. Building Regulations.
3. Land restrictions by vendor or lessor.
4. Availability of services.
5. Local amenities including transport.
6. Subsoil conditions.
7. Levels and topography of land.
8. Adjoining buildings or land.
9. Use of building.
10. Daylight and view aspects.



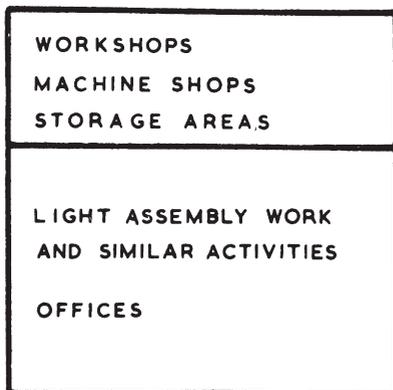
Examples:~



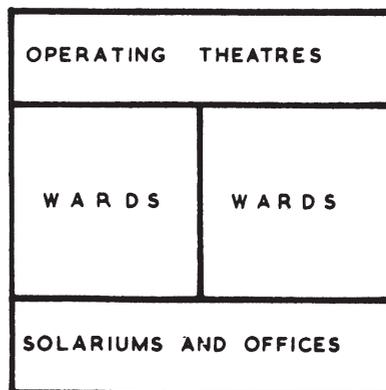
HOUSES



SCHOOLS



FACTORIES



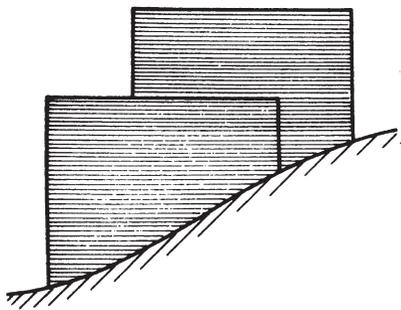
HOSPITALS

Built Environment

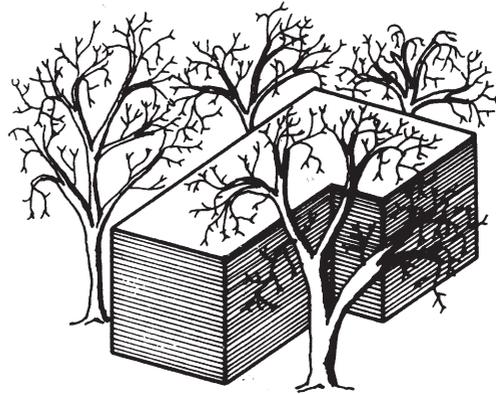
Physical considerations

1. Natural contours of land.
2. Natural vegetation and trees.
3. Size of land and/or proposed building.
4. Shape of land and/or proposed building.
5. Approach and access roads and footpaths.
6. Services available.
7. Natural waterways, lakes and ponds.
8. Restrictions such as rights of way; tree preservation and ancient buildings.
9. Climatic conditions created by surrounding properties, land or activities.
10. Proposed future developments.

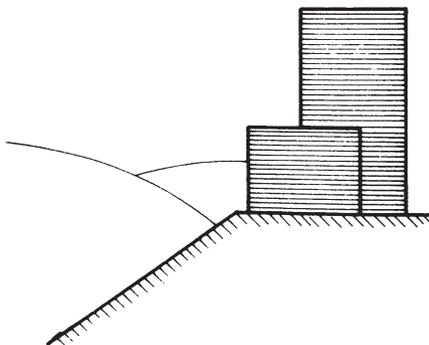
Examples:~



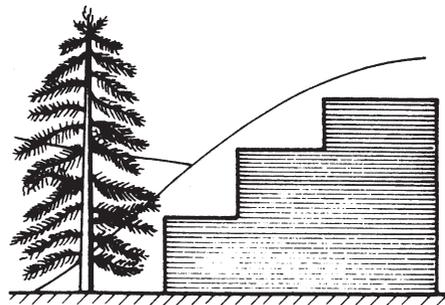
Split level construction to form economic shape.



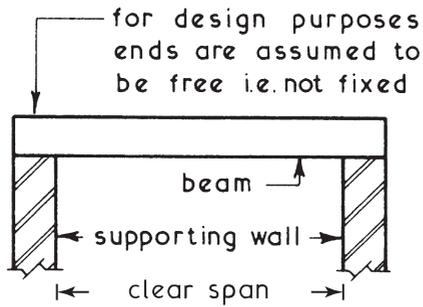
Shape determined by existing trees.



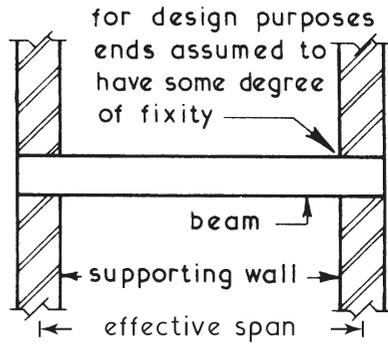
Plateau or high ground solution giving dry site conditions on sloping sites.



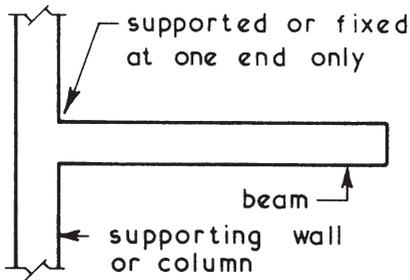
Stepped elevation or similar treatment to blend with the natural environment.



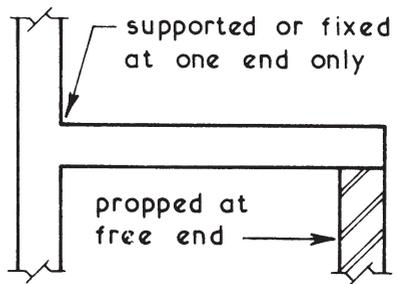
SIMPLY SUPPORTED BEAM



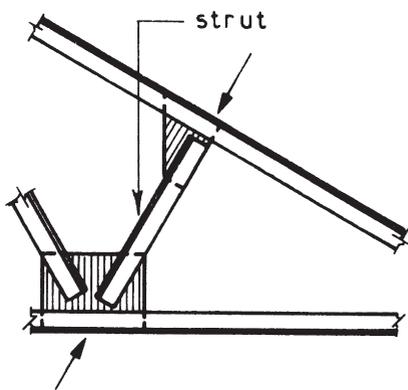
BUILT-IN BEAM



CANTILEVER BEAM

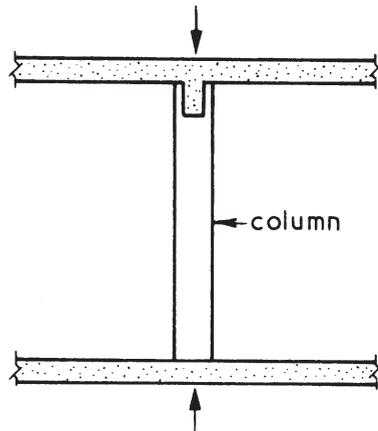


PROPPED CANTILEVER



STRUT

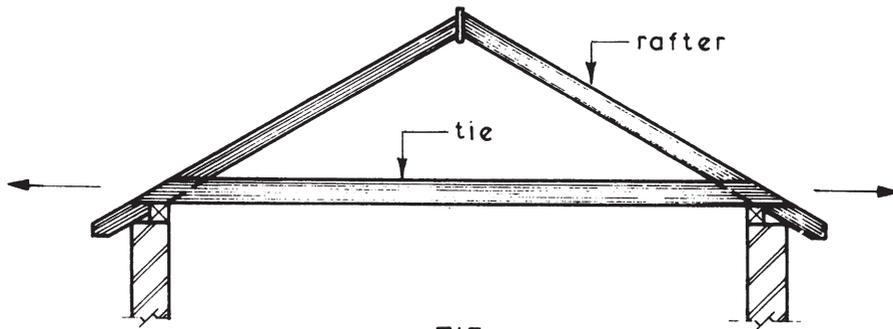
structural member which is subjected mainly to compression forces



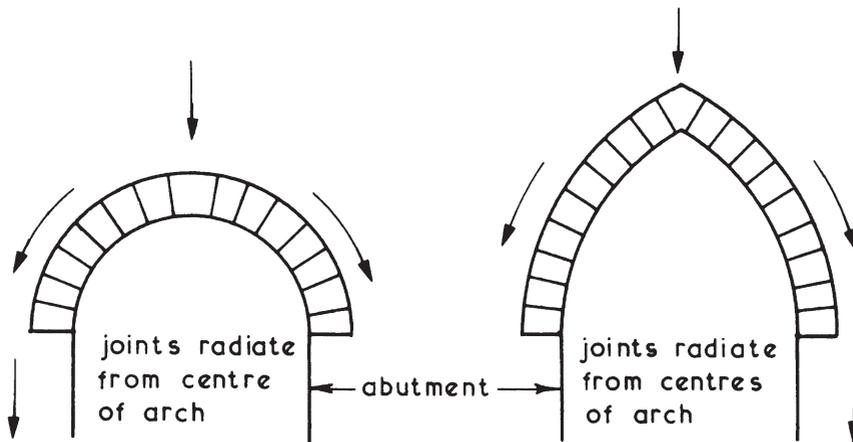
VERTICAL STRUT

usually called a column stanchion or pier

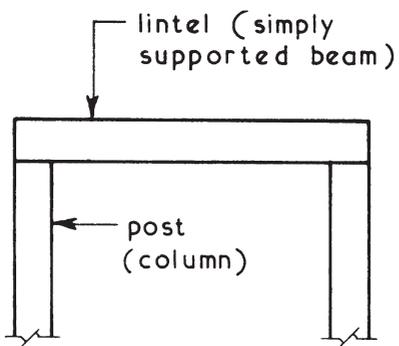
The Structure—Basic Types



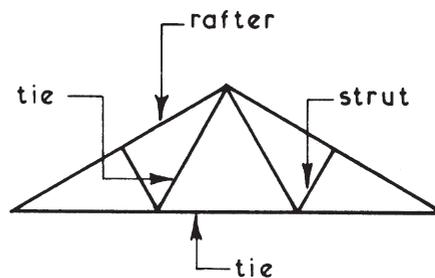
TIE
a structural member which is subjected mainly to tension forces



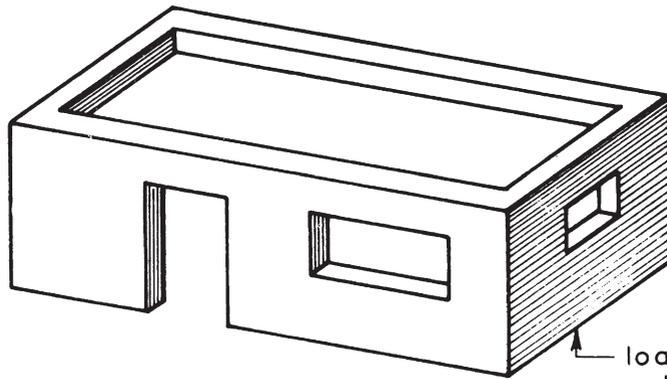
ARCHES
loads are transmitted around arch to the abutments



POST AND LINTEL

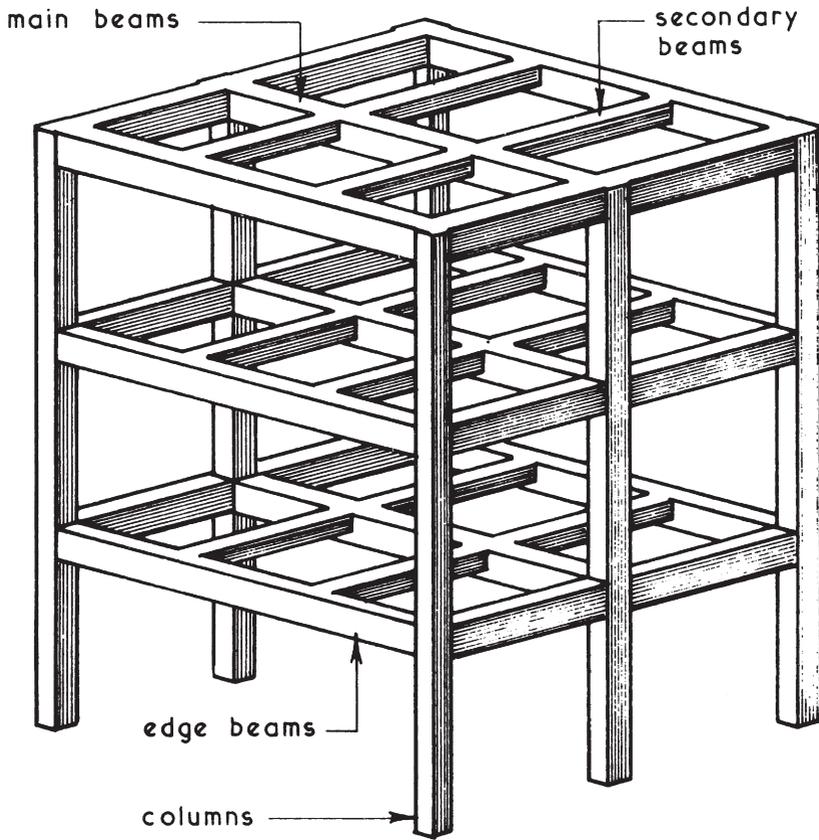


PLANE FRAME



SOLID CONSTRUCTION

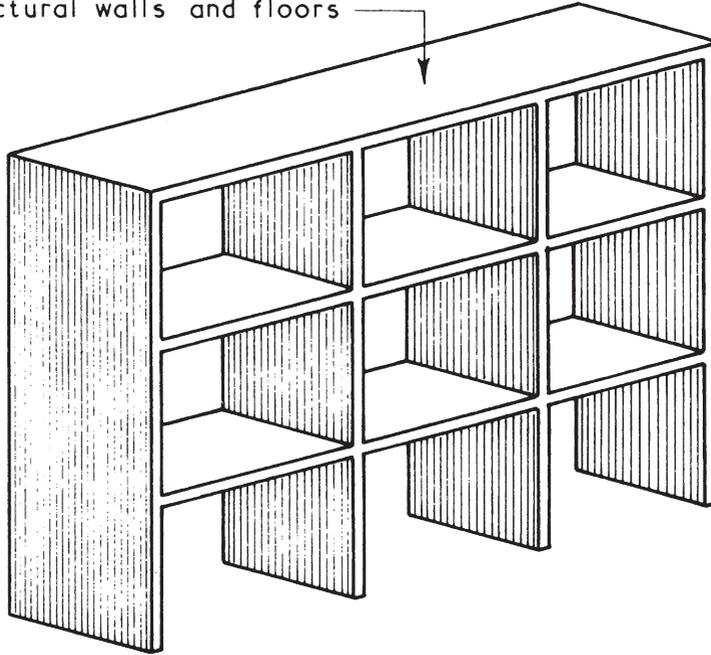
structurally limited confined usually to buildings of low height and short spans



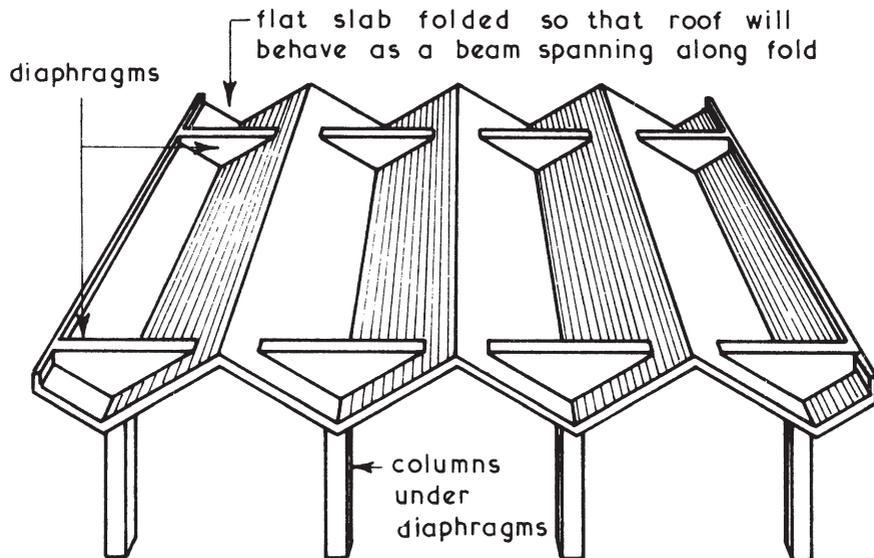
FRAMED OR SKELETAL CONSTRUCTION

The Structure—Basic Forms

structure consists of a series of interconnected plates forming structural walls and floors



PANEL OR BOX CONSTRUCTION

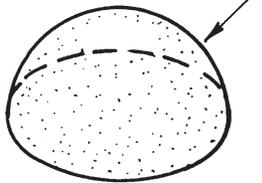


FOLDED PLATE CONSTRUCTION

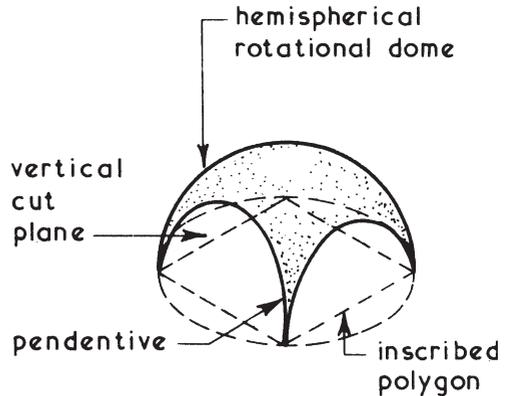
Shell Roofs ~ these are formed by a structural curved skin covering a given plan shape and area.

Examples ~

double curvature shell
formed by rotating a
plain curved shape
about a vertical axis

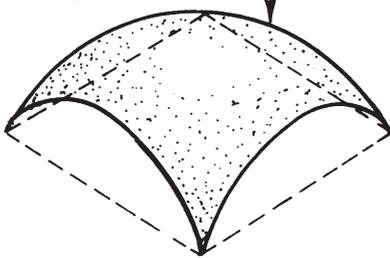


DOMES OR ROTATIONAL SHELL



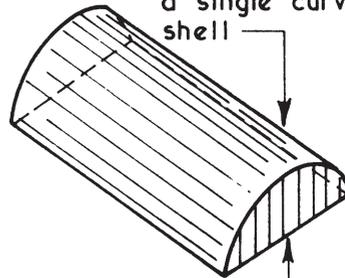
PENDENTIVE DOME

formed by a curved line
moving over another
curved line



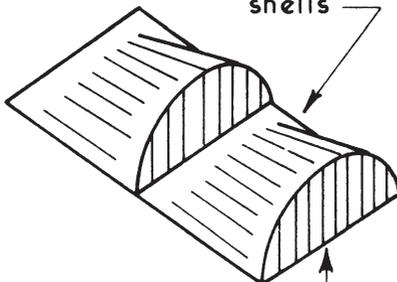
TRANSLATIONAL DOME

cut cylinder giving
a single curvature
shell



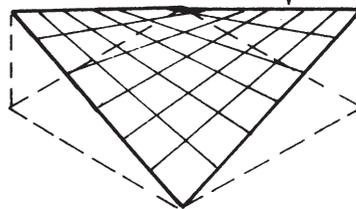
diaphragm
BARREL VAULT

double curvature
shells



diaphragm
CONOID SHELLS

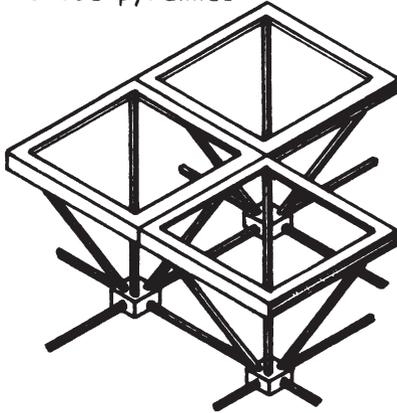
double curvature
saddle shaped
shell



HYPERBOLIC PARABOLOID

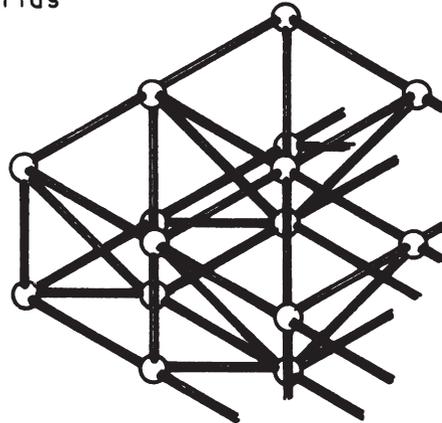
The Structure—Basic Forms

a series of interconnected inverted pyramids



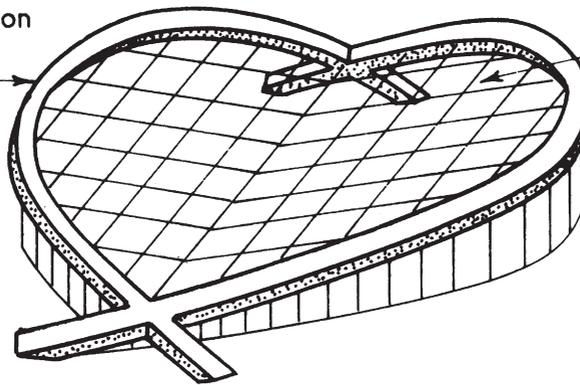
SPACE DECK

a series of interconnected grids



SPACE FRAME

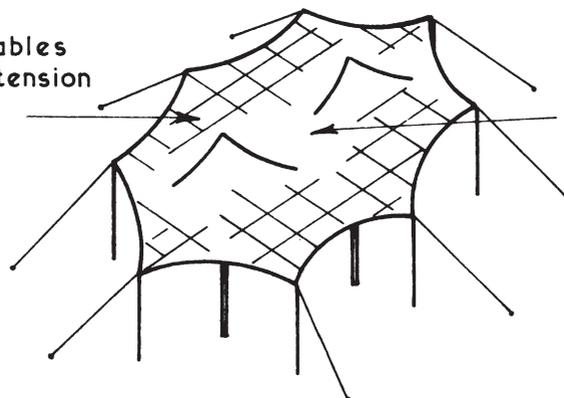
compression arch system



tension cables to support coverings

TENSION CABLE STRUCTURE

net of cables forming tension membrane

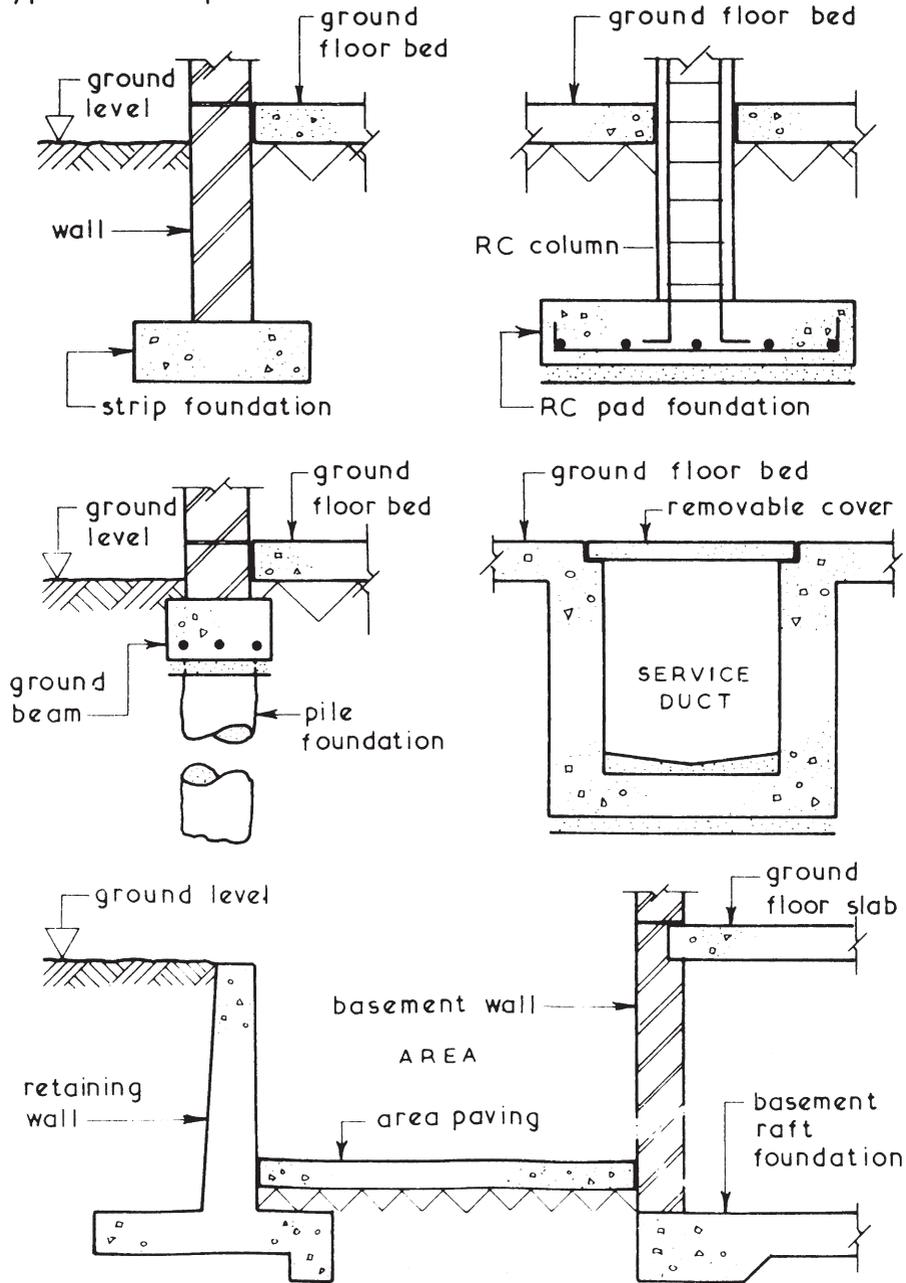


coverings supported by membrane

TENSION MEMBRANE STRUCTURE

Substructure ~ can be defined as all structure below the superstructure which in general terms is considered to include all structure below ground level but including the ground floor bed.

Typical Examples ~

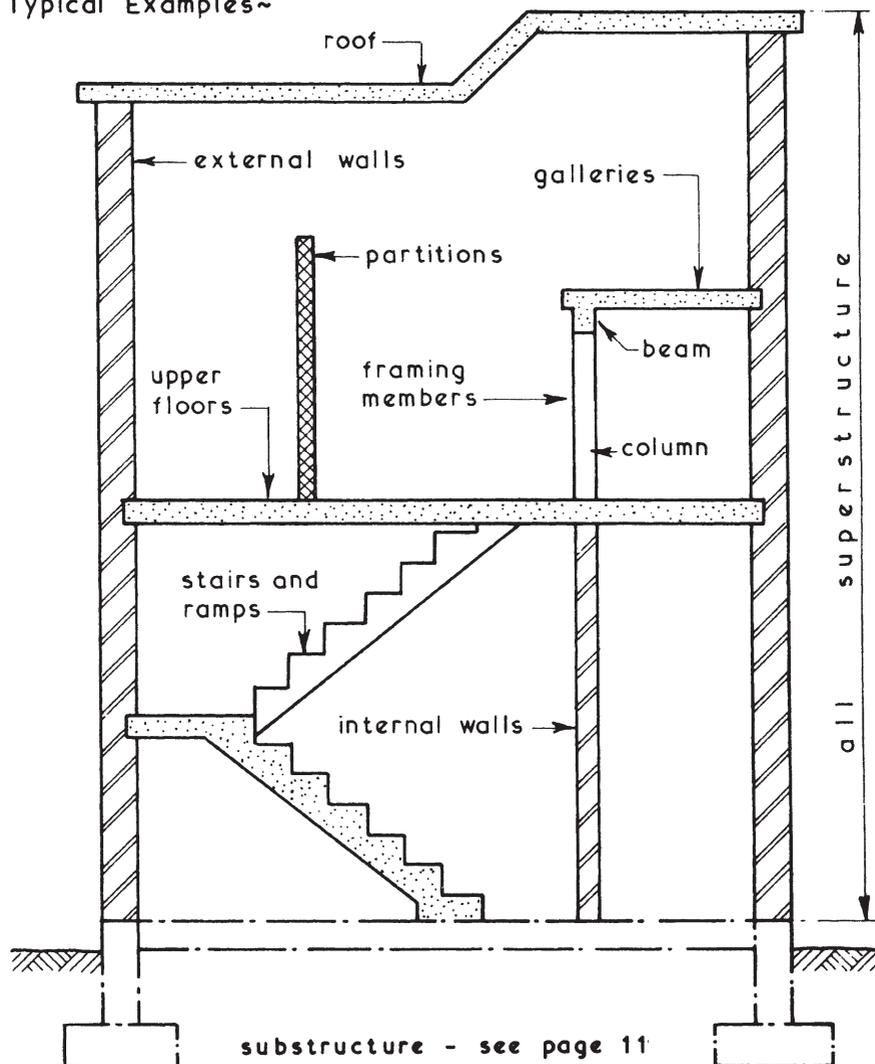


Superstructure and Primary Elements

Superstructure ~ can be defined as all structure above substructure both internally and externally.

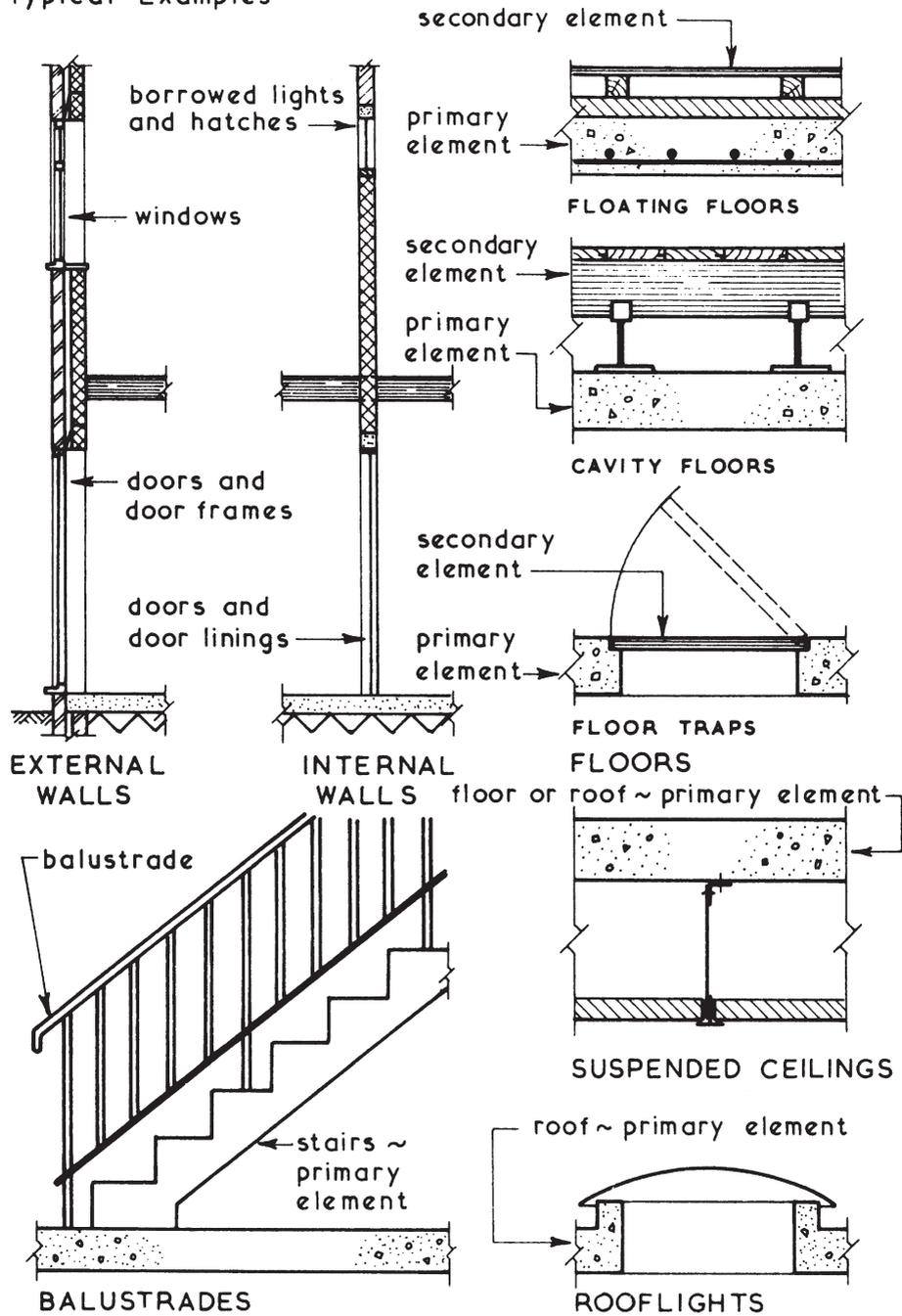
Primary Elements ~ basically components of the building carcass above the substructure excluding secondary elements, finishes, services and fittings.

Typical Examples~



Secondary Elements ~ completion of the structure including completion around and within openings in primary elements.

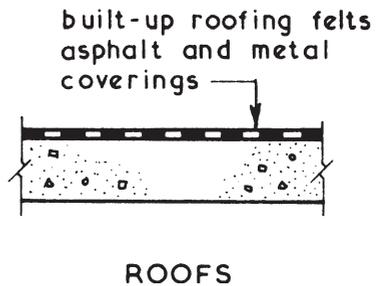
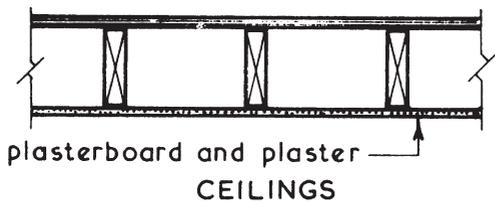
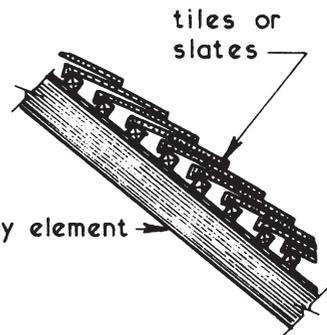
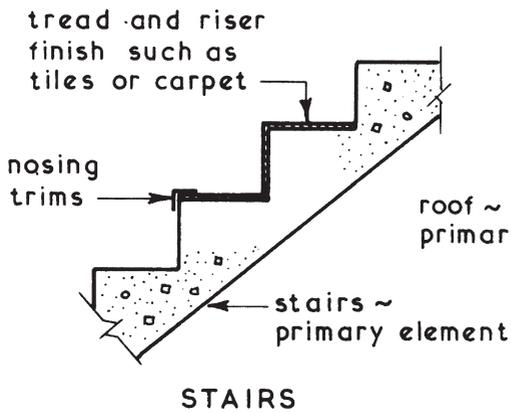
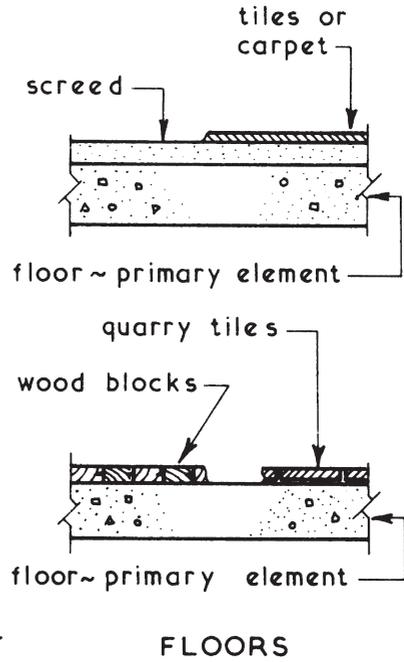
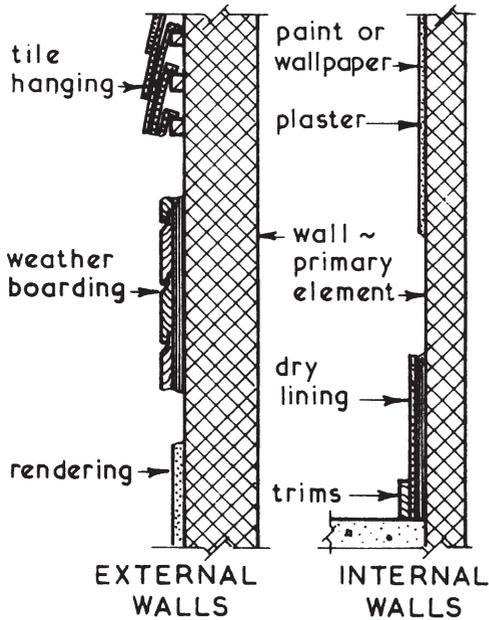
Typical Examples ~



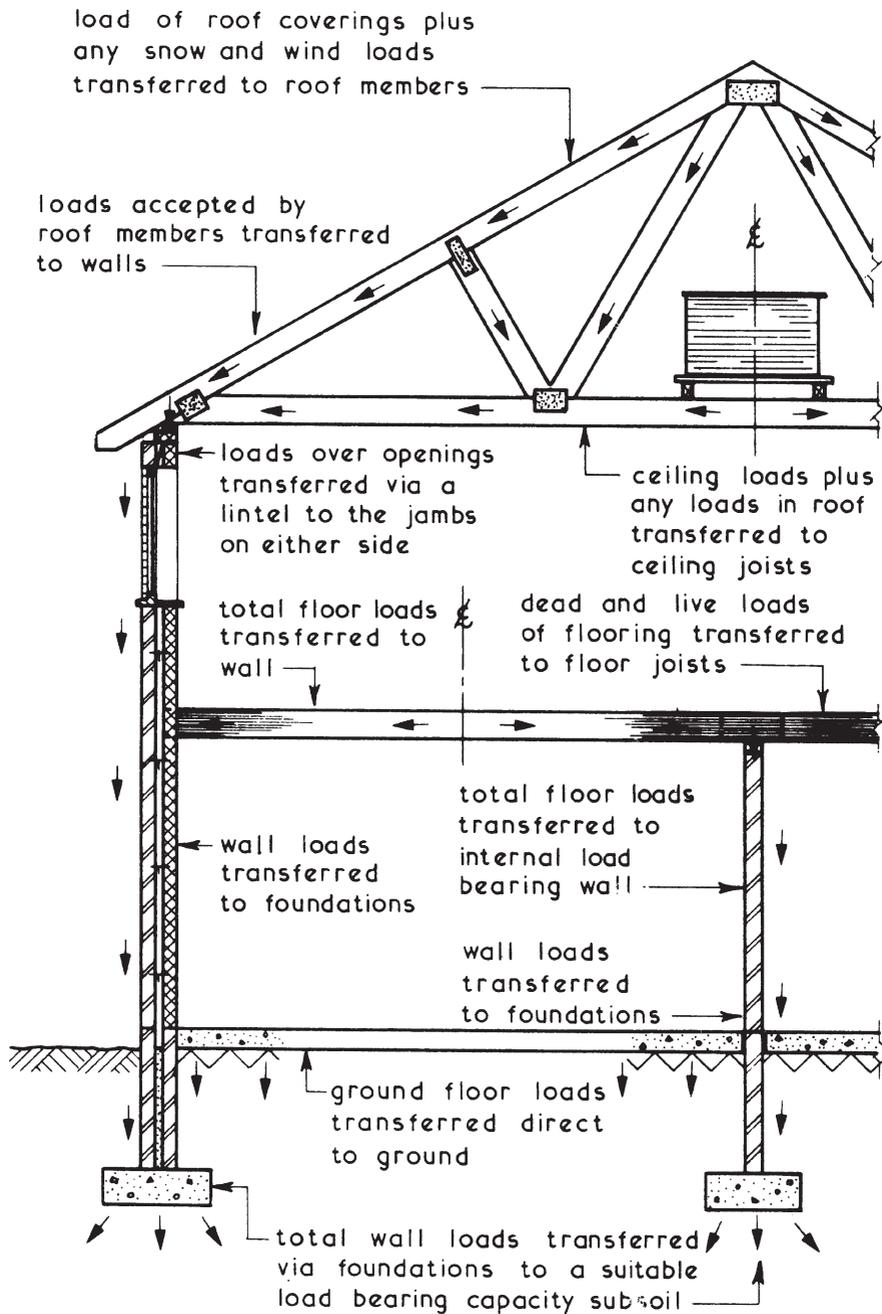
Finishes

Finish ~ the final surface which can be self finished as with a trowelled concrete surface or an applied finish such as floor tiles.

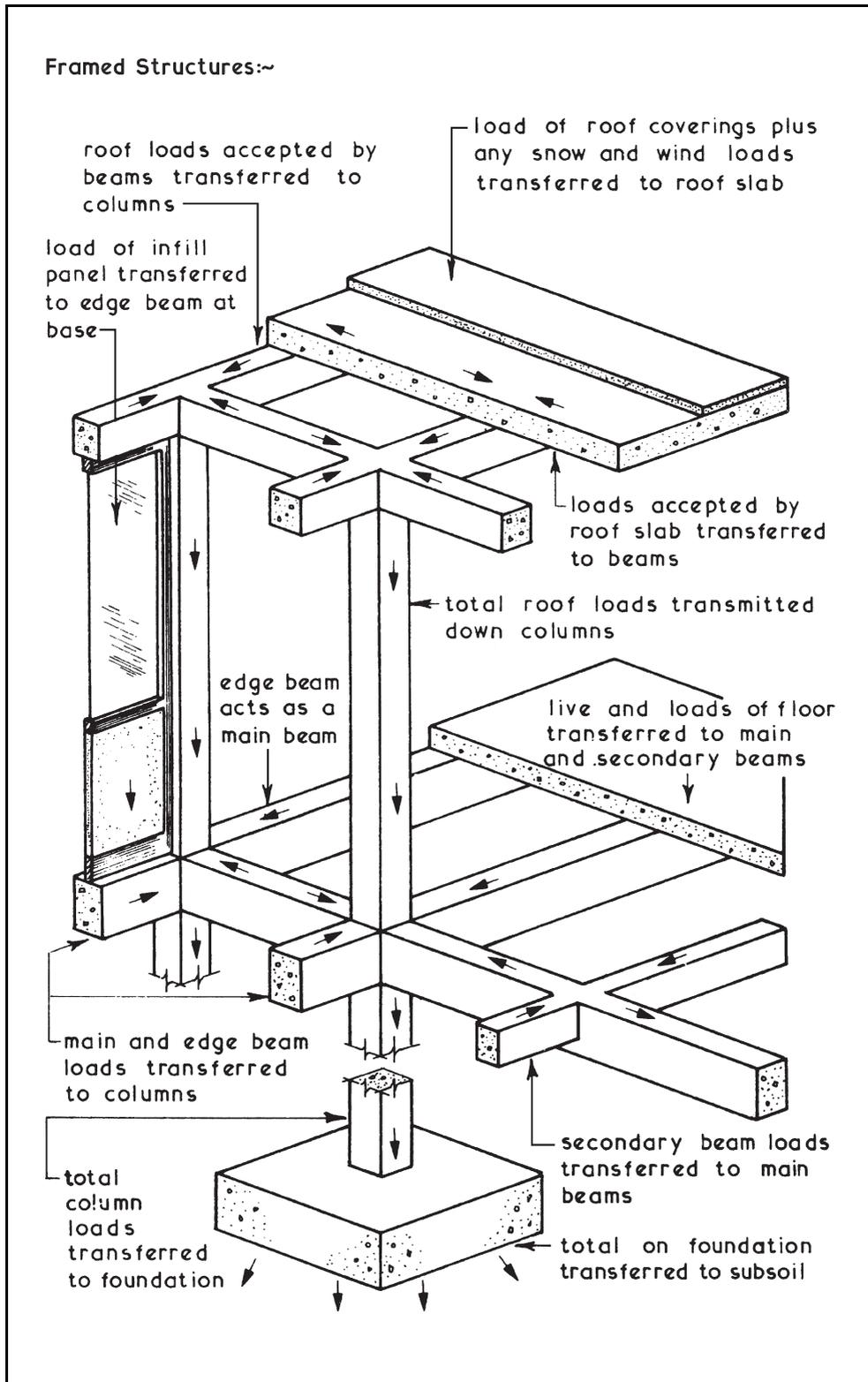
Typical Examples ~



Domestic Structures:~

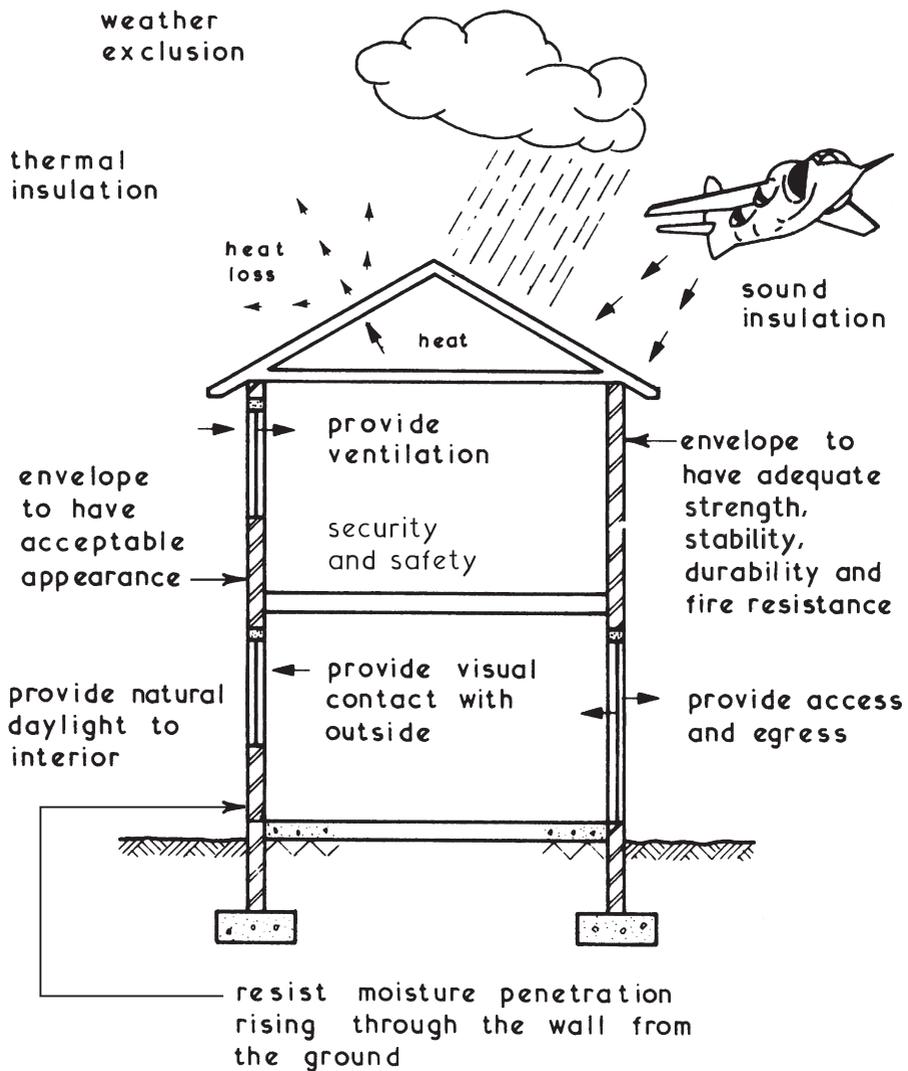


Structure—Component Parts and Functions



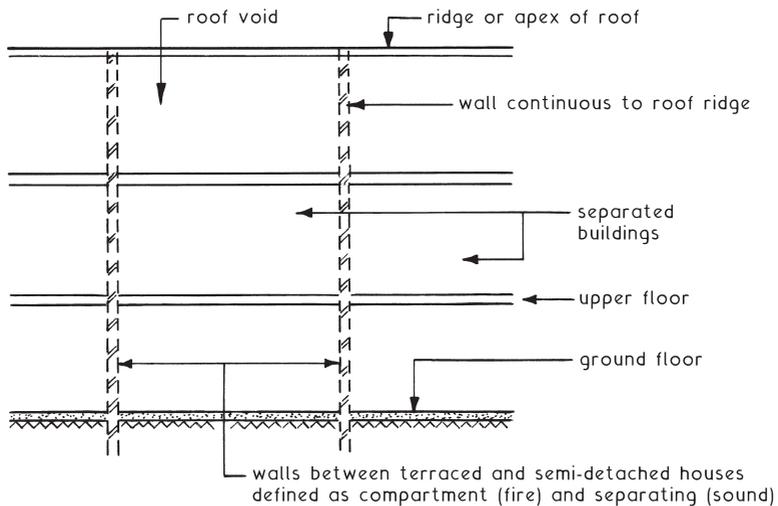
External Envelope ~ consists of the materials and components which form the external shell or enclosure of a building. These may be load bearing or non-load bearing according to the structural form of the building.

Primary Functions:~

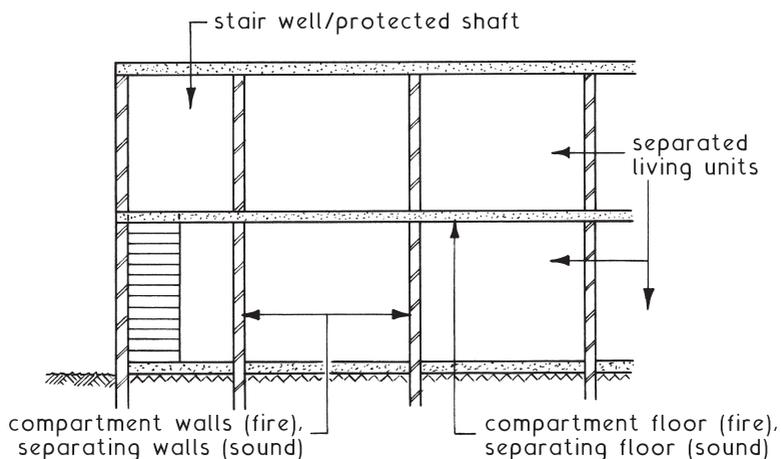


Internal Separation and Compartmentation

Dwelling houses ~



Flats ~



Note: Floors within a maisonette are not required to be "compartment".

For non-residential buildings, compartment size is limited by floor area depending on the building function (purpose group) and height.

Compartment ~ a building or part of a building with walls and floors constructed to contain fire and to prevent it spreading to another part of the same building or to an adjoining building.

Separating floor/wall ~ element of sound resisting construction between individual living units.

Construction Activities—The Site

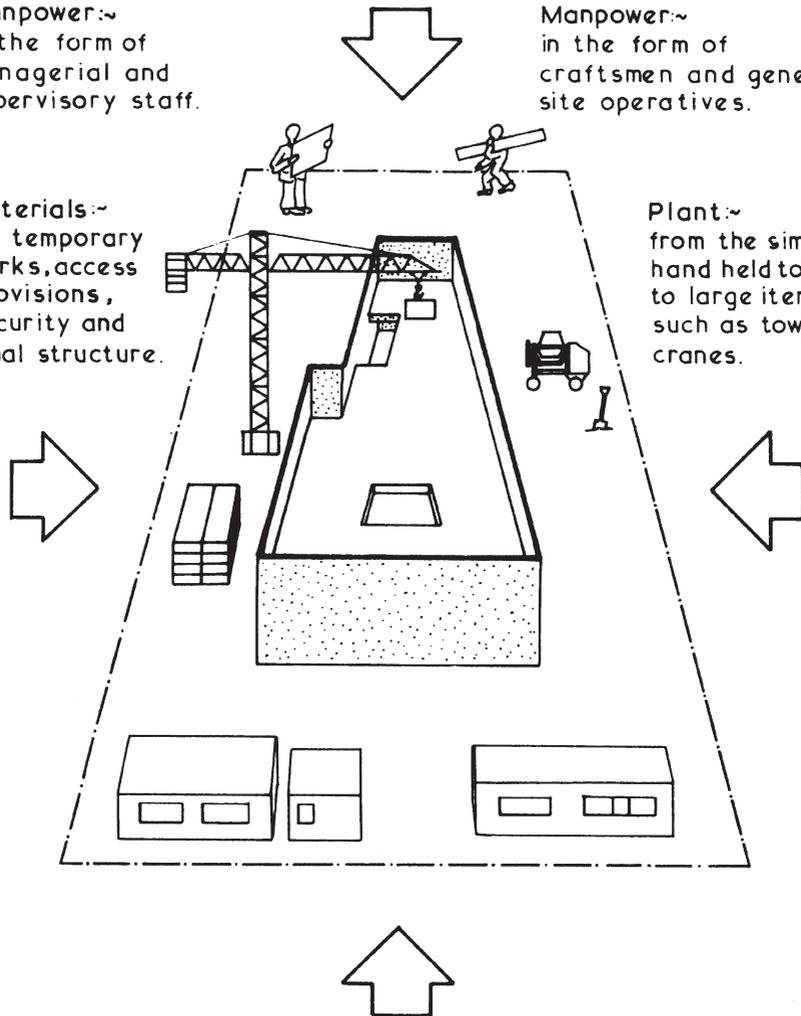
A Building or Construction Site can be considered as a temporary factory employing the necessary resources to successfully fulfil a contract.

Manpower:~
in the form of
managerial and
supervisory staff.

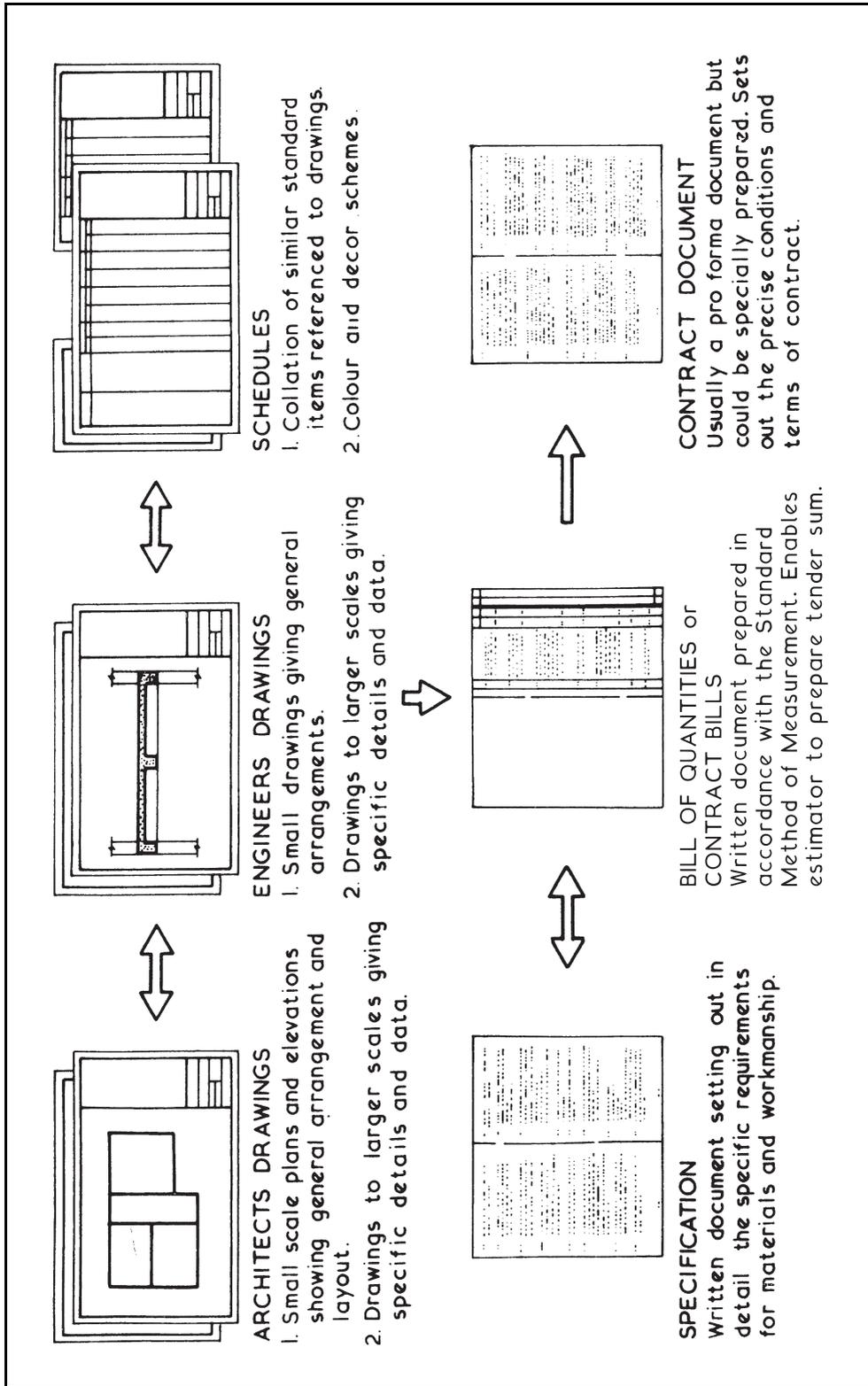
Manpower:~
in the form of
craftsmen and general
site operatives.

Materials:~
for temporary
works, access
provisions,
security and
final structure.

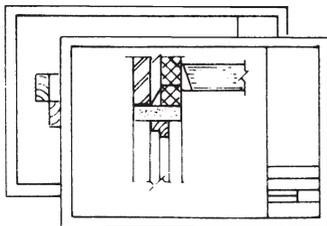
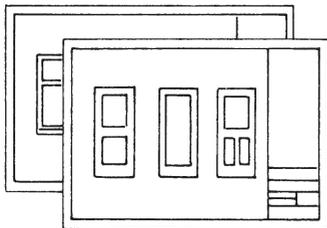
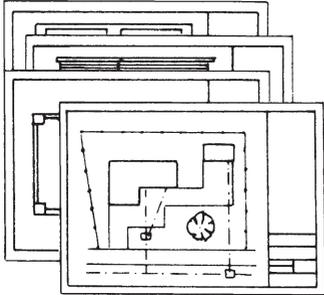
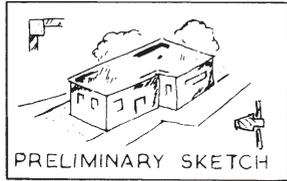
Plant:~
from the simple
hand held tools
to large items
such as tower
cranes.



Money:~
in the form of capital investment from the building
owner to pay for the land, design team fees and a
building contractor who uses his money to buy materials,
buy or hire plant and hire labour to enable the
project to be realised.



Drawings Used in the Construction Process



Location Drawings ~

Site Plans - used to locate site, buildings, define site levels, indicate services to buildings, identify parts of site such as roads, footpaths and boundaries and to give setting out dimensions for the site and buildings as a whole. Suitable scale not less than 1:2500

Floor Plans - used to identify and set out parts of the building such as rooms, corridors, doors, windows, etc., Suitable scale not less than 1:100

Elevations - used to show external appearance of all faces and to identify doors and windows. Suitable scale not less than 1:100

Sections - used to provide vertical views through the building to show method of construction. Suitable scale not less than 1:50

Component Drawings ~

used to identify and supply data for components to be supplied by a manufacturer or for components not completely covered by assembly drawings. Suitable scale range 1:100 to 1:1

Assembly Drawings ~

used to show how items fit together or are assembled to form elements. Suitable scale range 1:20 to 1:5

All drawings should be fully annotated, fully dimensioned and cross referenced.

Ref. BS EN ISO 7519: Technical drawings. Construction drawings. General principles of presentation for general arrangement and assembly drawings.

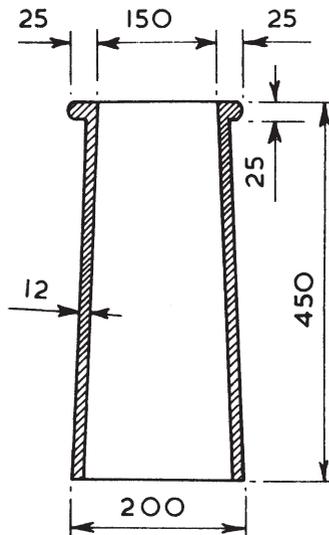
Drawings—Sketches

Sketch ~ this can be defined as a draft or rough outline of an idea, it can be a means of depicting a three-dimensional form in a two-dimensional guise. Sketches can be produced free-hand or using rules and set squares to give basic guide lines.

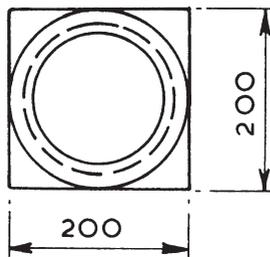
All sketches should be clear, show all the necessary detail and above all be in the correct proportions.

Sketches can be drawn by observing a solid object or they can be produced from conventional orthographic views but in all cases can usually be successfully drawn by starting with an outline 'box' format giving length, width and height proportions and then building up the sketch within the outline box.

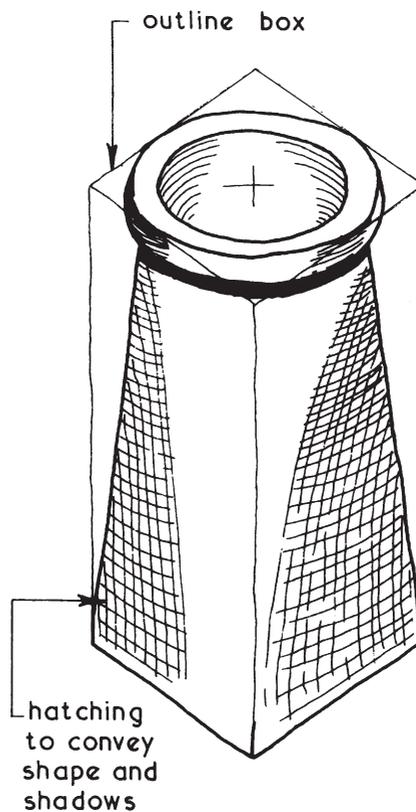
Example ~ Square Based Chimney Pot.



VERTICAL SECTION

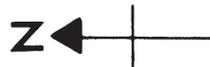
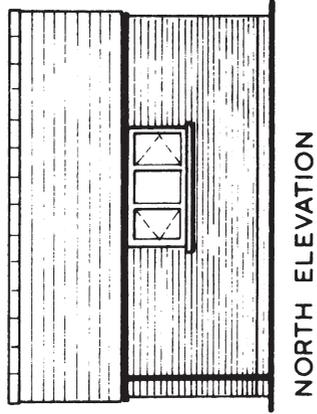
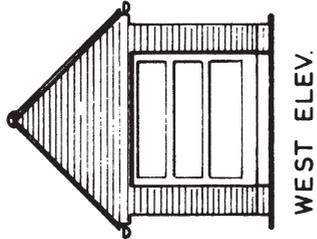
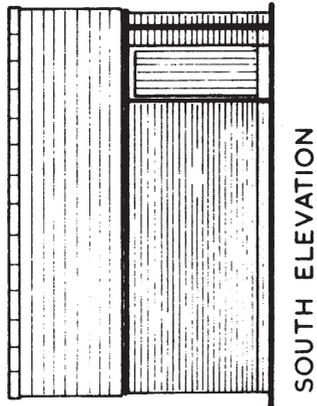
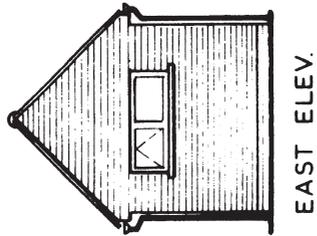


PLAN
GIVEN DATA



FREE-HAND SKETCH

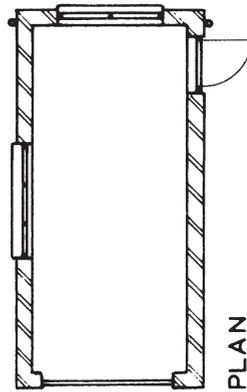
Orthographic Projection ~ a means of drawing independent views of a solid object on a plane surface.



Example ~ Small Garage and Workshop

The arrangement of the plan and elevations is known as First Angle Projection and is the recommended method of presenting drawings of building works.

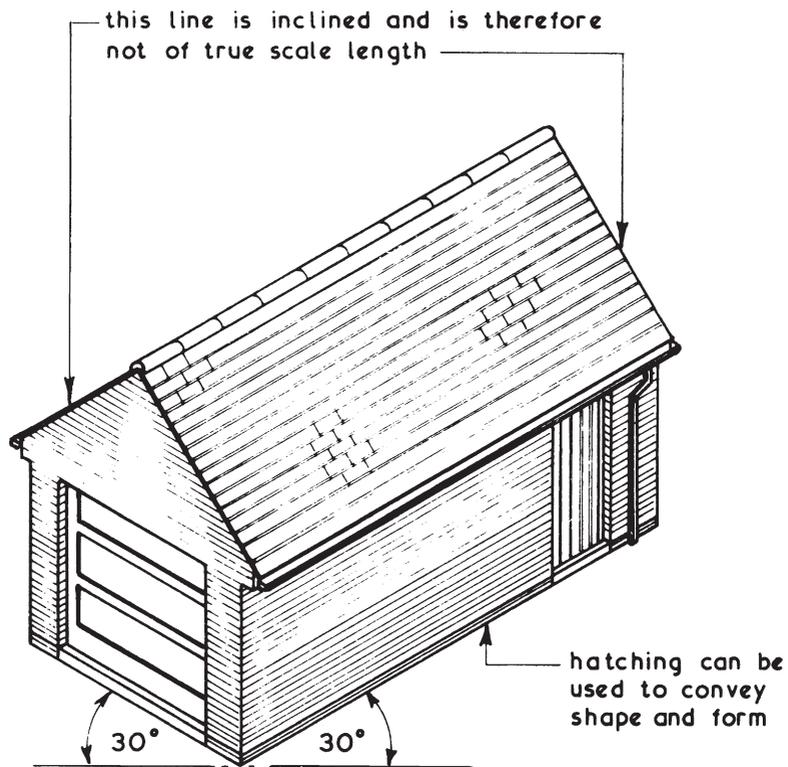
NB. the usual annotation and dimensions found on general drawing have been omitted for clarity



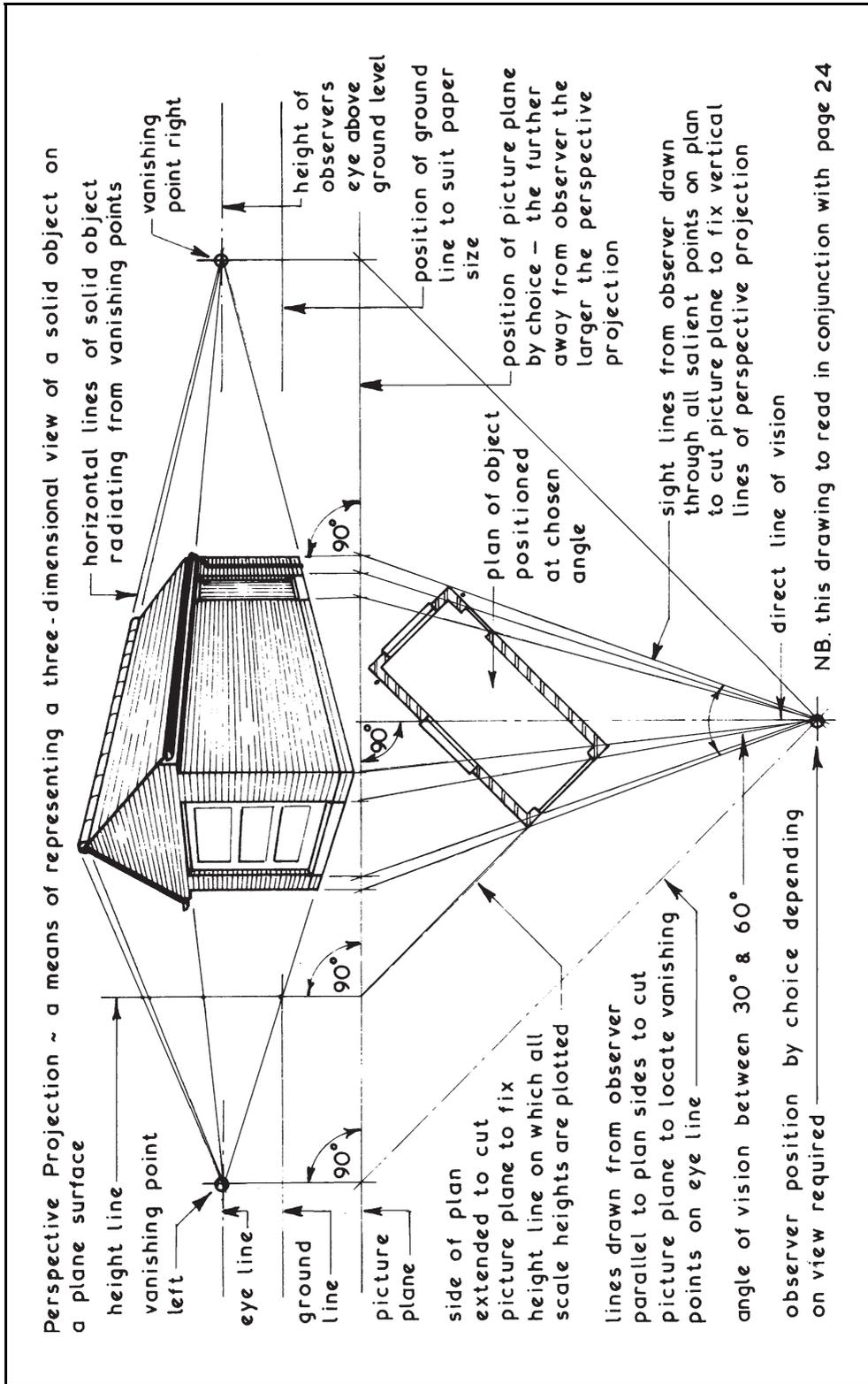
Communicating Information—Isometric Projections

Isometric Projections ~ a pictorial projection of a solid object on a plane surface drawn so that all vertical lines remain vertical and of true scale length, all horizontal lines are drawn at an angle of 30° and are of true scale length therefore scale measurements can be taken on the vertical and 30° lines but cannot be taken on any other inclined line.

A similar drawing can be produced using an angle of 45° for all horizontal lines and is called an Axonometric Projection



ISOMETRIC PROJECTION SHOWING SOUTH AND WEST ELEVATIONS OF SMALL GARAGE AND WORKSHOP ILLUSTRATED ON PAGE 23



Communicating Information—Floor Plans and Elevations

The image displays a set of architectural drawings for a four-bedroom house. On the left side, there are three elevation drawings: the front elevation (top), the rear elevation (middle), and the side elevation (right) (bottom). On the right side, there are two floor plans: the ground floor plan (top) and the first floor plan (bottom). The ground floor plan includes a utility room, kitchen, study, living room, dining room, two garage spaces, and a hall. The first floor plan includes three bedrooms, a master bedroom, a gallery, a bathroom, and a central air conditioning unit (A.C.). A note on the first floor plan indicates '2 NO. REFRIGERATORS' in a dashed-line area. A title block in the bottom right corner provides the project name, scale, date, and drawing reference.

FRONT ELEVATION

REAR ELEVATION

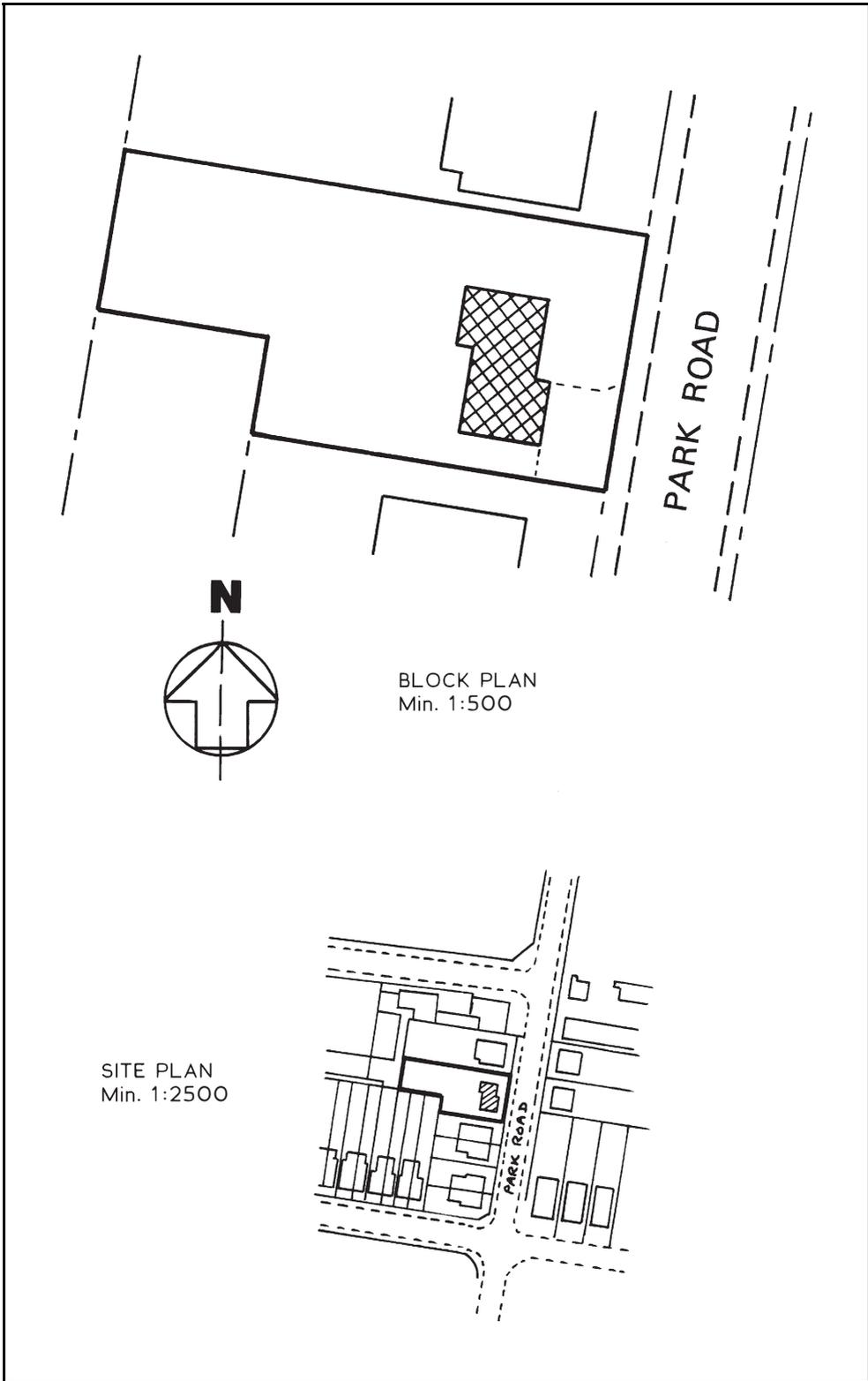
SIDE ELEVATION (Right)

SIDE ELEVATION (Left)

GROUND FLOOR PLAN

FIRST FLOOR PLAN

File	FOUR BEDROOMED HOUSE	
Scale		Date
Drawing Ref.	RG/HNC,D/10	



Communicating Information—Building Survey

Construction Defects – correct application of materials produced to the recommendations of British, European and International Standards authorities, in accordance with local building regulations, by-laws and the rules of building guarantee companies, i.e. National House Building Council (NHBC) and MD Insurance Services, should ensure a sound and functional structure. However, these controls can be seriously undermined if the human factor of quality workmanship is not fulfilled. The following guidance is designed to promote quality controls:

BS 8000: Workmanship on building sites.

Building Regulations, Approved Document to support Regulation 7 – materials and workmanship.

No matter how good the materials, the workmanship and supervision, the unforeseen may still affect a building. This may materialise several years after construction. Some examples of these latent defects include: woodworm emerging from untreated timber, electrolytic decomposition of dissimilar metals inadvertently in contact, and chemical decomposition of concrete. Generally, the older a building the more opportunity there is for its components and systems to have deteriorated and malfunctioned. Hence the need for regular inspection and maintenance. The profession of facilities management has evolved for this purpose and is represented by the British Institute of Facilities Management (BIFM).

Property values, repairs and replacements are of sufficient magnitude for potential purchasers to engage the professional services of a building surveyor. Surveyors are usually members of the Royal Institution of Chartered Surveyors (RICS). The extent of survey can vary, depending on a client's requirements. This may be no more than a market valuation to secure financial backing, to a full structural survey incorporating specialist reports on electrical installations, drains, heating systems, etc.

Further reading:

BRE Digest No. 268 – Common defects in low-rise traditional housing. Available from Building Research Establishment Bookshop – www.brebookshop.com.

Communicating Information—Survey Preliminaries

Established Procedure - the interested purchaser engages a building surveyor.

UK Government Requirements - the seller to provide a property/home information pack (HIP) which can include 'A survey report on the condition of the property, including requirements for urgent or significant repairs...':

Survey document preliminaries:

- * Title and address of property
- * Client's name, address and contacts
- * Survey date and time
- * Property status - freehold, leasehold or commonhold
- * Occupancy - occupied or vacant. If vacant, source of keys
- * Extent of survey, e.g. full structural + services reports
- * Specialists in attendance, e.g. electrician, heating engineer, etc.
- * Age of property (approx. if very dated or no records)
- * Disposition of rooms, i.e. number of bedrooms, etc.
- * Floor plans and elevations if available
- * Elevation (flooding potential) and orientation (solar effect)
- * Estate/garden area and disposition if appropriate
- * Means of access - roads, pedestrian only, rights of way

Survey tools and equipment:

- * Drawings + estate agent's particulars if available
- * Notebook and pencil/pen
- * Binoculars and a camera with flash facility
- * Tape measure, spirit level and plumb line
- * Other useful tools, to include small hammer, torch, screwdriver and manhole lifting irons
- * Moisture meter
- * Ladders - eaves access and loft access
- * Sealable bags for taking samples, e.g. wood rot, asbestos, etc.

Communicating Information—Survey Order (Exterior)

Estate and garden:

- * Location and establishment of boundaries
- * Fences, gates and hedges – material, condition and suitability
- * Trees – type and height, proximity to building
- * Pathways and drives – material and condition
- * Outbuildings – garages, sheds, greenhouses, barns, etc.
- * Proximity of water courses

Roof:

- * Tile type, treatment at ridge, hips, verge and valleys
- * Age of covering, repairs, replacements, renewals, general condition, defects and growths
- * Eaves finish, type and condition
- * Gutters – material, size, condition, evidence of leakage
- * Rainwater downpipes as above
- * Chimney – dpcs, flashings, flaunching, pointing, signs of movement
- * Flat roofs – materials, repairs, abutments, flashings and drainage

Walls:

- * Materials – type of brick, rendering, cladding, etc., condition and evidence of repairs
- * Solid or cavity construction, if cavity extent of insulation and type
- * Pointing of masonry, painting of rendering and cladding
- * Air brick location, function and suitability
- * Dpc, material and condition, position relative to ground level
- * Windows and doors, material, signs of rot or damage, original or replacement, frame seal
- * Settlement – signs of cracking, distortion of window and door frames – specialist report

Drainage:

A building surveyor may provide a general report on the condition of the drainage and sanitation installation. However, a full test for leakage and determination of self-cleansing and flow conditions to include fibre-optic scope examination is undertaken as a specialist survey.

Roof space:

- * Access to all parts, construction type - traditional or trussed
- * Evidence of moisture due to condensation - ventilation at eaves, ridge, etc.
- * Evidence of water penetration - chimney flashings, abutments and valleys
- * Insulation - type and quantity
- * Party wall in semi-detached and terraced dwellings - suitability as fire barrier
- * Plumbing - adequacy of storage cistern, insulation, overflow function

Floors:

- * Construction - timber, pre-cast or cast in-situ concrete? Finish condition?
- * Timber ground floor - evidence of dampness, rot, woodworm, ventilation, dpcs
- * Timber upper floor stability, i.e. wall fixing, strutting, joist size, woodworm, span and loading

Stairs:

- * Type of construction and method of fixing - built in-situ or preformed
- * Soffit, re. fire protection (plasterboard?)
- * Balustrading - suitability and stability
- * Safety - adequate screening, balusters, handrail, pitch angle, open tread, tread wear

Finishes:

- * General décor, i.e. paint and wallpaper condition - damaged, faded
- * Woodwork/joinery - condition, defects, damage, paintwork
- * Plaster - ceiling (plasterboard or lath and plaster?) - condition and stability
- * Plaster - walls - render and plaster or plasterboard, damage and quality of finish
- * Staining - plumbing leaks (ceiling), moisture penetration (wall openings), rising damp
- * Fittings and ironmongery - adequacy and function, weather exclusion and security

Supplementary enquiries should determine the extent of additional building work, particularly since the planning threshold of 1948. Check for planning approvals, permitted development and Building Regulation approvals, exemptions and completion certificates.

Services - apart from a cursory inspection to ascertain location and suitability of system controls, these areas are highly specialised and should be surveyed by those appropriately qualified.

Communicating Information–HIPs

Home Information Packs ~ otherwise known as HIPS or “seller’s packs”. A HIP is provided as supplementary data to the estate agent’s sales particulars by home sellers when marketing a house. The packs place emphasis on an energy use assessment and contain some contract preliminaries such as evidence of ownership. Property developers are required to provide a HIP as part of their sales literature. Preparation is by a surveyor, specifically trained in energy performance assessment.

Compulsory Content ~

- Index
- Energy performance certificate
- Sales statement
- Standard searches, e.g. LA enquiries, planning consents, drainage arrangements, utilities providers
- Evidence of title (ownership)
- Leasehold and commonhold details (generally flats and maisonettes)
- Property information questionnaire, to include flood risk, gas and electricity safety, service charges, structural damage and parking arrangements

Optional Content ~

- Home condition report (general survey)
- Legal summary – terms of sale
- Home use and contents form (fixtures and fittings)
- Guarantees and warranties
- Other relevant information, e.g. access over ancillary land

Energy Performance Certificate (EPC) ~ provides a rating between A and G. A is the highest possible grade for energy efficiency and lowest impact on environmental damage in terms of CO₂ emissions. The certificate is similar to the EU energy label (see page 480 as applied to windows) and it relates to SAP numerical ratings (see page 477). The certificate is an asset rating based on a building’s performance relating to its age, location/exposure, size, appliance efficiency e.g. boiler, glazing type, construction, insulation and general condition.

EPC rating (SAP rating) ~

A (92–100)	B (81–91)	C (69–80)	D (55–68)
E (39–54)	F (21–38)	G (1–20)	

Ref. The Home Information Pack Regulations 2006.

A method statement precedes preparation of the project programme and contains the detail necessary for construction of each element of a building. It is prepared from information contained in the contract documents – see page 20. It also functions as a brief for site staff and operatives in sequencing activities, indicating resource requirements and determining the duration of each element of construction. It complements construction programming by providing detailed analysis of each activity.

A typical example for foundation excavation could take the following format:

Activity	Quantity	Method	Output/hour	Labour	Plant	Days
Strip site for excavation	300 m ²	Exc. to reduced level over construction area – JCB-4CX face shovel/loader. Topsoil retained on site.	50 m ² /hr	Exc. driver +2 labourers	JCB-4CX backhoe/loader	0.75
Excavate for foundations	60 m ³	Excavate foundation trench to required depth – JCB-4CX backhoe. Surplus spoil removed from site.	15 m ³ /hr	Exc. driver +2 labourers. Truck driver.	JCB-4CX backhoe/loader. Tipper truck.	0.50

Typical Weights of Building Materials

Material	Weight (kg/m ²)
BRICKS, BLOCKS and PAVING -	
Clay brickwork - 102.5mm	
low density	205
medium density	221
high density	238
Calcium silicate brickwork - 102.5mm	205
Concrete blockwork, aerated	78
..... lightweight aggregate	129
Concrete flagstones (50mm)	115
Glass blocks (100mm thick) 150 × 150	98
.....200 × 200	83
ROOFING -	
Slates - see page 443	
Thatching (300mm thick)	40.00
Tiles - plain clay	63.50
.. - plain concrete	93.00
.. single lap, concrete	49.00
Tile battens (50 × 25) and felt underlay	7.70
Bituminous felt underlay	1.00
Bituminous felt, sanded topcoat	2.70
3 layers bituminous felt	4.80
HD/PE breather membrane underlay	0.20
SHEET MATERIALS -	
Aluminium (0.9mm)	2.50
Copper (0.9mm)	4.88
Cork board (standard) per 25mm thickness	4.33
..... (compressed)	9.65
Hardboard (3.2mm)	3.40
Glass (3mm)	7.30
Lead (1.25mm)	14.17
... (3mm)	34.02
Particle board/chipboard (12mm)	9.26
..... (22mm)	16.82
Planking, softwood strip flooring (ex 25mm)	11.20
..... hardwood	16.10
Plasterboard (9.5mm)	8.30
..... (12.5mm)	11.00
..... (19mm)	17.00
Plywood per 25mm	15.00
PVC floor tiling (2.5mm)	3.90
Strawboard (25mm)	9.80

Typical Weights of Building Materials and Densities

Material	Weight (kg/m ²)
Weatherboarding (20mm)	7.68
Woodwool (25mm)	14.50
INSULATION	
Glass fibre thermal (100mm)	2.00
..... acoustic	4.00
APPLIED MATERIALS -	
Asphalte (18mm)	42
Plaster, 2 coat work	22
STRUCTURAL TIMBER -	
Rafters and Joists (100 × 50 @ 400c/c)	5.87
Floor joists (225 × 50 @ 400c/c)	14.93
Densities -	
Material	Approx. Density (kg/m ³)
Cement	1440
Concrete (aerated)	640
..... (broken brick)	2000
..... (natural aggregates)	2300
..... (no-fines)	1760
..... (reinforced)	2400
Metals -	
Aluminium	2770
Copper	8730
Lead	11325
Steel	7849
Timber (softwood/pine)	480 (average)
..... (hardwood, e.g. maple, teak, oak)	720
Water	1000
Ref. BS 648: Schedule of Weights of Building Materials.	

Typical Imposed Floor Loads

Structural design of floors will be satisfied for most situations by using the minimum figures given for uniformly distributed loading (UDL). These figures provide for static loading and for the dynamics of occupancy. The minimum figures given for concentrated or point loading can be used where these produce greater stresses.

Application	UDL (kN/m ²)	Concentrated (kN)
Dwellings ~		
Communal areas	1.5	1.4
Bedrooms	1.5	1.8
Bathroom/WC	2.0	1.8
Balconies (use by 1 family)	1.5	1.4
Commercial/Industrial ~		
Hotel/motel bedrooms	2.0	1.8
Communal kitchen	3.0	4.5
Offices and general work areas	2.5	2.7
Kitchens/laundries/ laboratories	3.0	4.5
Factories and workshops	5.0	4.5
Balconies – guest houses	3.0	1.5/m run at outer edge
Balconies – communal areas in flats	3.0	1.5/m run at outer edge
Balconies – hotels/motels	4.0	1.5/m run at outer edge
Warehousing/Storage ~		
General use for static items	2.0	1.8
Reading areas/libraries	4.0	4.5
General use, stacked items	2.4/m height	7.0
Filing areas	5.0	4.5
Paper storage	4.0/m height	9.0
Plant rooms	7.5	4.5
Book storage	2.4/m height (min. 6.5)	7.0

See also:

BS 6399-1: Loading for buildings. Code of practice for dead and imposed loads.

BS 6399-2: Loading for buildings. Code of practice for wind loads.

BS 6399-3: Loading for buildings. Code of practice for imposed roof loads.

Drawings—Hatchings, Symbols and Notations

Drawings ~ these are the principal means of communication between the designer, the builder and other parties to a contract.

Drawings should therefore be clear, accurate, contain all the necessary information and be capable of being easily read.

Design practices have their own established symbols and notations for graphical communication. Some of which are shown on this and the next three pages. Other guidance can be found in BS EN ISOs 4157 and 7519.

Typical Examples~

———— outlines

———— dimension and hatching lines

----- hidden detail

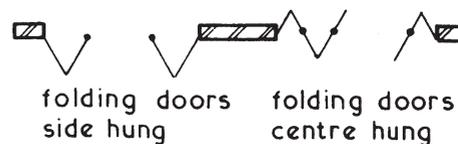
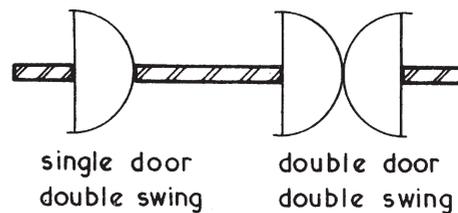
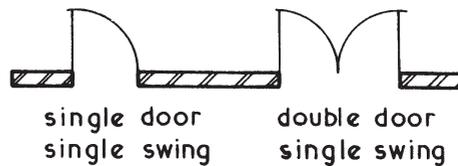
----- drain and pipe lines

----- centre lines

↔ modular and coordinating dimension lines

↔ work size dimension lines

⑫ ----- controlling and grid lines



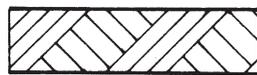
LINES

DOORS

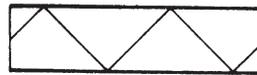
Hatchings ~ the main objective is to differentiate between the materials being used thus enabling rapid recognition and location. Whichever hatchings are chosen they must be used consistently throughout the whole set of drawings. In large areas it is not always necessary to hatch the whole area.

Symbols ~ these are graphical representations and should wherever possible be drawn to scale but above all they must be consistent for the whole set of drawings and clearly drawn.

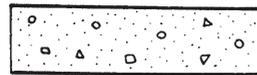
Typical Examples ~



soil



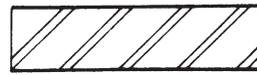
hardcore



mass concrete



reinforced concrete



brickwork



blockwork



stonework

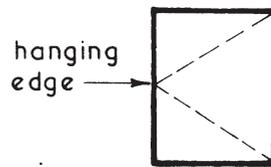


unwrot timber



wrot (wrought) or planed timber

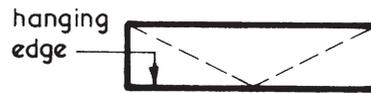
MATERIALS



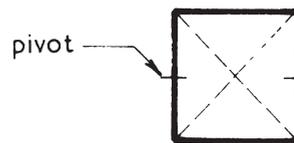
hanging edge
side hung opening out



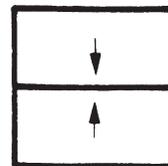
top hung opening out



bottom hung opening in

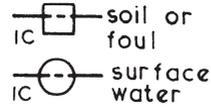
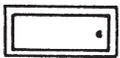
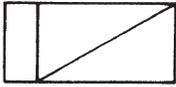
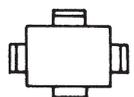


pivot
horizontal pivot

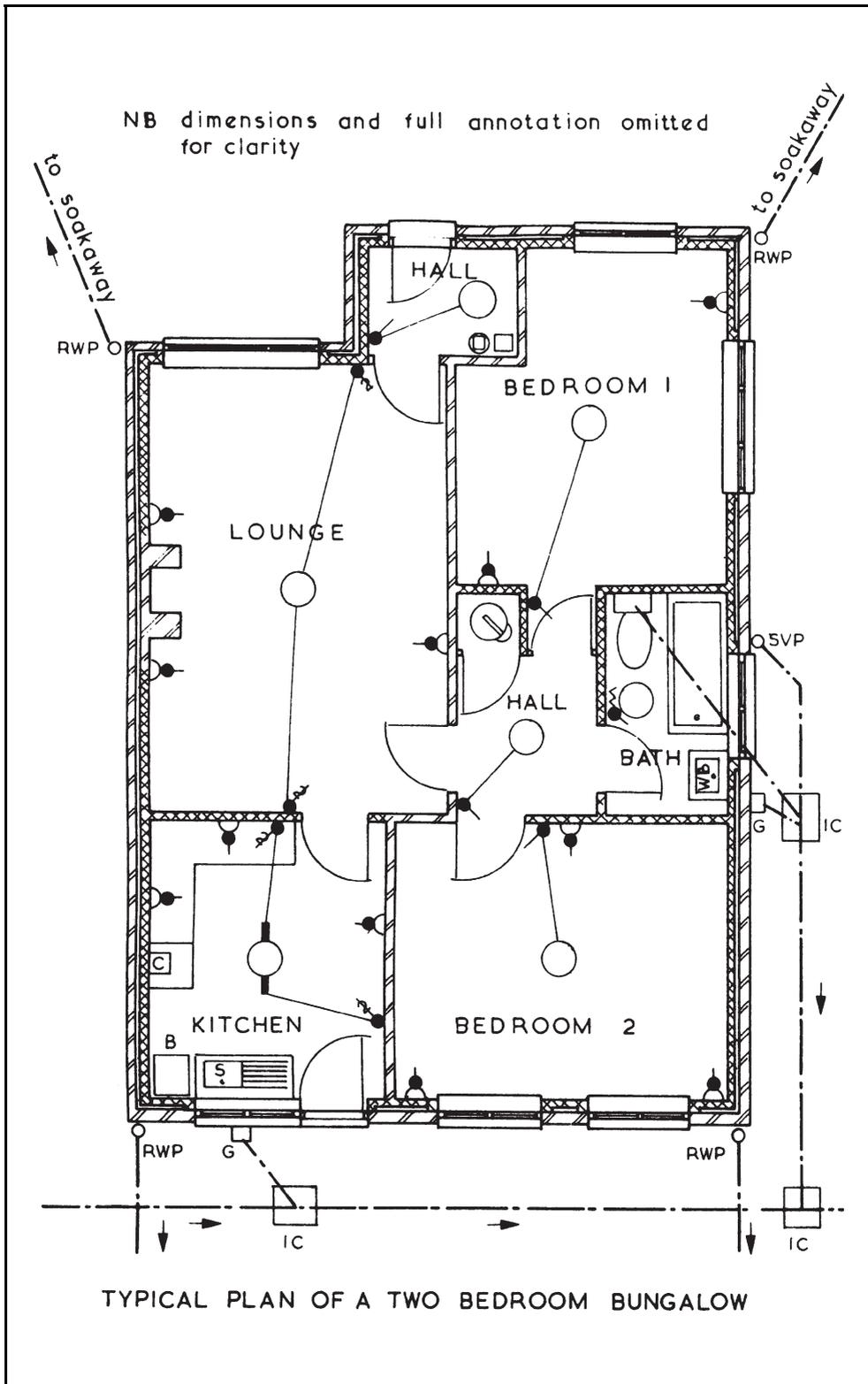


double hung or sliding sash
WINDOWS

Drawings—Hatchings, Symbols and Notations

Name	Symbol	Name	Symbol
Rainwater pipe		Distribution board	
Gully		Electricity meter	
Inspection chambers		Switched socket outlet	
Boiler		Switch	
Sink		Two way switch	
Bath		Pendant switch	
Wash basin		Filament lamp	
Shower unit		Fluorescent lamp	
Urinal		Bed	
Water closet		Table and chairs	

TYPICAL COMPONENT, FITMENT AND ELECTRICAL SYMBOLS



Planning Application

Principal legislation: ~

The Town & Country Planning Act 1990 - Effects control over volume of development, appearance and layout of buildings. The Public Health Acts 1936 to 1961 - Limits development with regard to emission of noise, pollution and public nuisance. The Highways Act 1980 - Determines layout and construction of roads and pavements.

The Building Act 1984 - Effects the Building Regulations 2000, which enforce minimum material and design standards. The Civic Amenities Act 1967 - Establishes conservation areas, providing local authorities with greater control of development. The Town & Country Amenities Act 1974 - Local authorities empowered to prevent demolition of buildings and tree felling.

Procedure: ~

Outline Planning Application - This is necessary for permission to develop a proposed site. The application should contain:

An application form describing the work.

A site plan showing adjacent roads and buildings (1:2500).

A block plan showing the plot, access and siting (1:500).

A certificate of land ownership.

Detail or Full Planning Application - This follows outline permission and is also used for proposed alterations to existing buildings.

It should contain: details of the proposal, to include trees, materials, drainage and any demolition.

Site and block plans (as above). A certificate of land ownership. Building drawings showing elevations, sections, plans, material specifications, access, landscaping, boundaries and relationship with adjacent properties (1:100).

Permitted Developments - House extensions may be exempt formal application. Conditions vary depending on house position relative to its plot and whether detached or attached. Ref. The Town and Country Planning (General Permitted Development) (Amendment) (No.2) (England) Order, 2008. Porches are exempt if <3m² external floor area, <3m in height >2m from the boundary.

Note: All developments are subject to Building Regulation approval.

Certificates of ownership - Article 7 of the Town & Country Planning (General Development Procedure) Order 1995:

Cert. A - States the applicant is sole site freeholder.

Cert. B - States the applicant is part freeholder or prospective purchaser and all owners of the site know of the application.

Cert. C - As Cert. B, but the applicant is only able to ascertain some of the other land owners.

Cert. D - As Cert. B, but the applicant cannot ascertain any owners of the site other than him/herself.

PLANNING APPLICATION

APPLICATION No

Use this form to apply for Planning Permission for:-
 • an Extension • a High Wall or Fence
 • a Loft Conversion • a Garage or Outbuilding
 • a New or Altered Access • a Satellite Dish

Please return:- • 6 copies of the Form
 • 6 copies of the Plans
 • a Certificate under Article 7
 • the correct fee

DATE RECEIVED

1. NAME AND ADDRESS OF APPLICANT

Post Code _____

Tel. No. _____

2. NAME AND ADDRESS OF AGENT (If Used)

Post Code _____

Tel. No. _____

3. ADDRESS OF PROPERTY TO BE ALTERED OR EXTENDED

4. OWNERSHIP

Please indicate applicants interest in the property and complete the appropriate Certificate under Article 7.

Freeholder Other

Leaseholder

Purchaser

5. BRIEF DESCRIPTION OF WORKS (include any demolition work)

6. DESCRIPTION OF EXTERNAL MATERIALS

7. ACCESS AND PARKING

Will your proposal affect? Please tick appropriate boxes

Vehicular Access Yes No

A Public Right of Way Yes No

Existing Parking Yes No

8. DRAINAGE

a. Please indicate method of Surface Water Disposal

b. Please indicate method of Foul Water Disposal

Please tick one box

Mains Sewer Septic Tank

Cesspit Other

9. TREES

Does the proposal involve the felling of any trees?

Please tick box Yes No

If yes, please show details on plans

10. PLEASE SIGN AND DATE THIS FORM BEFORE SUBMITTING

I/We hereby apply for Full Planning Permission for the development described above and shown on the accompanying plans.

Signed _____ Date _____

Date _____

On behalf of (if agent) _____

Planning Application—New Build (1)

<p>Use this form to apply for Planning Permission for:-</p> <p>Outline Permission</p> <p>Full Permission</p> <p>Approval of Reserved Matters</p> <p>Renewal of Temporary Permission</p> <p>Change of Use</p>	<p>Please return:-</p> <p>* 6 copies of the Form</p> <p>* 6 copies of the Plans</p> <p>* a Certificate under Article 7</p> <p>* the correct fee</p>
	DATE RECEIVED _____
	DATE VALID _____
1. NAME AND ADDRESS OF APPLICANT	2. NAME AND ADDRESS OF AGENT (If Used)
_____	_____
_____	_____
_____	_____
_____	_____
Post Code _____	Post Code _____
Day Tel. No. _____ Fax No. _____	Tel. No. _____ Fax No. _____
Email: _____	Email: _____
3. ADDRESS OR LOCATION OF LAND TO WHICH APPLICATION RELATES	4. OWNERSHIP
_____	Please indicate applicants interest in the property and complete the appropriate Certificate under Article 7.
_____	Freeholder <input type="checkbox"/> Other <input type="checkbox"/>
_____	Leaseholder <input type="checkbox"/> Purchaser <input type="checkbox"/>
State Site Area _____ Hectares	Any adjoining land owned or controlled and not part of application must be edged Blue on the site plan
This must be shown edged in Red on the site plan	
5. WHAT ARE YOU APPLYING FOR? Please tick one box and then answer relevant questions.	
<input type="checkbox"/> Outline Planning Permission Which of the following are to be considered?	
<input type="checkbox"/> Siting <input type="checkbox"/> Design <input type="checkbox"/> Appearance <input type="checkbox"/> Access <input type="checkbox"/> Landscaping	
<input type="checkbox"/> Full Planning Permission/Change of use	
<input type="checkbox"/> Approval of Reserved Matters following Outline Permission.	
O/P No. _____ Date _____ No. of Condition this application refers to: _____	
<input type="checkbox"/> Continuance of Use without complying with a condition of previous permission	
P/P No. _____ Date _____ No. of Condition this application relates to: _____	
<input type="checkbox"/> Permission for Retention of works.	
Date of Use of land or when buildings or works were constructed: _____ Length of temporary permission: _____	
Is the use temporary or permanent? _____ No. of previous temporary permission if applicable: _____	
6. BRIEF DESCRIPTION OF PROPOSED DEVELOPMENT	
Please indicate the purpose for which the land or buildings are to be used. _____	

Planning Application—New Build (2)

7. NEW RESIDENTIAL DEVELOPMENTS. Please answer the following if appropriate:

What type of building is proposed? _____

No. of dwellings: _____ No. of storeys: _____ No. of Habitable rooms: _____

No. of Garages: _____ No. of Parking Spaces: _____ Total Grass Area of all buildings: _____

How will surface water be disposed of? _____

How will foul sewage be dealt with? _____

8. ACCESS

Does the proposed development involve any of the following? Please tick the appropriate boxes.

New access to a highway Pedestrian Vehicular

Alteration of an existing highway Pedestrian Vehicular

The felling of any trees Yes No

If you answer Yes to any of the above, they should be clearly indicated on all plans submitted.

9. BUILDING DETAIL

Please give details of all external materials to be used, if you are submitting them at this stage for approval.

List any samples that are being submitted for consideration. _____

10. LISTED BUILDINGS OR CONSERVATION AREA

Are any Listed buildings to be demolished or altered? Yes No

If Yes, then Listed Building Consent will be required and a separate application should be submitted.

Are any non-listed buildings within a Conservation Area to be demolished? Yes No

If Yes, then Conservation Area consent will be required to demolish. Again, a separate application should be submitted.

11. NOTES

A special Planning Application Form should be completed for all applications involving Industrial, Warehousing, Storage, or Shopping development.

An appropriate Certificate must accompany this application unless you are seeking approval to Reserved Matters.

A separate application for Building Regulation approval is also required.

Separate applications may also be required if the proposals relate to a Listed Building or non-listed building within a Conservation Area.

12. PLEASE SIGN AND DATE THIS FORM BEFORE SUBMITTING

I/We hereby apply for Planning Permission for the development described above and shown on the accompanying plans.

Signed _____

Planning Application—Certificates

TOWN AND COUNTRY PLANNING ACT

TOWN AND COUNTRY PLANNING (General Development Procedure) ORDER Certificates under Article 7 of the Order

CERTIFICATE A For Freehold Owner (or his/her Agent)

I hereby certify that:-

1. No person other than the applicant was an owner of any part of the land to which the application relates at the beginning of the period of 21 days before the date of the accompanying application.
2. ***Either (i)** None of the land to which the application relates constitutes or forms part of an agricultural holding;
***or (ii)** *(I have) (the applicant has) given the requisite notice to every person other than *(myself) (himself) (herself) who, 21 days before the date of the application, was a tenant of any agricultural holding any part of which was comprised in the land to which the application relates, viz:-

Name and Address of Tenant.....

.....

..... Signed Date.....

Date of Service of Notice..... *On Behalf of

CERTIFICATE B For Part Freehold Owner or Prospective Purchaser (or his/her Agent) able to ascertain all the owners of the land

I hereby certify that:-

1. *(I have) (the applicant has) given the requisite notice to all persons other than (myself) (the applicant) who, 21 days before the date of the accompanying application were owners of any part of the land to which the application relates, viz:-

Name and Address of Owner

.....

..... Date of Service of Notice

2. ***Either (i)** None of the land to which the application relates constitutes or forms part of an agricultural holding;
***or (ii)** *(I have) (the applicant has) given the requisite notice to every person other than *(myself) (himself) (herself) who, 21 days before the date of the application, was a tenant of any agricultural holding any part of which was comprised in the land to which the application relates, viz:-

Name and Address of Tenant.....

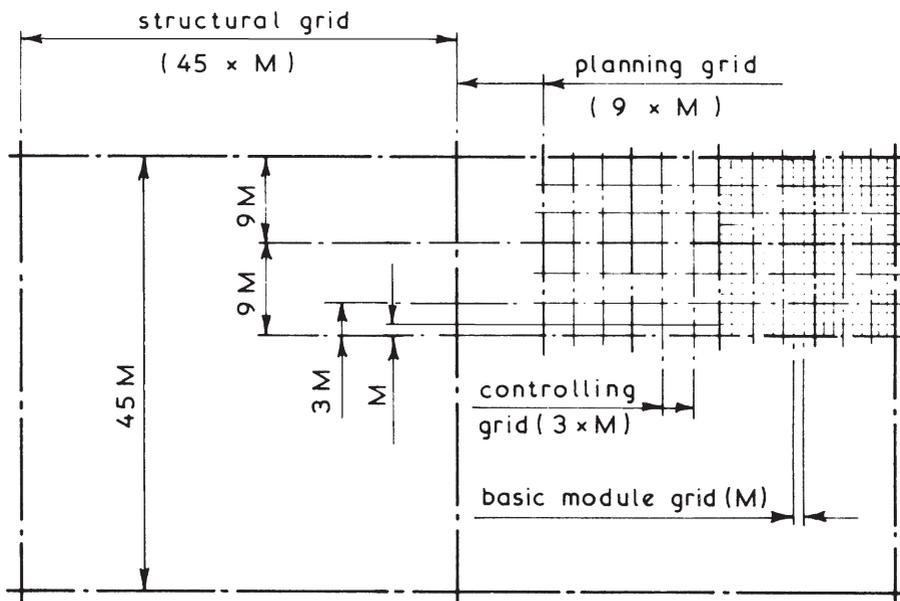
.....

..... Signed Date.....

Modular Coordination ~ a module can be defined as a basic dimension which could for example form the basis of a planning grid in terms of multiples and submultiples of the standard module.

Typical Modular Coordinated Planning Grid ~

Let M = the standard module



Structural Grid ~ used to locate structural components such as beams and columns.

Planning Grid ~ based on any convenient modular multiple for regulating space requirements such as rooms.

Controlling Grid ~ based on any convenient modular multiple for location of internal walls, partitions etc.

Basic Module Grid ~ used for detail location of components and fittings.

All the above grids, being based on a basic module, are contained one within the other and are therefore interrelated. These grids can be used in both the horizontal and vertical planes thus forming a three dimensional grid system. If a first preference numerical value is given to M dimensional coordination is established - see next page.

Ref. BS 6750: Specification for modular coordination in building.

Modular Coordination

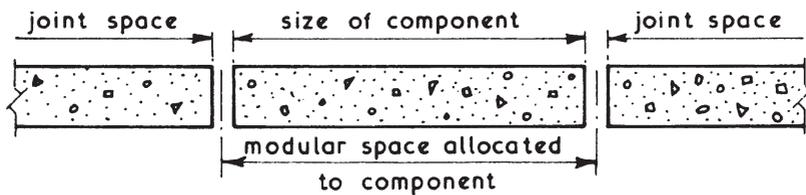
Dimensional Coordination ~ the practical aims of this concept are to:-

1. Size components so as to avoid the wasteful process of cutting and fitting on site.
2. Obtain maximum economy in the production of components.
3. Reduce the need for the manufacture of special sizes.
4. Increase the effective choice of components by the promotion of interchangeability.

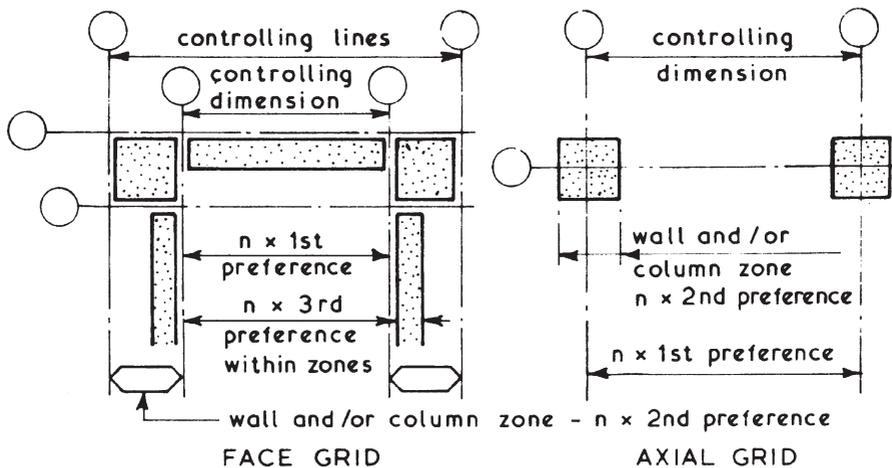
BS 6750 specifies the increments of size for coordinating dimensions of building components thus:-

Preference	1st	2nd	3rd	4th	
Size (mm)	300	100	50	25	the 3rd and 4th preferences having a maximum of 300mm

Dimensional Grids - the modular grid network as shown on page 47 defines the space into which dimensionally coordinated components must fit. An important factor is that the component must always be undersized to allow for the joint which is sized by the obtainable degree of tolerance and site assembly:-

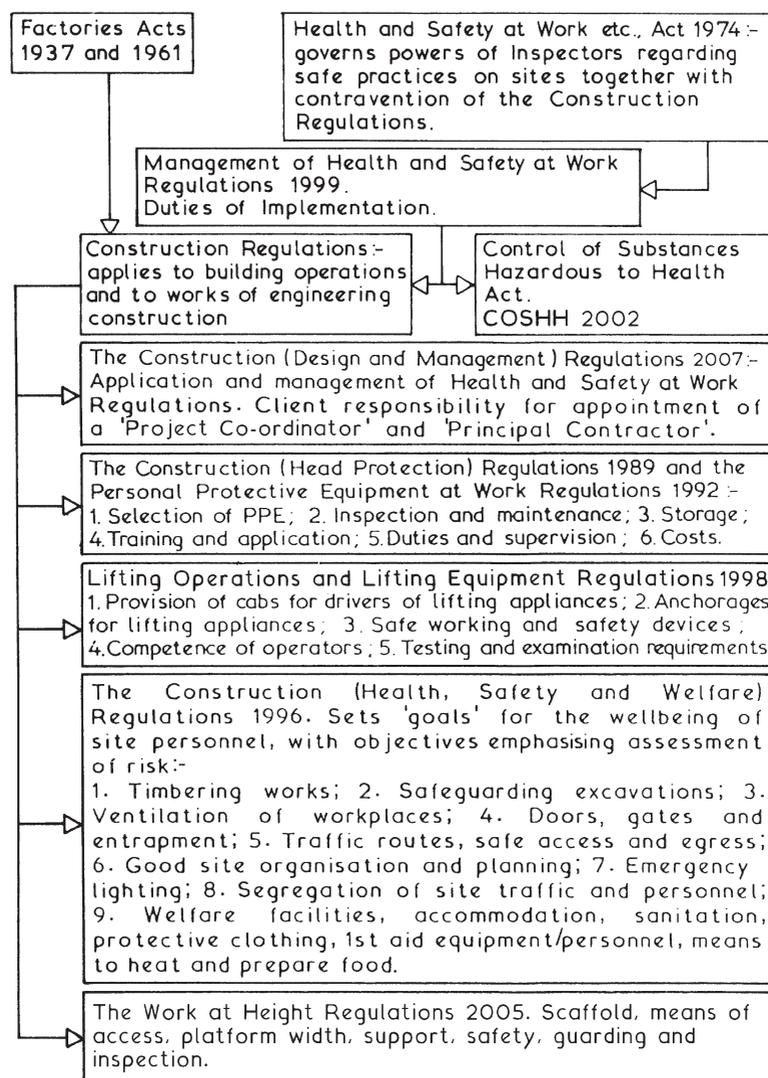


Controlling Lines, Zones and Controlling Dimensions - these terms can best be defined by example:-



Construction Regulations

Construction Regulations ~ these are Statutory Instruments made under the Factories Acts of 1937 and 1961 and come under the umbrella of the Health and Safety at Work etc., Act 1974. They set out the minimum legal requirements for construction works and relate primarily to the health, safety and welfare of the work force. The requirements contained within these documents must therefore be taken into account when planning construction operations and during the actual construction period. Reference should be made to the relevant document for specific requirements but the broad areas covered can be shown thus:-



Construction (Design & Management) Regulations

Objective - To create an all-party integrated and planned approach to health and safety throughout the duration of a construction project.

Administering Body - The Health and Safety Executive (HSE).

Scope - The CDM Regulations are intended to embrace all aspects of construction, with the exception of very minor works.

Responsibilities - The CDM Regulations apportion responsibility to everyone involved in a project to cooperate with others and for health and safety issues to all parties involved in the construction process, i.e. client, designer, project coordinator and principal contractor.

Client - Appoints a project coordinator and the principal contractor. Provides the project coordinator with information on health and safety matters and ensures that the principal contractor has prepared an acceptable construction phase plan for the conduct of work. Ensures adequate provision for welfare and that a health and safety file is available.

Designer - Establishes that the client is aware of their duties. Considers the design implications with regard to health and safety issues, including an assessment of any perceived risks. Coordinates the work of the project coordinator and other members of the design team.

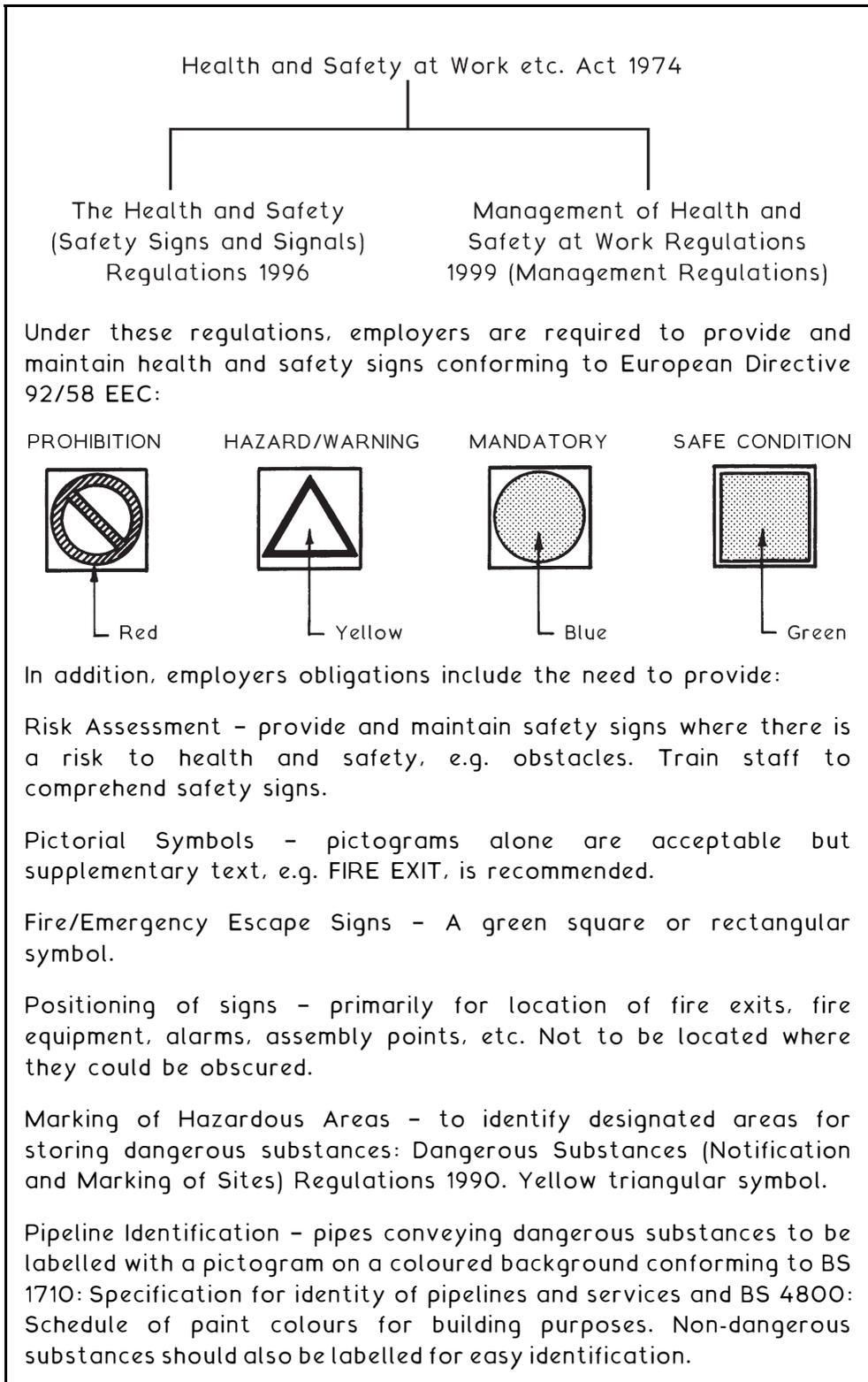
Project Coordinator - Ensures that:

- * a pre-tender, construction phase plan is prepared.
- * the HSE are informed of the work.
- * designers are liaising and conforming with their health and safety obligations.
- * a health and safety file is prepared.
- * contractors are of adequate competence with regard to health and safety matters and advises the client and principal contractor accordingly.

Principal Contractor - Develops a construction phase plan, collates relevant information and maintains it as the work proceeds. Administers day-to-day health and safety issues. Co-operates with the project coordinator, designers and site operatives preparing risk assessments as required.

Note: The CDM Regulations include requirements defined under The Construction (Health, Safety and Welfare) Regulations.

Health and Safety—Signs and Symbols (1)



Health and Safety—Signs and Symbols (2)

Typical Examples on Building Sites ~

PROHIBITION (Red)



Authorised
personnel only



Children must
not play on
this site



Smoking
prohibited



Access not
permitted

HAZARD/WARNING (Yellow)



Dangerous
substance



Flammable
liquid



Danger of
electric shock



Compressed
gas

MANDATORY (Blue)



Safety helmets
must be worn



Protective
footwear must
be worn



Use ear
protectors



Protective
clothing must
be worn

SAFE CONDITIONS (Green)



Emergency escapes



Treatment area

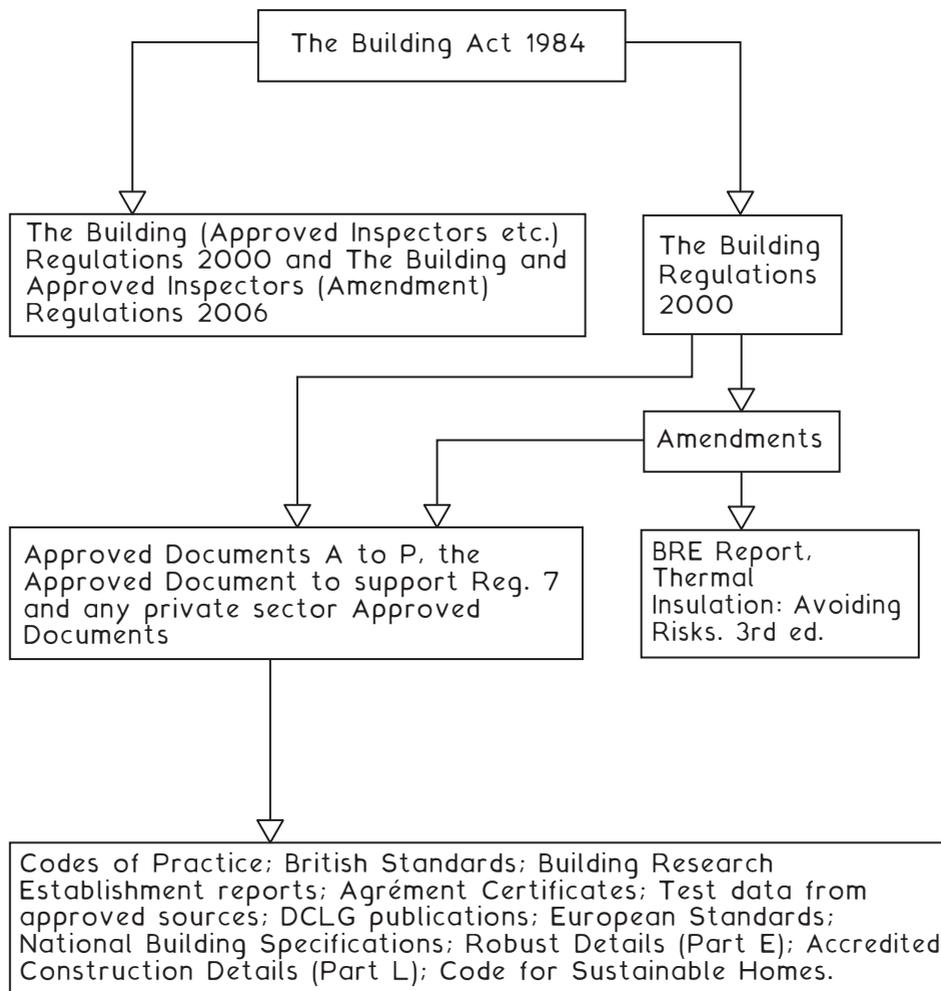


Safe area

Ref. BS 5499-1: Graphical symbols and signs. Safety signs, including fire safety signs. Specification for geometric shapes, colours and layout.

Building Act, Regulations and Support Documents

The Building Regulations ~ this is a Statutory Instrument which sets out the minimum performance standards for the design and construction of buildings and where applicable to the extension of buildings. The regulations are supported by other documents which generally give guidance on how to achieve the required performance standards. The relationship of these and other documents is set out below:-



NB. The Building Regulations apply to England and Wales but not to Scotland and Northern Ireland which have separate systems of control.

Building Regulations—Approved Documents

Approved Documents ~ these publications support the Building Regulations. They are prepared by the Department for Communities and Local Government approved by the Secretary of State and issued by The Stationery Office. The Approved Documents (ADs) have been compiled to give practical guidance to comply with the performance standards set out in the various regulations. They are not mandatory but show compliance with the requirements of the Building Regulations. If other solutions are used to satisfy the requirements of the Regulations, proving compliance rests with the applicant or designer.

Approved Document A – STRUCTURE

Approved Document B – FIRE SAFETY
Volume 1 – Dwelling houses
Volume 2 – Buildings other than dwelling houses

Approved Document C – SITE PREPARATION AND RESISTANCE
TO CONTAMINANTS AND MOISTURE

Approved Document D – TOXIC SUBSTANCES

Approved Document E – RESISTANCE TO THE PASSAGE OF SOUND

Approved Document F – VENTILATION

Approved Document G – SANITATION, HOT WATER SAFETY
AND WATER EFFICIENCY

Approved Document H – DRAINAGE AND WASTE DISPOSAL

Approved Document J – COMBUSTION APPLIANCES AND FUEL
STORAGE SYSTEMS

Approved Document K – PROTECTION FROM FALLING, COLLISION
AND IMPACT

Approved Document L – CONSERVATION OF FUEL AND POWER
L1A – New dwellings
L1B – Existing dwellings
L2A – New buildings other than dwellings
L2B – Existing buildings other than dwellings

Approved Document M – ACCESS TO AND USE OF BUILDINGS

Approved Document N – GLAZING – SAFETY IN RELATION TO
IMPACT, OPENING AND CLEANING

Approved Document P – ELECTRICAL SAFETY

Approved Document to support Regulation 7
MATERIALS AND WORKMANSHIP

BASEMENTS FOR DWELLINGS – A government approved private
sector AD published by The
Basement Information Centre

Example in the Use of Approved Documents

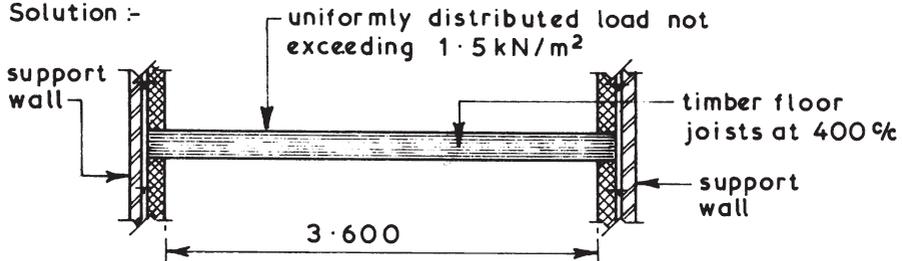
Problem:- the sizing of suspended upper floor joists to be spaced at 400mm centres with a clear span of 3.600m for use in a two storey domestic dwelling.

Building Regulation A1:- states that the building shall be constructed so that the combined dead, imposed and wind loads are sustained and transmitted by it to the ground -

- (a) safely, and
- (b) without causing such deflection or deformation of any part of the building, or such movement of the ground, as will impair the stability of any part of another building.

Approved Document A:- guidance on sizing floor joists can be found in 'Span Tables for Solid Timber Members in Dwellings', published by the Timber Research And Development Association (TRADA), and BS5268-2: Structural use of timber. Code of practice for permissible stress design, materials and workmanship.

Solution :-



Dead load (kN/m²) supported by joist excluding mass of joist:-

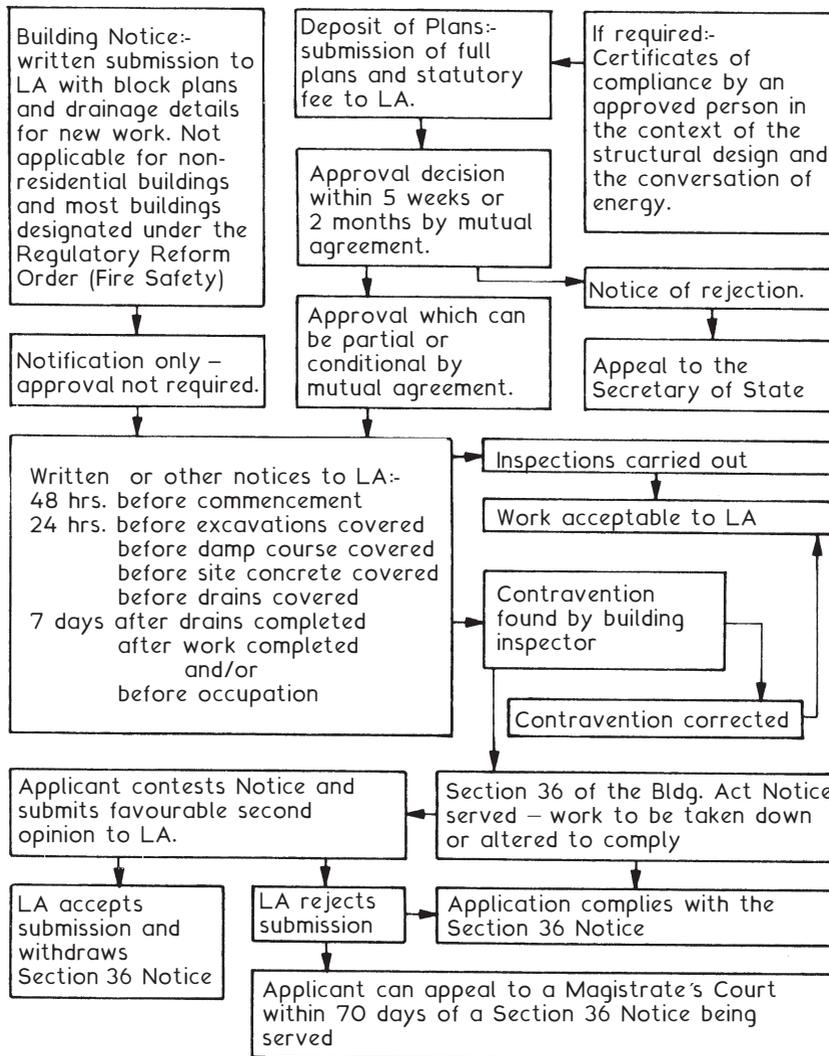
Floor finish – carpet	– 0.03	} weights of materials from BS648
Flooring – 20 mm thick particle board	– 0.15	
Ceiling – 9.5 mm thick plasterboard	0.08	
Ceiling finish – 3 mm thick plaster	– 0.04	
	total dead load –	<u>0.30 kN/m²</u>

Dead loading is therefore in the 0.25 to 0.50kN/m² band
 From table on page 633 suitable joist sizes are:- 38 × 200, 50 × 175, 63 × 175 and 75 × 150.

Final choice of section to be used will depend upon cost; availability; practical considerations and/or personal preference.

Building Regulations—Control

Building Control ~ unless the applicant has opted for control by a private approved inspector under The Building (Approved Inspectors etc.) Regulations 2000 the control of building works in the context of the Building Regulations is vested in the Local Authority. There are two systems of control namely the Building Notice and the Deposit of Plans. The sequence of systems is shown below:-



NB. In some stages of the above sequence statutory fees are payable as set out in The Building (Local Authority Charges) Regulations 1998.

Building Regulations Approval ~ required if “Building Work” as defined in Regulation 3 of the Building Regulations is proposed. This includes:

- Construction or extension of a building.
- Alterations to an existing building that would bring into effect any of the complying regulations.
- Installing replacement windows where the installer is not known to the local Building Control Authority as being a “competent” registered installer, e.g. FENSA (FENestration Self Assessment) scheme.
- Alteration or installation of building services and fittings that bring into effect any of the complying regulations.
- Installation of cavity wall insulation.
- Underpinning of a building’s foundations.
- Change of purpose or use of a building.

“Competent” persons are appropriately qualified and experienced to the satisfaction of a relevant scheme organiser. For example, Capita Group’s “Gas Safe Register” of engineers for gas installation and maintenance services. They can “self certify” that their work complies with Building Regulations, thereby removing the need for further inspection.

Local Authority Building Control ~ the established procedure as set out diagrammatically on the preceding page with an application form of the type shown on page 61 and accompanying documents as indicated on the next page.

Private Sector Building Control ~ an alternative, where suitably qualified and experienced inspectors approved by the local authority undertake the application approval and site inspections. An “Initial Notice” from the client and their appointed inspector is lodged with the local authority.

Whichever building control procedure is adopted, the methodology is the same, i.e. Deposit of Plans or Building Notice (see page 59).

Refs. The Building (Approved Inspectors, etc.) Regulations.
The Association of Consultant Approved Inspectors.

Building Regulations—Compliance

Local Authority Building Control ~ as described in the previous two pages. A public service administered by borough and unitary councils through their building control departments.

Approved Inspectors ~ a private sector building control alternative as outlined on the preceding page. Approved inspectors may be suitably qualified individuals or corporate bodies employing suitably qualified people, e.g. National House Building Council (NHBC Ltd.) and MD Insurance Services Ltd.

Borough councils can contract out the building control process to approved inspectors. Validation and site examinations follow the established format shown on page 56, with approved inspectors substituting for LA.

Both NHBC and MD Insurance publish their own construction rules and standards that supplement the Building Regulations. These form the basis for their own independent quality control procedures whereby their Inspectors will undertake stage and periodic examinations of work in progress to ensure that these standards are adhered to. The objective is to provide new home buyers with a quality assured product warranted against structural defects (10-15 years), provided the house builder has satisfied certain standards for registration. Therefore, the buyer should be provided with a completion certificate indicating Building Regulations approval and a warranty against defects.

Robust Details ~ Building Regulations A.D. E - Resistance to the passage of sound; requires that the separating walls, floors and stairs in new dwellings are sufficiently resistant to airborne and impact sound transmission. Sound measurement tests defined in the associated BSs specified in the Approved Document must be undertaken by an approved inspector/building control official before completion.

An alternative or a means for exemption of pre-completion testing is for the builder to notify the building inspector that sound insulation construction details are registered and specified to those approved by Robust Details Ltd. This is a not-for-profit company established by the house building industry to produce guidance manuals containing details of acceptable sound resistant construction practice.

Deposit of Plans or Full Plans Application ~

- Application form describing the proposed work.
- Location plan, scale not less than 1:2500.
- Block plan, scale not less than 1:1250 showing north point, lines of drains (existing and proposed) and size and species of trees within 30m.
- Plans, sections and elevations, scale not less than 1:50 (1:100 may be acceptable for elevations).
- Materials specification.
- Structural calculations where appropriate, e.g. load bearing beams.
- Fee depending on a valuation of work.

The appointed inspector examines the application and subject to any necessary amendments, an approval is issued. This procedure ensures that work on site is conducted in accordance with the approved plans. Also, where the work is being financed by a loan, the lender will often insist the work is only to a Full Plans approval.

Building Notice ~

- A simplified application form.
- Block plan as described above.
- Construction details, materials specification and structural calculations if considered necessary by the inspector.
- Fee depending on a valuation of work.

This procedure is only really appropriate for minor work such as extensions to existing small buildings such as houses. Building control/inspection occurs as each element of the work proceeds. Any Building Regulation contravention will have to be removed or altered to attain an acceptable standard.

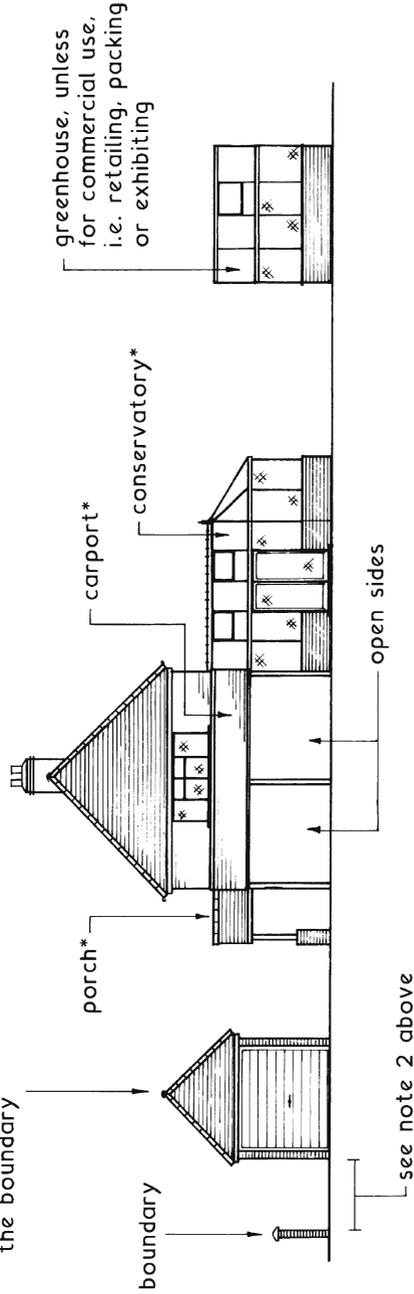
Regularisation ~

- Application form.
- Structural calculations if relevant.
- A proportionally higher fee.

Applies to unauthorised work undertaken since Nov. 1985. In effect a retrospective application that will involve a detailed inspection of the work. Rectification may be necessary before approval is granted.

The guidance shown indicates the categories of buildings that do not normally require submission of a Building Notice or Deposit of Plans for approval by the Building Control Section of the Local Authority. However, they may still require planning permission – see page 42

- small detached buildings:
1. floor area < 15 m² not containing sleeping accommodation, or
 2. floor area < 30 m² not containing sleeping accommodation, and either:
 - constructed substantially from non-combustible materials, or
 - located in excess of 1 m from the boundary



* single storey ground level additions which are not open to the house and are < 30 m² floor area, to include carport, covered yard, conservatory and porch.

- Note:
1. a carport must be open on at least two sides.
 2. conservatories must have fully glazed laminated or toughened glass, or translucent plastic roofs.
 3. glazed doors and windows in a porch or conservatory as defined in Buildings Regulations, Approved Document N – see page 387
 4. single storey additions should not impede escape from an upper floor window specified for emergency egress. Building Regulations, A.D.: B1 Section 2

BUILDING REGULATIONS APPLICATION

<p>Use this form to give notice of intention to erect, extend, or alter a building, install fittings or make a material change of use of the building.</p>	<p>Unless specified differently overleaf, Please return:-</p> <ul style="list-style-type: none"> • 2 copies of the Form • 4 copies of the Plans • the correct fee 	<p style="text-align: right;">APPLICATION No</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p style="text-align: right;">DATE RECEIVED</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div>
--	--	--

1. NAME AND ADDRESS OF APPLICANT
Applicant will be invoiced on commencement of work.

Post Code _____

Tel. No. _____

2. NAME AND ADDRESS OF AGENT (If Used)

Post Code _____

Tel. No. _____

3. ADDRESS OR LOCATION OF PROPOSED WORK

4. DESCRIPTION OF PROPOSED WORKS

5. IF NEW BUILDING OR EXTENSION PLEASE STATE PROPOSED USE

6. IF EXISTING BUILDING PLEASE STATE PRESENT USE

7. DRAINAGE
Please state means of:-

Water Supply _____

Foul Water Disposal _____

Storm Water Disposal _____

8. CONDITIONS

Do you consent to the Plans being passed subject to conditions where appropriate? Yes No

Do you agree to an extension of time if this is required by the Council? Yes No

9. COMPLETION CERTIFICATE
Do you wish the Council to issue a Completion Certificate upon satisfactory completion of the work?

Yes No

10. REGULATORY REFORM ORDER (Fire Safety) 2005
Is the building intended for any other purpose than occupation as a domestic living unit by one family group?

Yes No

11. FEE
Please state estimated cost of the work (at current market value) £..... Amount of Fee submitted £.....

Has Planning Permission been sought? Yes No If Yes, please give Application No _____

12. PLEASE SIGN AND DATE THIS FORM BEFORE SUBMITTING

I/We hereby give notice of intention to carry out the work set out above and deposit the attached drawings and documents in accordance with the requirements of Regulations 11 (1) (b). Also enclosed is the appropriate Plan Fee and I understand that a further Fee will be payable when the first inspection of work on site is made by the Local Authority.

Signed _____ Date _____ On behalf of (if agent) _____

Code for Sustainable Homes

Published ~ 2006 by the Department for Communities and Local Government (DCLG) in response to the damaging effects of climate change. The code promotes awareness and need for new energy conservation initiatives in the design of new dwellings.

Objective ~ to significantly reduce the 27% of UK CO₂ emissions that are produced by 25 million homes. This is to be a gradual process, with the target of reducing CO₂ emissions from all UK sources by 60% by 2050.

Sustainability ~ measured in terms of a quality standard designed to provide new homes with a factor of environmental performance. This measure is applied primarily to categories of thermal energy, use of water, material resources, surface water run-off and management of waste.

Measurement ~ a 'green' star rating that indicates environmental performance ranging from one to six stars. Shown below is the star rating criteria applied specifically to use of thermal energy. A home with a six star rating is also regarded as a zero carbon home.

Proposed Progression ~

Percentage Improvement compared with AD L 2006	Year	Star rating
10	-	1
18	-	2
25	2010	3
44	2013	4
100	2016	5 and 6

Zero Carbon Home ~ zero net emissions of CO₂ from all energy use in the home. This incorporates insulation of the building fabric, heating equipment, hot water systems, cooling, washing appliances, lighting and other electrical/electronic facilities. Net zero emissions can be measured by comparing the carbon emissions produced in consuming on- or off-site fossil fuel energy use in the home, with the amount of on-site renewable energy produced. Means for producing low or zero carbon energy include micro combined heat and power units, photovoltaic (solar) panels, wind generators and ground energy heat pumps, (see Building Services Handbook).

British Standards ~ these are publications issued by the British Standards Institution which give recommended minimum standards for materials, components, design and construction practices. These recommendations are not legally enforceable but some of the Building Regulations refer directly to specific British Standards and accept them as deemed to satisfy provisions. All materials and components complying with a particular British Standards are marked with the British Standards kitemark thus:-  together with the appropriate BS number.

This symbol assures the user that the product so marked has been produced and tested in accordance with the recommendations set out in that specific standard. Full details of BS products and services can be obtained from, Customer Services, BSI, 389 Chiswick High Road, London, W4 4AL. Standards applicable to building may be purchased individually or in modules, GBM 48, 49 and 50; Construction in General, Building Materials and Components and Building Installations and Finishing, respectively. British Standards are constantly under review and are amended, revised and rewritten as necessary, therefore a check should always be made to ensure that any standard being used is the current issue. There are over 1500 British Standards which are directly related to the construction industry and these are prepared in four formats:-

1. British Standards - these give recommendations for the minimum standard of quality and testing for materials and components. Each standard number is prefixed BS.
2. Codes of Practice - these give recommendations for good practice relative to design, manufacture, construction, installation and maintenance with the main objectives of safety, quality, economy and fitness for the intended purpose. Each code of practice number is prefixed CP or BS.
3. Draft for Development - these are issued instead of a British Standard or Code of Practice when there is insufficient data or information to make firm or positive recommendations. Each draft number is prefixed DD. Sometimes given a BS number and suffixed DC, ie. Draft for public Comment.
4. Published Document - these are publications which cannot be placed into any one of the above categories. Each published document is numbered and prefixed PD.

European Standards

European Standards – since joining the European Union (EU), trade and tariff barriers have been lifted. This has opened up the market for manufacturers of construction-related products, from all EU and European Economic Area (EEA) member states. Before 2004, the EU was composed of 15 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal, Spain, Sweden and the United Kingdom. It now includes Bulgaria, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia. The EEA extends to: Iceland, Liechtenstein and Norway. Nevertheless, the wider market is not so easily satisfied, as regional variations exist. This can create difficulties where product dimensions and performance standards differ. For example, thermal insulation standards for masonry walls in Mediterranean regions need not be the same as those in the UK. Also, preferred dimensions differ across Europe in items such as bricks, timber, tiles and pipes.

European Standards are prepared under the auspices of Comité Européen de Normalisation (CEN), of which the BSI is a member. European Standards that the BSI have not recognised or adopted, are prefixed EN. These are EuroNorms and will need revision for national acceptance.

For the time being, British Standards will continue and where similarity with other countries' standards and ENs can be identified, they will run side by side until harmonisation is complete and approved by CEN.

e.g. BS EN 295, complements the previous national standard:
BS 65 – Vitrefied clay pipes for drains and sewers.

European Pre-standards are similar to BS Drafts for Development. These are known as ENVs.

Some products which satisfy the European requirements for safety, durability and energy efficiency, carry the CE mark. This is not to be assumed a mark of performance and is not intended to show equivalence to the BS kitemark. However, the BSI is recognised as a Notified Body by the EU and as such is authorised to provide testing and certification in support of the CE mark.

International Standards – these are prepared by the International Organisation for Standardisation and are prefixed ISO. Many are compatible with and complement BSs, e.g. the ISO 9000 Quality Management series and BS 5750: Quality systems.

Construction Products Directive (CPD)

For manufacturers' products to be compatible and uniformly acceptable in the European market, there exists a process for harmonising technical specifications. These specifications are known as harmonised European product standards (hENs), produced and administered by the Comité Européen de Normalisation (CEN). European Technical Approvals (ETAs) are also acceptable where issued by the European Organisation for Technical Approvals (EOTA). These standards are not a harmonisation of regulations. Whether or not the technical specification satisfies regional and national regulations is for local determination. However, for commercial purposes a technical specification should cover the performance characteristics required by regulations established by any member state in the European Economic Area (EEA).

CPD harmonises:

- * methods and criteria for testing
- * methods for declaring product performance
- * methods and measures of conformity assessment

UK attestation accredited bodies include: BBA, BRE and BSI.

CE mark - a marking or labelling for conforming products. A 'passport' permitting a product to be legally marketed in any EEA. It is not a quality mark, e.g. BS Kitemark, but where appropriate this may appear with the CE marking.

Product Name	CAVITY WALL BATT		
	Thickness (mm)	Length (mm)	
Thickness	100	1200	Length
		Width (mm)	
		455	Width
	Fire Class		
Reaction to Fire Classification	A1	Pieces/Pack: 6	Pieces per Pack
		Area (m ²): 3.28	m ²
CE Mark	CE		
BSI Number	0086		
Year CE Mark Affixed	02		
Certificate of Conformity No.	0086-CPD-461281		
	$\lambda = 0.036 : R = 2.75$		Thermal Conductivity & Thermal Resistance Values
European Product Standard	MW-EN13162-T2-WS-WL(P)		Specific Product Test Results
	ROCKWOOL		
	Rockwool Limited	Pencoed	Bridgend
	Tel. 01656 862621	Fax. 01656 862302	CF35 6NY www.rockwool.co.uk

CE marking - reproduced with kind permission of Rockwool Ltd.

Product and Practice Accreditation

Building Research Establishment ~ The BRE was founded as a UK Government agency in 1921 and was known until the early 1970s as the Building Research Station.

In addition to UK Government funding, some financial support is now provided by the European Union. Additional funding is derived from a variety of sources, including commercial services for private industry and from publications. The latter includes the BRE's well known regular issue of research information products, i.e. Digests, Information Papers, Good Building Guides and Good Repair Guides.

UK Government support is principally through the Department for Business Enterprise and Regulatory Reform (BERR) and the Department for Communities and Local Government (DCLG). The DCLG works with the BRE in formulating specific aspects of the Approved Documents to the Building Regulations. Commissioned research is funded by BRE Trust.

The BRE incorporates and works with other specialised research and material testing organisations, e.g. see LPCB, below. It is accredited under the United Kingdom Accreditation Service (UKAS) as a testing laboratory authorised to issue approvals and certifications such as CE product marking (see pages 64 and 65). Certification of products, materials and applications is effected through BRE Certification Ltd.

Loss Prevention Certification Board (LPCB) ~ The origins of this organisation date back to the latter part of the 19th century, when it was established by a group of building insurers as the Fire Offices' Committee (FOC).

Through a subdivision known as the Loss Prevention Council (LPC), the FOC produced a number of technical papers and specifications relating to standards of building construction and fire control installations. These became the industry standards that were, and continue to be, frequently used by building insurers as supplementary to local byelaws and latterly the Building Regulation Approved Documents.

In the late 1980s the LPC was renamed as the LPCB as a result of reorganisation within the insurance profession. At this time the former LPC guidance documents became established in the current format of Loss Prevention Standards.

In 2000 the LCPB became part of the BRE and now publishes its Standards under BRE Certification Ltd.

CPI System of Coding ~ the Co-ordinated Project Information initiative originated in the 1970s in response to the need to establish a common arrangement of document and language communication, across the varied trades and professions of the construction industry.

However, it has only been effective in recent years with the publication of the Standard Method of Measurement 7th edition (SMM 7), the National Building Specification (NBS) and the Drawings Code. (Note: The NBS is also produced in CI/SfB format.)

The arrangement in all documents is a coordination of alphabetic sections, corresponding to elements of work, the purpose being to avoid mistakes, omissions and other errors which have in the past occurred between drawings, specification and bill of quantities descriptions.

The coding is a combination of letters and numbers, spanning 3 levels:-

Level 1 has 24 headings from A to Z (omitting I and O). Each heading relates to part of the construction process, such as groundwork (D), Joinery (L), surface finishes (M), etc.

Level 2 is a sub-heading, which in turn is sub-grouped numerically into different categories. So for example, Surface Finishes is sub-headed; Plaster, Screeds, Painting, etc. These sub-headings are then extended further, thus Plaster becomes; Plastered/Rendered Coatings, Insulated Finishes, Sprayed Coatings etc.

Level 3 is the work section sub-grouped from level 2, to include a summary of inclusions and omissions.

As an example, an item of work coded M21 signifies:-

- M - Surface finishes
- 2 - Plastered coatings
- 1 - Insulation with rendered finish

The coding may be used to:-

- (a) simplify specification writing
- (b) reduce annotation on drawings
- (c) rationalise traditional taking-off methods

CI/SfB System of Coding

CI/SfB System ~ this is a coded filing system for the classification and storing of building information and data. It was created in Sweden under the title of Samarbetskommittén för Byggnadsfrågor and was introduced into this country in 1961 by the RIBA. In 1968 the CI (Construction Index) was added to the system which is used nationally and recognised throughout the construction industry. The system consists of 5 sections called tables which are subdivided by a series of letters or numbers and these are listed in the CI/SfB index book to which reference should always be made in the first instance to enable an item to be correctly filed or retrieved.

Table 0 - Physical Environment

This table contains ten sections 0 to 9 and deals mainly with the end product (i.e. the type of building.) Each section can be further subdivided (e.g. 21, 22, et seq.) as required.

Table 1 - Elements

This table contains ten sections numbered (--) to (9-) and covers all parts of the structure such as walls, floors and services. Each section can be further subdivided (e.g. 31, 32 et seq.) as required.

Table 2 - Construction Form

This table contains twenty five sections lettered A to Z (O being omitted) and covers construction forms such as excavation work, blockwork, cast in-situ work etc., and is not subdivided but used in conjunction with Table 3.

Table 3 - Materials

This table contains twenty five sections lettered a to z (l being omitted) and covers the actual materials used in the construction form such as metal, timber, glass etc., and can be subdivided (e.g. n1, n2 et seq.) as required.

Table 4 - Activities and Requirements

This table contains twenty five sections lettered (A) to (Z), (O being omitted) and covers anything which results from the building process such as shape, heat, sound, etc. Each section can be further subdivided ((M1), (M2) et seq.) as required.