

Ernst and Peter Neufert

# Architects' Data

**Third Edition**

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This book provides architects and designers with a concise source of core information needed to form a framework for the detailed planning of any building project. The objective is to save time for building designers during their basic investigations. The information includes the principles of the design process, basic information on siting, servicing and constructing buildings, as well as illustrations and descriptions of a wide range of building types. Designers need to be well informed about the requirements for all the constituent parts of new projects in order to ensure that their designs satisfy the requirements of the briefs and that the buildings conform to accepted standards and regulations.

The extended contents list shows how the book is organised and the order of the subjects discussed. To help readers to identify relevant background information easily, the Bibliography (page 589) and list of related British and international standards (page 595) have been structured in a way that mirrors the organisation of the main sections of the book.

To avoid repetition and keep the book to a manageable length, the different subjects are covered only once in full. Readers should therefore refer to several sections to glean all of the information they require. For instance, a designer wanting to prepare a scheme for a college will need to refer to other sections apart from that on colleges, such as – draughting guidelines; multistorey buildings; the various sections on services and environmental control; restaurants for the catering facilities; hotels, hostels and flats for the student accommodation; office buildings for details on working environments; libraries; car-parks; disabled access (in the housing and residential section); indoor and outdoor sports facilities; gardens; as well as details on doors, windows, stairs, and the section on construction management, etc.

Readers should note that the majority of the material is from European contributors and this means that the detail

on, for example, climate and daylight is from the perspective of a temperate climate in the northern hemisphere. The conditions at the location of the proposed building will always have to be ascertained from specific information on the locality. A similar situation is to be seen in the section on roads, where the illustrations show traffic driving on the right-hand side of the road. Again, local conditions must be taken into consideration for each individual case.

The terminology and style of the text is UK English and this clearly will need to be taken into account by readers accustomed to American English. These readers will need to be aware that, for example, 'lift' has been used in place of 'elevator' and 'ground floor' is used instead of 'first floor' (and 'first floor' for 'second', etc.).

The data and examples included in the text are drawn from a wide range of sources and as a result a combination of conventions is used throughout for dimensions. The measurements shown are all metric but a mixture of metres, centimetres and millimetres is used and they are in the main not identified.

Readers will also find some superscript numbers associated with the measurements. Where these appear by dimensions in metres with centimetres, for instance, they represent the additional millimetre component of the measure (e.g. 1.26<sup>5</sup> denotes 1 m, 26 cm, 5 mm). Anybody familiar with the metric system will not find this troublesome and those people who are less comfortable with metric units can use the Conversion Tables given on pages 611 to 627 to clarify any ambiguities.

The plans and diagrams of buildings do not have scales as the purpose here is to show the general layout and express relationships between different spaces, making exact scaling unnecessary. However, all relevant dimensions are given on the detailed drawings and diagrams of installations, to assist in the design of specific spaces and constructions.

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Throughout history man has created things to be of service to him using measurements relating to his body. Until relatively recent times, the limbs of humans were the basis for all the units of measurement. Even today many people would have a better understanding of the size of an object if they were told that it was so many men high, so many paces long, so many feet wider or so many heads bigger. These are concepts we have from birth, the sizes of which can be said to be in our nature. However, the introduction of metric dimensions put an end to that way of depicting our world.

Using the metric scale, architects have to try to create a mental picture that is as accurate and as vivid as possible. Clients are doing the same when they measure rooms on a plan to envisage the dimensions in reality. Architects should familiarise themselves with the size of rooms and the objects they contain so that they can picture and convey the real size of yet-to-be designed furniture, rooms or buildings in each line they draw and each dimension they measure.

We immediately have an accurate idea of the size of an object when we see a man (real or imaginary) next to it. It is a sign of our times that pictures of buildings and rooms presented in our trade and professional journals are too often shown without people present in them. From pictures alone, we often obtain a false idea of the size of these rooms and buildings and are surprised how different they appear in reality – frequently, they seem much smaller than expected. One of the reasons for the failure of buildings to have cohesive relationships with one another is because the designers have based their work on different arbitrary scales and not on the only true scale, namely that of human beings.

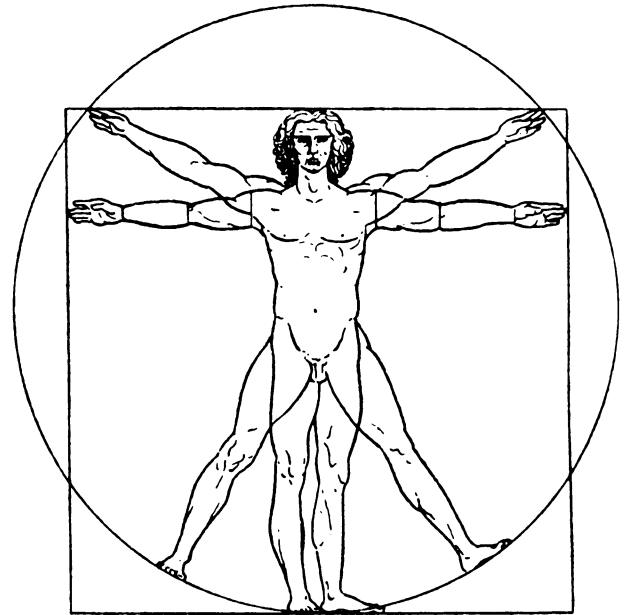
If this is ever to be changed, architects and designers must be shown how these thoughtlessly accepted measurements have developed and how they can be avoided. They have to understand the relationship between the sizes of human limbs and what space a person requires in various postures and whilst moving around. They must also know the sizes of objects, utensils, clothing etc. in everyday use to be able to determine suitable dimensions for containers and furniture.

In addition, architects and designers have to know what space humans need between furniture – both in the home and in the workplace – as well as how the furniture can best be positioned. Without this knowledge, they will be unable to create an environment in which no space is wasted and people can comfortably perform their duties or enjoy relaxation time.

Finally, architects and designers must know the dimensions for minimum space requirements for people moving around in, for example, railways and vehicles. These minimum space requirements produce strongly fixed impressions from which, often unconsciously, other dimensions of spaces are derived.

Man is not simply a physical being, who needs room. Emotional response is no less important; the way people feel about any space depends crucially on how it is divided up, painted, lit, entered, and furnished.

Starting out from all these considerations and perceptions, Ernst Neufert began in 1926 to collect methodically the experiences gained in a varied practice and teaching activities. He developed a 'theory of planning' based on the human being and provided a framework for assessing the dimensions of buildings and their constituent parts. The results were embodied in this



Leonardo da Vinci: rules of proportion

book. Many questions of principle were examined, developed and weighed against one another for the first time.

In the current edition up-to-date technical options are included to the fullest extent and common standards are taken into consideration. Description is kept to the absolute minimum necessary and is augmented or replaced as far as possible by drawings. Creative building designers can thus obtain the necessary information for design in an orderly, brief, and coherent form, which otherwise they would have to collect together laboriously from many reference sources or obtain by detailed measurement of completed buildings. Importance has been attached to giving only a summary; the fundamental data and experiences are compared with finished buildings only if it is necessary to provide a suitable example.

By and large, apart from the requirements of pertinent standards, each project is different and so should be studied, approached and designed afresh by the architect. Only in this way can there be lively progress within the spirit of the times. However, executed projects lend themselves too readily to imitation, or establish conventions from which architects of similar projects may find difficulty in detaching themselves. If creative architects are given only constituent parts, as is the intention here, they are compelled to weave the components together into their own imaginative and unified construction.

Finally, the component parts presented here have been systematically researched from the literature to provide the data necessary for individual building tasks, checked out on well-known buildings of a similar type and, where necessary, determined from models and experiments. The objective of this is always that of saving practising building planners from having to carry out all of these basic investigations, thereby enabling them to devote themselves to the important creative aspects of the task.