

10TH
EDITION

BUILDING CONSTRUCTION HANDBOOK

ROY CHUDLEY & ROGER GREENO

INDUSTRY
BESTSELLER

INCORPORATING
CURRENT BUILDING
& CONSTRUCTION
REGULATIONS



BUILDING CONSTRUCTION HANDBOOK

Tenth edition

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and
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PREFACE TO TENTH EDITION

The *Building Construction Handbook* originated in 1982 as a series of four “check-books” written and illustrated by Roy Chudley. In 1988 these successful study guides were consolidated into one volume under the present title. The format of comprehensive illustrations and support text has been maintained as revisions and updates are incorporated into new editions. This latest edition contains a fresh assessment of the practices, procedures, guidance and legislation appropriate to construction and maintenance of housing and other low-rise buildings. It also includes applications to medium and larger scale structures for commercial and industrial purposes.

Much of the work from earlier editions is retained as an important reference, acknowledging that the industry end product generally has a long life span representative of high capital investment. Product aftercare in the form of maintenance, repair, renovation, refurbishment, extensions and alterations can represent some 50% of the industry turnover, much more when bank lending is limited for new development. For this purpose, many established and traditional practices shown in earlier editions are retained. Existing practices also benchmark development as a basis from which contemporary design and technology evolve. This is in response to political, social and economic requirements through legislative directives for environmental issues, energy regulation, fuel conservation and the need for sustainability in construction.

The content of the book is extensive, although no textbook, not least this one, could ever incorporate all practices experienced in an industry so diverse as construction. The content is not exemplar and neither does it attempt to be prescriptive. It is a perspective of construction principles including guidance to processes and, where appropriate, associated design. Building is to some extent determined by availability of materials and skilled operatives; therefore local, regional and national factors will also be responsible for some variation.

Supplementary study material and detail can be obtained from professional journals, legislative papers, manufacturers’ product literature, the many cross-references in the text and attending exhibits and seminars. The most valuable learning resource is observing and monitoring construction in progress.

RG 2014

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1 GENERAL

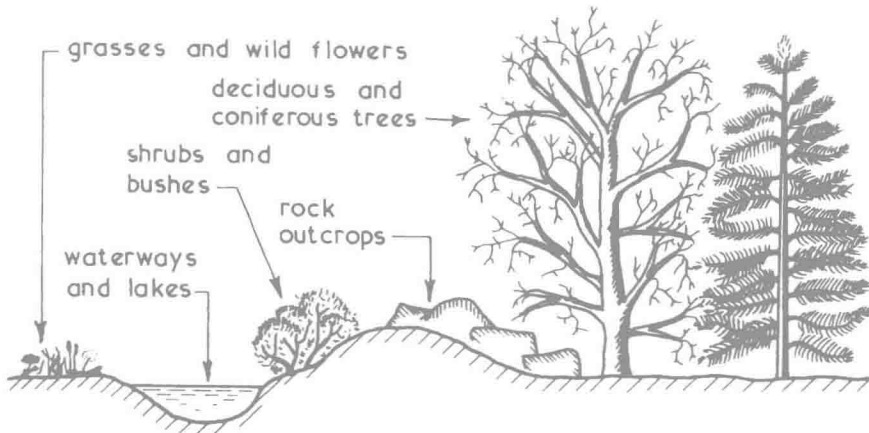


BUILT ENVIRONMENT
THE STRUCTURE
PRIMARY AND SECONDARY ELEMENTS
COMPONENT PARTS AND FUNCTIONS
CONSTRUCTION ACTIVITIES
CONSTRUCTION DOCUMENTS
CONSTRUCTION DRAWINGS
BUILDING SURVEY
ENERGY PERFORMANCE CERTIFICATES
METHOD STATEMENT AND PROGRAMMING
WEIGHTS AND DENSITIES OF BUILDING MATERIALS
IMPOSED FLOOR LOADS
DRAWINGS – NOTATIONS
PLANNING APPLICATION
MODULAR COORDINATION
CONSTRUCTION REGULATIONS
CDM REGULATIONS
SAFETY SIGNS AND SYMBOLS
BUILDING REGULATIONS
ACCREDITED CONSTRUCTION DETAILS
CODE FOR SUSTAINABLE HOMES
BRITISH STANDARDS
EUROPEAN STANDARDS
PRODUCT AND PRACTICE ACCREDITATION
CI/SFB SYSTEM OF CODING
CPI SYSTEM OF CODING
UNICLASS SYSTEM OF CODING

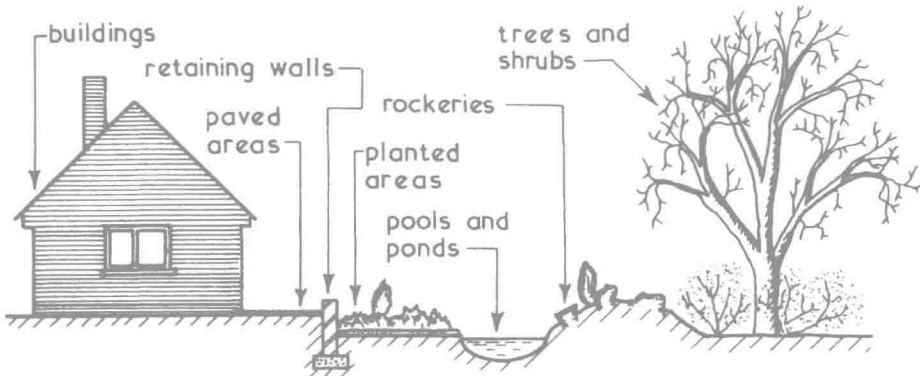
Built Environment

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

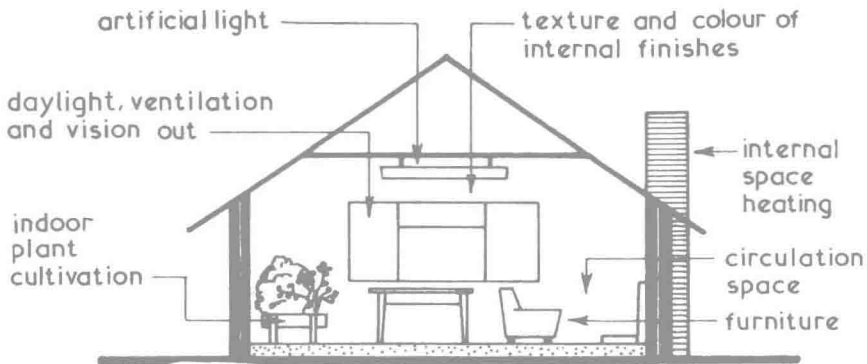
Built Environment = created by man with or without the aid of the natural environment.



ELEMENTS of the NATURAL ENVIRONMENT



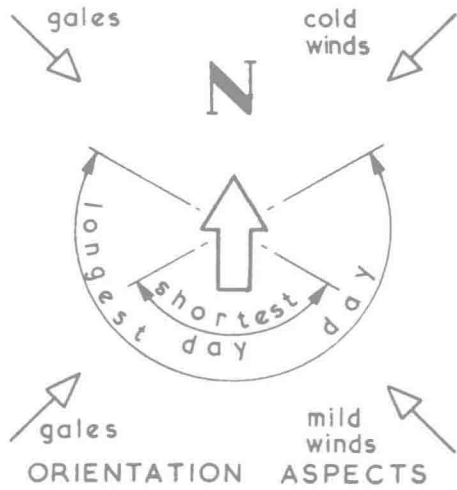
ELEMENTS of the BUILT ENVIRONMENT (EXTERNAL)



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 ~



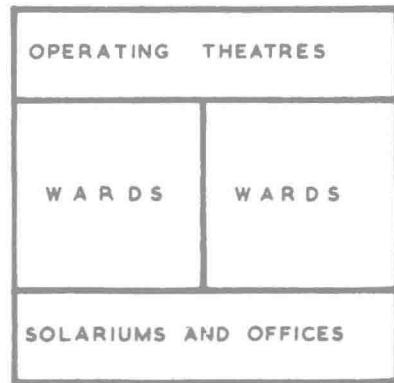
HOUSES



SCHOOLS



FACTORIES



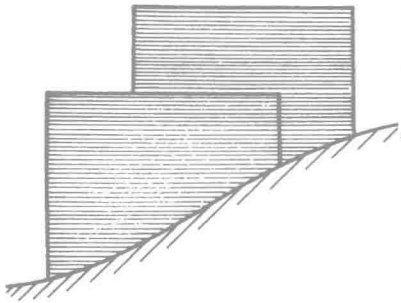
HOSPITALS

Built Environment

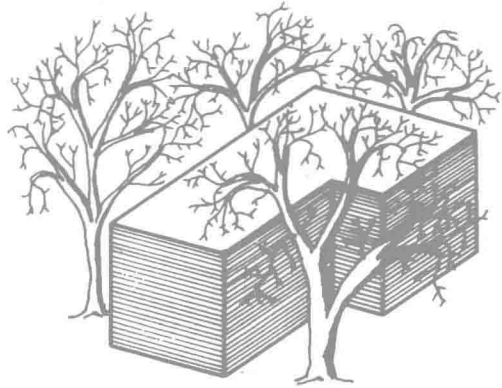
Physical Considerations:

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.

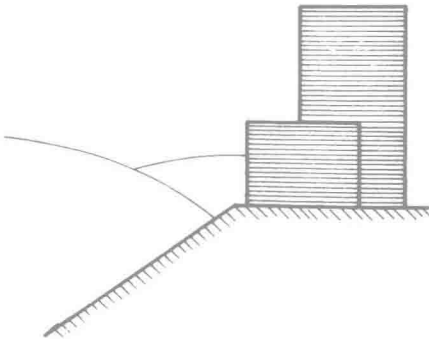
Examples ~



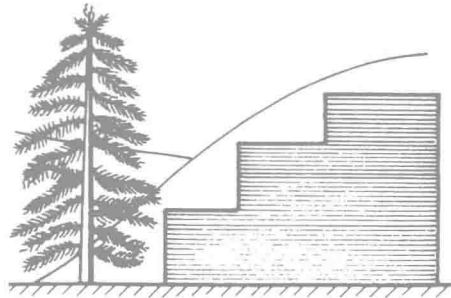
Split level construction to form economic shape.



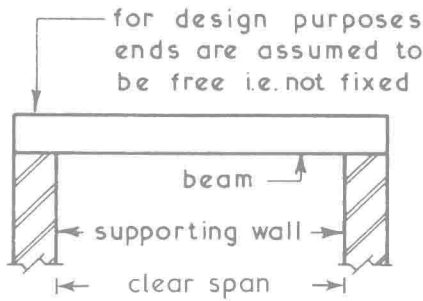
Shape determined by existing trees.



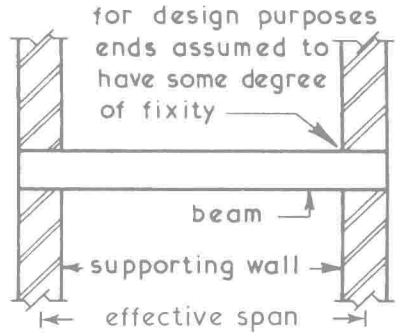
Plateau or high ground solution giving dry site conditions on sloping sites.



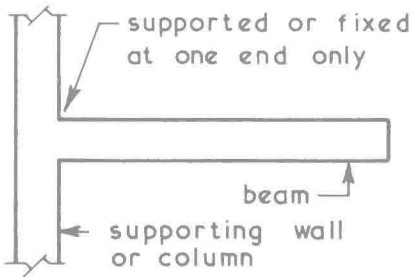
Stepped elevation or similar treatment to blend with the natural environment.



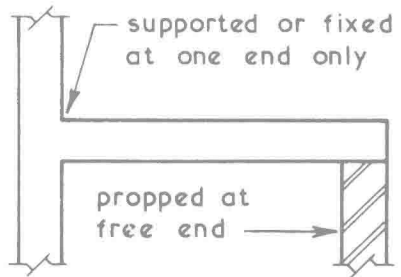
SIMPLY SUPPORTED BEAM



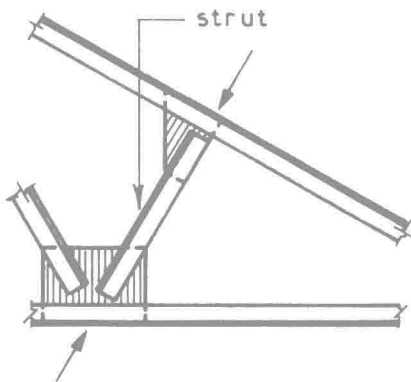
BUILT-IN BEAM



CANTILEVER BEAM

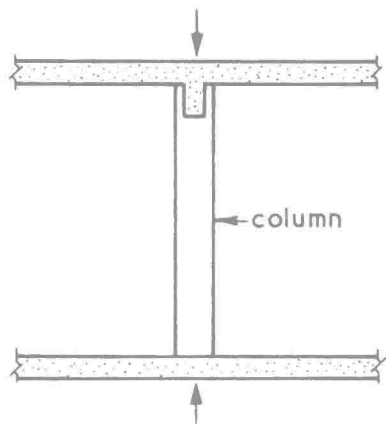


PROPPED CANTILEVER



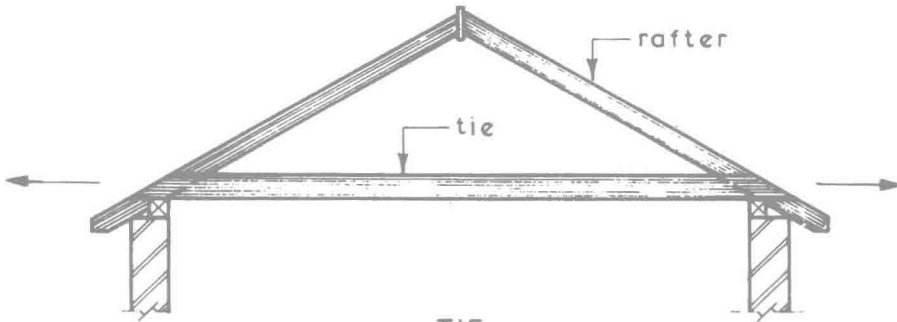
STRUT

structural member which is subjected mainly to compression forces



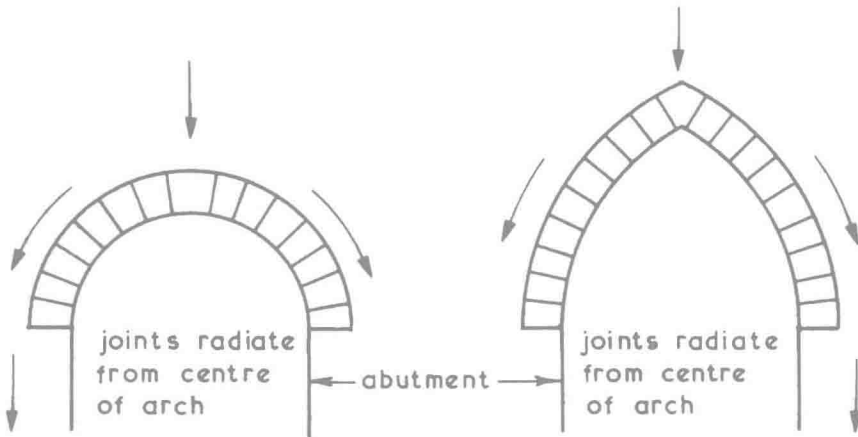
VERTICAL STRUT

usually called a column stanchion or pier



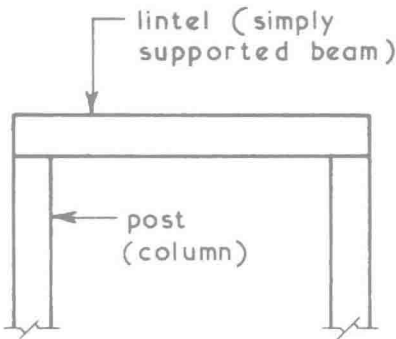
TIE

a structural member which is subjected mainly to tension forces

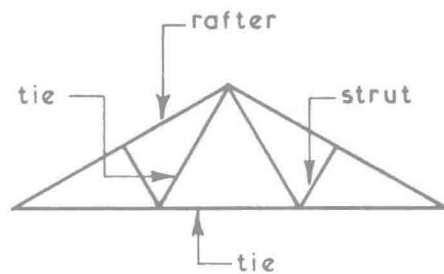


ARCHES

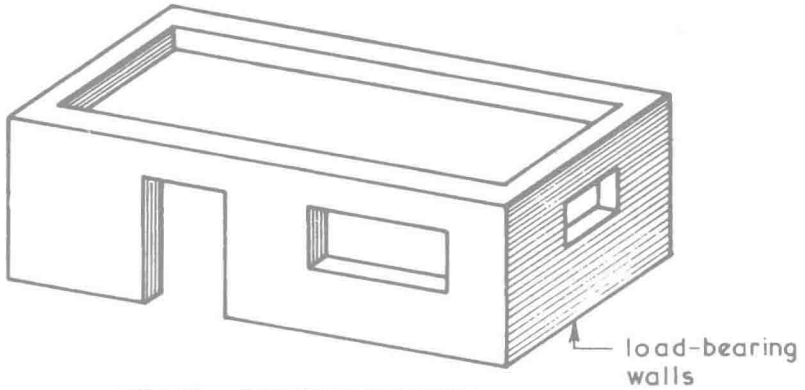
loads are transmitted around arch to the abutments



POST AND LINTEL

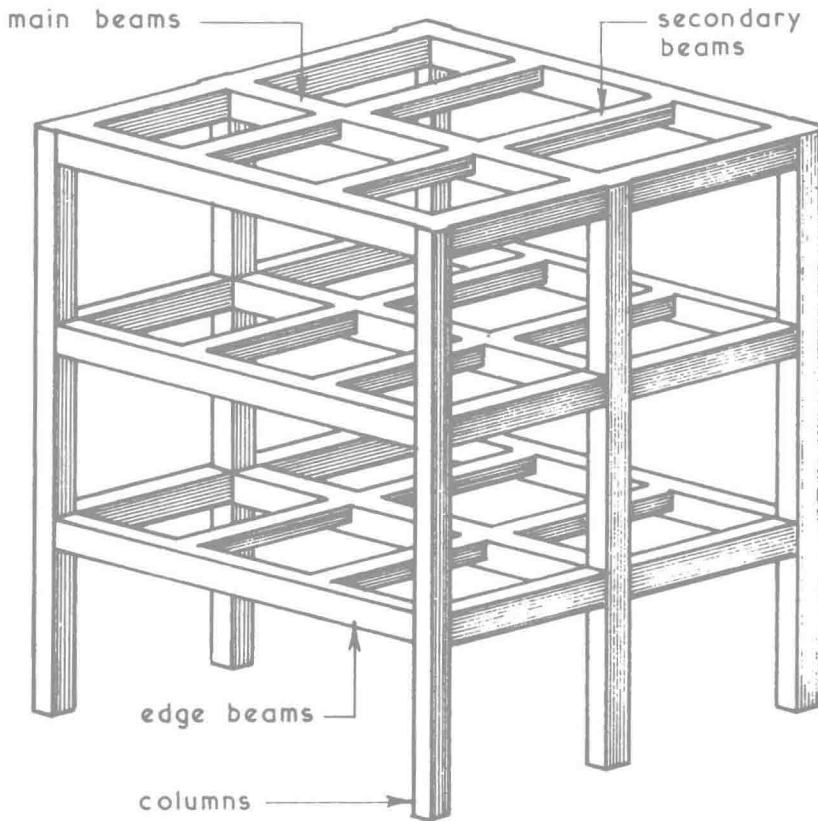


PLANE FRAME



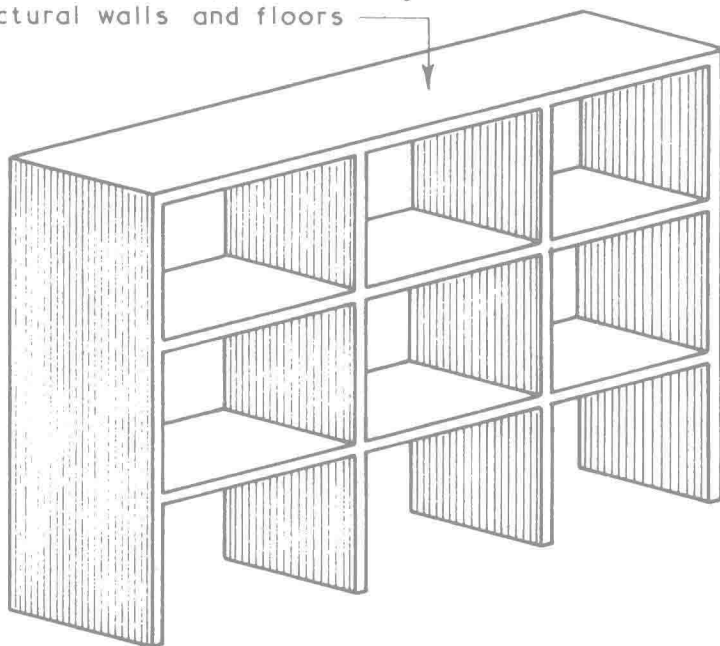
SOLID CONSTRUCTION

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

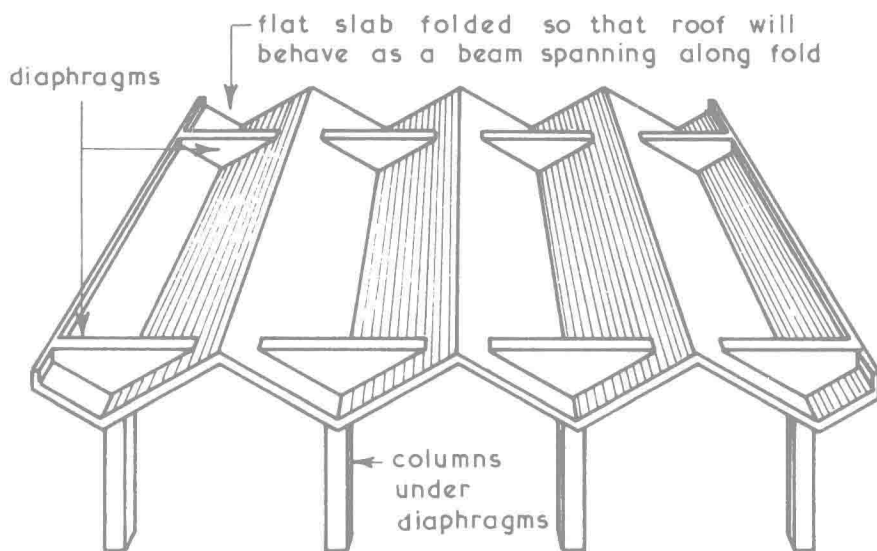


FRAMED OR SKELETAL CONSTRUCTION

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



PANEL OR BOX CONSTRUCTION



FOLDED PLATE CONSTRUCTION