

Laboratory furniture and fittings —

Part 3: Recommendations for design

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Laboratory Apparatus Standards Policy Committee (LBC/-) to Technical Committee LBC/18, upon which the following bodies were represented:

- Association for Science Education
- Association of the British Pharmaceutical Industry
- British Furniture Manufacturers' Federation
- British Laboratory Ware Association
- British Occupational Hygiene Society
- British Woodworking Federation
- CLEAPSS
- Chartered Institution of Building Services Engineers
- Chartered Society of Designers
- Chemical Industries Association
- Department of Education and Science
- Department of Health
- Department of the Environment (Property Services Agency)
- Department of Trade and Industry (Laboratory of the Government Chemist)
- Furniture Industry Research Association
- GAMBICA (BEAMA Ltd.)
- Health and Safety Executive
- Institute of Medical Laboratory Sciences
- Manufacturing, Science and Finance Union
- Medical Research Council
- National Association of Teachers in Further and Higher Education
- Royal Institute of British Architects
- Royal Society of Chemistry
- Universities Safety Association
- University Grants Committee

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Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
1 Scope	1
2 Definitions	1
3 Change	1
4 Types of laboratory	1
5 Categories of laboratory work	1
6 Work places	1
7 Storage	2
8 Services	2
9 Layout	2
10 Space needs and dimensions	2
11 Furniture	7
12 Furniture systems	8
13 Installation considerations	10
14 Safety	10
Figure 1 — Configurations	2
Figure 2 — Space required between work surface and/or equipment	3
Figure 3 — Shallow tray at work surface height with a loose, taller washing-up bowl	6
Figure 4 — Drip cup at work surface height with loose shallow tray draining into it	6
Figure 5 — Example of modular grid	9
Figure 6 — Support systems	10
Table 1 — Laboratory services	4
Table 2 — Work surface heights for adult workers	3
Table 3 — Work surface heights and stool heights for schools	3
Table 4 — Storage heights for shelves, cupboards and racks	6
Table 5 — Shelf depths and clear access space in front of shelves	6
Publication(s) referred to	Inside back cover

Foreword

This Part of BS 3202 has been prepared under the direction of the Laboratory Apparatus Standards Policy Committee. It, together with Parts 1, 2 and 4, supersedes BS 3202:1959, which is withdrawn.

This Part is one of a series, the other Parts being as follows:

- *Part 1: Introduction;*
- *Part 2: Specification for performance;*
- *Part 4: Recommendations for installation.*

This Part gives recommendations for the design of laboratory furniture and fittings including services, storage, space needs and dimensions.

This Part should be read in conjunction with BS 3202-1. An index covering all Parts of BS 3202 is included in BS 3202-1.

Product certification. Users of this British Standard are advised to consider the desirability of third party certification of product conformity with this British Standard based on testing and continuing surveillance, which may be coupled with assessment of a supplier's quality systems against the appropriate Part of BS 5750.

Enquiries as to the availability of third party certification schemes will be forwarded by BSI to the Association of Certification Bodies. If a third party certification scheme does not already exist, users should consider approaching an appropriate body from the list of Association members.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of BS 3202 gives recommendations for the design of laboratory furniture and fittings that are specific to bench scale laboratories. It includes furniture and fittings to be used in Grade C radio-isotope work (see The Ionising Radiations Regulations 1985 and Approved Code of Practice) and Grade 3 bio-hazard work (see Genetic Manipulation Health and Safety Regulations 1981). Laboratory layout design is described in sufficient detail to illustrate the functional requirements of the furniture. The detailed design of laboratories, however, is complex and outside the scope of this standard.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this British Standard, the definitions given in BS 3202-1 apply.

3 Change

Consideration should be given in the design of a laboratory to the facility to cope with growth and change, irrespective of the scale of work and scientific discipline involved. Change may involve:

- a) the use of an existing installation for a different purpose;
- b) the movement of furniture and fittings within an unchanged space;
- c) the adaptation of the building space to accommodate a new layout.

4 Types of laboratory

There is no longer a clear subdivision between chemical, physical and biological laboratories. There has been a pronounced move towards general multi-use laboratories and an ever increasing demand for electrical supplies.

Laboratories may be classified from “very wet” to “very dry” and also according to the standard of cleanliness required.

5 Categories of laboratory work

5.1 Teaching laboratories

The teaching laboratory will place emphasis on relatively short periods of occupation by different groups of students. Peak periods of demands on services are more likely to coincide than is the case in research laboratories. The design and layout of a teaching laboratory is dependent on the group it is serving. Requirements will vary according to educational needs.

In school laboratories the layout should provide good pupil/teacher contact and safe movement and convenient access to equipment and materials.

Benches may be movable to allow their layout to be adapted for various purposes and services provided at island or perimeter stations.

In higher education teaching laboratories, planning for safe movement and convenient access to shared equipment is vital. The need to plan for direct contact with the lecturer will vary depending on the level of work undertaken.

Large laboratories make constant direct contact impossible, but this is educationally acceptable with the use of project-orientated teaching methods. The development of audio-visual aids will result in changes in teaching methods. Multi-purpose use of teaching laboratories requires convenient access to, and rapid changes of, special equipment and apparatus. If mounted on trolleys, apparatus and experimental kits for a whole variety of subjects can be conveniently brought into the laboratory from adjoining preparation/storage areas.

5.2 Research laboratories

Research laboratories usually have heavier services requirements than teaching laboratories. They may also require special facilities such as cold rooms, instrument rooms, etc. Research is commonly carried out by small teams and lends itself to accommodation within repetitive units of space.

5.3 Laboratories for routine work

Careful consideration is required for the flow pattern of the various activities. The layout of laboratories for routine analytical work may follow recommendations for research if closely related to it. Large routine laboratories with a high density of occupation are comparable with those in high density teaching, and similar layouts may be applied. The use of large scale electro-analytical equipment makes the possibility of relocation of furniture and equipment of greater importance.

6 Work places

Ideally, work places and circulation areas should be kept separate. This should reduce the likelihood of accidents and assist ease of escape from hazards.

Where possible, work places should be arranged as work bays. These define an individual's territory and put a greater area of work surface within convenient reach of each worker.

Casual access to work places should be restricted where delicate or hazardous bench level operations are to be undertaken.