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IS : 7564 (Part V) - 1974

Indian Standard

RECOMMENDATIONS FOR CO-ORDINATION OF
DIMENSIONS IN BUILDINGS—ARRANGEMENT
OF BUILDING COMPONENTS AND ASSEMBLIES

**PART V FUNCTIONAL GROUP 5—FIXTURES,
FURNITURE AND EQUIPMENT**

(Second Reprint APRIL 1996)

UDC 721.013:389.63:691.88

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

RECOMMENDATIONS FOR CO-ORDINATION OF DIMENSIONS IN BUILDINGS—ARRANGEMENT OF BUILDING COMPONENTS AND ASSEMBLIES

PART V FUNCTIONAL GROUP 5—FIXTURES, FURNITURE AND EQUIPMENT

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(Continued on page 2)

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IS : 7564 (Part V) - 1974

(Continued from page 1)

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Indian Standard

RECOMMENDATIONS FOR CO-ORDINATION OF DIMENSIONS IN BUILDINGS — ARRANGEMENT OF BUILDING COMPONENTS AND ASSEMBLIES

PART V FUNCTIONAL GROUP 5—FIXTURES, FURNITURE AND EQUIPMENT

0. FOREWORD

0.1 This Indian Standard (Part V) was adopted by the Indian Standards Institution on 4 November 1974, after the draft finalized by the Modular Co-ordination Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Since the basic decision to adopt a 10-cm module has been taken, the work connected with application of this module for different building components, such as bricks, walling materials, roofing materials etc has been done by different committees and dimensions have been recommended by these committees for such components.

0.2.1 However, it has been felt that some thought had to be given to the need for dimensionally co-ordinating a particular product, specially with respect to the three dimensions — length, width, height/thickness. It was felt that in some cases such co-ordination of dimensions may or may not be necessary, while in other cases it is absolutely imperative. To identify such parameters for individual components, it was felt that building as a whole should be examined from the point of view of various components that go into it and then decide on the need for dimensional co-ordination on an individual basis.

0.2.2 After such a decision has been arrived at, it will then be possible for the relevant committees to adopt this principle in finally arriving at the nominal and work sizes for the individual components. With this end in view the building has been divided broadly into the following five functional groups :

- a) Functional group 1 — Structure;
- b) Functional group 2 — External envelope;
- c) Functional group 3 — Internal subdivision;
- d) Functional group 4 — Services and drainage; and
- e) Functional group 5 — Fixtures, furniture and equipment.

0.3 It was indeed very useful for the Modular Co-ordination Sectional Committee to have the views of various architects, engineers and users in

arriving at a basic decision regarding the need for dimensionally co-ordinating some of these products so that the relevant committees could exercise their mind on such items only. Based on these decisions, it may be possible to review the existing Indian Standards on different subjects where dimensions have already been given and arrive at new dimensions where necessary.

0.3.1 It may be noted that the words 'co-ordination of dimensions' instead of 'modular co-ordination' have been used in the title of the standard with a view to encouraging the concept of establishing the correlation of two or more products when juxtaposed together to perform a function. If such a function is not necessary or there is no function to be done, then it appears there may not be a need for co-ordinating dimension in the products placed together.

0.4 In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country. This has been met by deriving assistance from the following :

BSPD 6432 : Part 1 : 1969 Recommendations for the co-ordination of dimensions in building — arrangement of building components and assemblies within functional groups: Part 1 Functional groups 1, 2, 3 and 4. British Standards Institution.

BSPD 6432 : Part 2 : 1969 Recommendations for the co-ordination of dimensions in building — arrangement of building components and assemblies within functional groups: Part 2 Functional group 5. British Standards Institution.

0.5 This standard is one of a series of Indian Standards on modular co-ordination.

1. SCOPE

1.1 This standard (Part V) lays down recommendations for co-ordinating dimensions of building components for functional group 5 — fixtures, furniture and equipment which comprises of the following functional activities :

Domestic living, commercial and community servicing, teaching, learning and research, production, farming, manufacture, distribution — retailing and communication.

2. TERMINOLOGY

2.0 For the purpose of this standard the following definitions shall apply.

2.1 Element of Construction — A functional part of a building constructed from building materials and/or building components.

2.2 Services — The group of installations each of which supplies one or more services to a building.

2.3 Assembly — An aggregate of building components used together.

2.4 Building Component — A building product formed as a distinct unit having specified sizes in three dimensions.

2.5 Building Section — Building material formed to a definite cross-section but of unspecified length. Sections are usually manufactured by a continuous process, such as rolling, drawing, extruding or machining. Examples are angles, bars, tubes, battens, sheet, plate, wire and cable.

2.6 Co-ordinating Plane — A plane by reference to which a building component or assembly is co-ordinated with another.

2.7 Co-ordinating Space — A space bounded by co-ordinating planes allocated to a component, including allowances for tolerances and joint clearances.

2.8 Co-ordinating Dimensions — A dimension of co-ordinating space, which defines the relative positions of two or more components in an assembly, according to the characteristics of the components which are relevant to assembly.

2.9 Basic Size — The size by reference to which the limits of size are fixed.

3. GRADING OF COMPONENTS

3.1 Depending upon the relative importance, the components shall be given a grading A, B, or C as follows :

Grading A — Components or assemblies for which dimensional co-ordination is essential.

Grading B — Components or assemblies which in some situations need to be dimensionally co-ordinated.

Grading C — Components or assemblies which do not require to be dimensionally co-ordinated.

4. CO-ORDINATING DIMENSIONS OF BUILDING COMPONENTS

4.1 The recommended co-ordinating dimensions of building components for functional group 5 — fixtures, furniture and equipment shall be as given in Table 1.

TABLE 1 RECOMMENDED CO-ORDINATING DIMENSIONS OF COMPONENTS FOR FUNCTIONAL GROUP 5 — FIXTURES, FURNITURE AND EQUIPMENT

(Clause 4.1)

| Sl. No. | FUNCTIONAL ACTIVITY | COMPONENT | GRADING | CO-ORDINATING DIMENSIONS | | | | CROSS REFERENCE TO OTHER FUNCTIONAL GROUPS |
|------------------------|---------------------|-------------------------------------------------------|---------|--------------------------|-------|--------|-----------|--------------------------------------------|
| | | | | Length | Width | Height | Thickness | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| i) Domestic living: | | | | | | | | |
| a) Domestic catering | | | | | | | | |
| | | Benches | A | ✓ | ✓ | ✓ | — | — |
| | | Chairs and stools | C | — | — | — | — | — |
| | | Cookers, ovens and grills | A | ✓ | ✓ | ✓ | — | 4 |
| | | Dish-washing sinks and drainers | A | ✓ | ✓ | ✓* | — | 4 |
| | | Freezers and refrigerators | A | ✓ | ✓ | ✓ | — | — |
| | | Fume extraction fans | B | — | ✓ | — | — | 4 |
| | | Fume extraction hoods | A | ✓ | ✓ | ✓ | — | — |
| | | Hatches | A | ✓ | ✓ | ✓ | — | 3 |
| | | Storage cabinets, cupboards etc, for food, linen, etc | A | ✓ | ✓ | ✓ | — | — |
| | | Trolleys | A | ✓ | ✓ | ✓ | — | — |
| | | Waste disposal chutes | A | ✓ | ✓ | ✓ | — | — |
| | | Worktops, tables, etc, for preparation, serving, etc | A | ✓ | ✓ | ✓* | — | 3 |
| b) Domestic laundering | | | | | | | | |
| | | Clothes washing appliances | A | ✓ | ✓ | ✓ | — | 4 |
| | | Clothes washing sinks and tubs | A | ✓ | ✓ | ✓* | — | 4 |
| | | Drying and airing appliances and cabinets | A | ✓ | ✓ | ✓ | — | — |
| | | Drying and airing racks, rails, lines, etc | C | — | — | — | — | — |
| | | Ironing boards, tables and machines | C | — | — | — | — | — |

c) Personal dressing and
cleansing

| | | | | | | |
|-------------------------------------------------------------------|---|---|---|----|---|------|
| Bath tubs | A | ✓ | ✓ | ✓* | — | 4 |
| Blinds, curtains and screens | B | ✓ | ✓ | — | — | — |
| Chairs and stools | C | — | — | — | — | — |
| Cisterns, high- and low-level | B | ✓ | ✓ | ✓ | — | 4 |
| Cisterns, recessed | A | ✓ | ✓ | ✓ | — | 3, 4 |
| Clothes hooks | C | — | — | — | — | — |
| Mirrors | C | — | — | — | — | — |
| Shower cubicles | A | ✓ | ✓ | ✓ | — | 3, 4 |
| Storage cabinets, cupboards, etc, for clothes, toiletries, etc | A | ✓ | ✓ | ✓ | — | — |
| Toilet paper holders and soap trays | C | — | — | — | — | — |
| Toilet paper holders and soap trays, recessed | A | ✓ | ✓ | ✓ | — | 3, 4 |
| Urinal bowls, single | B | ✓ | ✓ | ✓ | — | 4 |
| Urinal bowls, single, recessed | A | ✓ | ✓ | ✓ | — | 3, 4 |
| Wash basins, single | A | ✓ | ✓ | ✓* | — | 4 |
| Water closets and bidets | B | ✓ | ✓ | ✓ | — | 3, 4 |

d) Resting and recreation

| | | | | | | |
|----------------------------------------------------------|---|---|---|----|---|---|
| Beds and bunks | A | ✓ | ✓ | ✓* | — | — |
| Bedside and overbed tables | C | — | — | — | — | — |
| Benches, built-in desks and tables | A | ✓ | ✓ | ✓ | — | — |
| Chairs, stools and occasional furni- ture | C | — | — | — | — | — |
| Cots, cradles and stands | C | — | — | — | — | — |
| Divans, couches, convertibles and bed/storage units | A | ✓ | ✓ | ✓ | — | — |
| Mattresses for beds, bunks, etc | A | ✓ | ✓ | — | ✓ | — |
| Radios, TV sets, record players, sewing machines, etc | C | — | — | — | — | — |
| Storage cabinets, cupboards, built- in wardrobes, etc | A | ✓ | ✓ | ✓ | — | — |

*Measured above floor level.

(Continued)

TABLE 1 RECOMMENDED CO-ORDINATING DIMENSIONS OF COMPONENTS FOR FUNCTIONAL GROUP 5 — FIXTURES, FURNITURE AND EQUIPMENT — Contd

| Sl. No. | FUNCTIONAL ACTIVITY | COMPONENT | GRADING | CO-ORDINATING DIMENSIONS | | | | CROSS REFERENCE TO OTHER FUNCTIONAL GROUPS |
|---------|-----------------------------------------|---------------------------------------------------------------------------------------------|---------|--------------------------|-------|--------|-----------|--------------------------------------------|
| | | | | Length | Width | Height | Thickness | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| | ii) Commercial and community servicing: | | | | | | | |
| | a) Commercial catering | | | | | | | |
| | | Dining chairs and stools, detergent and soap dispensers | C | — | — | — | — | — |
| | | Bars, counters and grilles, bottle shelves, dining benches and tables, confectionery kiosks | B | ✓ | ✓ | ✓ | — | — |
| | | Food and drink dispensers | B | ✓ | ✓ | ✓ | — | — |
| | | Fume extraction fans | B | — | ✓ | — | — | — |
| | | Cookers, ovens, grills and similar cooking appliances | A | ✓ | ✓ | ✓ | — | — |
| | | Delivery cabinets and hoists | A | ✓ | ✓ | ✓ | — | 3 |
| | | Delivery chutes and hoppers | A | ✓ | ✓ | ✓ | — | 3, 4 |
| | | Display cases, refrigerators and hot cupboards | A | ✓ | ✓ | ✓ | — | — |
| | | Freezers and refrigerators | A | ✓ | ✓ | ✓ | — | 4 |
| | | Fume extraction hoods | A | ✓ | ✓ | ✓ | — | 4 |
| | | Hatches, shutters and grilles | A | ✓ | ✓ | ✓ | — | 3 |
| | | Mat wells and foot scrapers | A | ✓ | ✓ | — | ✓ | 3 |
| | | Mechanical preparation equipment (loose) | C | — | — | — | — | — |
| | | Menu boards | A | ✓ | — | ✓ | — | — |
| | | Mobile trucks and trolleys | A | ✓ | ✓ | ✓ | — | — |
| | | Storage cabinets, cupboards, etc, for food, linen, etc | A | ✓ | ✓ | ✓ | — | — |

| | | | | | | |
|------------------------------------------------------|---|---|---|----|---|------|
| Washing-up appliances | A | ✓ | ✓ | ✓ | — | 4 |
| Washing-up sinks and drainers | A | ✓ | ✓ | ✓* | — | 4 |
| Washing-up sterilizers | A | ✓ | ✓ | ✓ | — | — |
| Waste disposal chutes, hoppers and containers | A | ✓ | ✓ | ✓ | — | 1, 2 |
| Waste disposal hoists | A | ✓ | ✓ | ✓ | — | 3 |
| Worktops, tables, etc, for preparation, serving, etc | A | ✓ | ✓ | ✓* | — | — |

b) Commercial laundering

| | | | | | | |
|------------------------------------------------------|---|---|---|----|---|---|
| Air compressors and receivers | C | — | — | — | — | — |
| Calendar preparing equipment | C | — | — | — | — | — |
| Carboys, tippers and trolleys | C | — | — | — | — | — |
| Clothes drying and airing appliances | A | ✓ | ✓ | ✓ | — | — |
| Clothes drying and airing cabinets | A | ✓ | ✓ | ✓ | — | — |
| Clothes drying lines, rigs, etc | C | — | — | — | — | — |
| Clothes washing machines and boilers | A | ✓ | ✓ | ✓ | — | 4 |
| Clothes washing sinks | A | ✓ | ✓ | ✓* | — | 4 |
| Dry cleaners | B | ✓ | ✓ | ✓ | — | — |
| Drum stands | B | ✓ | ✓ | ✓ | — | — |
| Folding equipment | C | — | — | — | — | — |
| Hydro-extractors | C | — | — | — | — | — |
| Ironing machines, boards and tables | C | — | — | — | — | — |
| Marking machines | C | — | — | — | — | — |
| Pressers and steam-air finishers | C | — | — | — | — | — |
| Solution tanks (washing materials) | B | ✓ | ✓ | ✓ | — | — |
| Starching machines and starch injection units | C | — | — | — | — | — |
| Storage cabinets, cupboards, etc, for materials, etc | A | ✓ | ✓ | ✓ | — | — |
| Tumblers, shake-out and drying | A | ✓ | ✓ | ✓ | — | — |

*Measured above floor level.

(Continued)

TABLE 1 RECOMMENDED CO-ORDINATING DIMENSIONS OF COMPONENTS FOR FUNCTIONAL GROUP 5 — FIXTURES, FURNITURE AND EQUIPMENT — Contd

| SL. No. | FUNCTIONAL ACTIVITY | COMPONENT | GRADING | CO-ORDINATING DIMENSIONS | | | | CROSS REFERENCE TO OTHER FUNCTIONAL GROUPS |
|---------|-------------------------------------------------|----------------------------------------------------------------|---------|--------------------------|-------|--------|-----------|--------------------------------------------|
| | | | | Length | Width | Height | Thickness | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| | ii) Commercial and community servicing (Contd): | | | | | | | |
| | c) Community dressing and cleansing | | | | | | | |
| | | Bath tubs | A | ✓ | ✓ | ✓* | — | 4 |
| | | Benches, built-in tables | A | ✓ | ✓ | ✓ | — | — |
| | | Blinds, curtains and screens | B | ✓ | ✓ | — | — | — |
| | | Chairs and stools | C | — | — | — | — | — |
| | | Changing cubicles | A | ✓ | ✓ | ✓ | — | 3, 4 |
| | | Cisterns, high- and low-level | B | ✓ | ✓ | ✓ | — | 4 |
| | | Cisterns, recessed and troughed | A | ✓ | ✓ | ✓ | — | 3, 4 |
| | | Combined dressing/storage units | A | ✓ | ✓ | ✓ | — | — |
| | | Drying appliances (hand, hair, etc) | C | — | — | — | — | — |
| | | Mirrors | C | — | — | — | — | — |
| | | Sanitary towels incinerators | C | — | — | — | — | — |
| | | Scales, coin-operated | C | — | — | — | — | — |
| | | Shower cubicles | A | ✓ | ✓ | ✓ | — | 4 |
| | | Soap dispensers and trays | C | — | — | — | — | — |
| | | Storage cabinets, cupboards, etc, for clothes, toiletries, etc | A | ✓ | ✓ | ✓ | — | — |
| | | Toilet paper holders | C | — | — | — | — | — |
| | | Towel racks, rails, rollers and dispensers | C | — | — | — | — | — |
| | | Urinal (single units and ranges) | A | ✓ | ✓ | ✓ | — | 4 |

| | | | | | | | |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|----|---|------|
| | Wash basins and ablation troughs and fountains | A | ✓ | ✓ | ✓* | — | — |
| | Water closets and bidets | B | ✓ | ✓ | ✓ | — | 3, 4 |
| d) Community resting and recreation | W C cubicles and partitions | A | ✓ | ✓ | ✓ | — | 3, 4 |
| | Auditorium seating | B | ✓ | ✓ | ✓ | — | — |
| | Beds and bunks | A | ✓ | ✓ | ✓* | — | — |
| | Bedside and overbed tables | C | — | — | — | — | — |
| | Benches, built-in desks and tables | A | ✓ | ✓ | ✓ | — | — |
| | Blinds, curtains, cine projectors, screens, etc | B | ✓ | ✓ | — | — | — |
| | Chairs and stools | C | — | — | — | — | — |
| | Combined table/lockers | A | ✓ | ✓ | ✓ | — | — |
| | Cots, cradles and stands | C | — | — | — | — | — |
| | Divans, couches, convertibles and bed/storage units | A | ✓ | ✓ | ✓ | — | — |
| | Mattresses for beds, bunks, etc | A | ✓ | ✓ | — | ✓ | — |
| | Music stands, swings, seesaws, trolleys for books; vaulting boxes, horses, etc | C | — | — | — | — | — |
| | Radios, TV sets, tape recorders, record players, stage curtains, stage lighting, staging, rostrums, lanterns, pulpits, etc | C | — | — | — | — | — |
| | Storage cabinets, cupboards, etc, for hobby equipment, etc | A | ✓ | ✓ | ✓ | — | — |
| e) Public health | Window and wall bars | A | ✓ | ✓ | ✓ | — | — |
| | Autoclaves, balancing forms | B | ✓ | ✓ | ✓ | — | — |
| | Baths, paraffin wax; bicycles, bed and stationery; chiropody chairs, dental chair units; dispensers, face mask, syringe, etc; dissecting platforms and tables, dollies; examination couches; frames, extension for femur; frames, suspension for leg; frames, suspension; grab rails | C | — | — | — | — | — |

*Measured above floor level.

(Continued)

TABLE 1 RECOMMENDED CO-ORDINATING DIMENSIONS OF COMPONENTS FOR FUNCTIONAL GROUP 5 — FIXTURES, FURNITURE AND EQUIPMENT — Contd

| Sl. No. | FUNCTIONAL ACTIVITY | COMPONENT | GRADING | CO-ORDINATING DIMENSIONS | | | | CROSS REFERENCE TO OTHER FUNCTIONAL GROUPS |
|---------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------------------|-------|--------|-----------|--------------------------------------------|
| | | | | Length | Width | Height | Thickness | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| ii) | Commercial and community servicing — <i>Contd:</i> | | | | | | | |
| | c) Public health — <i>Contd:</i> | | | | | | | |
| | | Flushing sinks, flushing troughs | B | ✓ | ✓ | ✓ | — | — |
| | | Height measures | C | — | — | — | — | — |
| | | Incubators | C | — | — | — | — | — |
| | | Plaster sink units and traps | A | ✓ | ✓ | ✓ | — | 4 |
| | | Cabinets: urine test, bedpan, etc | A | ✓ | ✓ | ✓ | — | — |
| | | Racks, drainage | C | — | — | — | — | — |
| | | Racks, electrodes | C | — | — | — | — | — |
| | | Rowing machines | C | — | — | — | — | — |
| | | Sanitary chairs | C | — | — | — | — | — |
| | | Stair sets | C | — | — | — | — | — |
| | | Stands, soiled linen | C | — | — | — | — | — |
| | | Sterilizers | C | — | — | — | — | — |
| | | Setrtilizing sinks | A | ✓ | ✓ | ✓ | — | 4 |
| | | Storage, body, refrigerated | B | ✓ | ✓ | ✓ | — | — |
| | | Storage stands, mats; tables and fittings, operating and post mortem; table, tennis and traction; towel bins; walking frames and tripods | C | — | — | — | — | — |
| | | Wall bars | A | ✓ | ✓ | ✓ | — | — |

iii) Teaching, learning and research:

a) Working

| | | | | | | |
|----------------------------|---|---|---|----|---|---|
| Benching | A | ✓ | ✓ | ✓ | — | — |
| Seating, bench | A | ✓ | ✓ | ✓ | — | — |
| Seating, lecture room | A | ✓ | ✓ | ✓ | — | — |
| Seating, stools and chairs | C | — | — | — | — | — |
| Sinks and drainers | A | ✓ | ✓ | ✓* | — | 4 |

b) Storing

| | | | | | | |
|-----------------------|---|---|---|---|---|---|
| Cupboards and lockers | A | ✓ | ✓ | ✓ | — | — |
| Shelving cabinets | B | ✓ | ✓ | ✓ | — | — |
| Trays | A | ✓ | ✓ | ✓ | — | — |
| Trolleys | A | ✓ | ✓ | ✓ | — | — |

c) Communication and display

| | | | | | | |
|----------------------------------------------------------------------------------|---|---|---|---|---|---|
| Vertical writing and display surfaces—folding, free standing, roller and sliding | A | ✓ | ✓ | ✓ | — | — |
|----------------------------------------------------------------------------------|---|---|---|---|---|---|

d) Special activities

| | | | | | | |
|------------------------------------|---|---|---|----|---|---------|
| Balances | C | — | — | — | — | — |
| Fume cupboards | A | ✓ | ✓ | ✓ | — | 2, 3, 4 |
| Laboratory benches | A | ✓ | ✓ | ✓ | — | — |
| Laboratory cupboards | A | ✓ | ✓ | ✓ | — | — |
| Laboratory drip cups | A | ✓ | ✓ | ✓ | — | — |
| Laboratory leg frames | A | ✓ | ✓ | ✓ | — | — |
| Laboratory sinks | A | ✓ | ✓ | ✓* | — | 4 |
| Laboratory spines | A | ✓ | ✓ | ✓ | — | — |
| Laboratory worktops | A | ✓ | ✓ | ✓ | — | — |
| Rostra boxes | A | ✓ | ✓ | ✓ | — | — |
| Sanitary equipment (school) | A | ✓ | ✓ | ✓ | — | 3, 4 |
| Services and fittings (laboratory) | A | ✓ | ✓ | ✓ | — | 4 |
| Suspension beams | A | ✓ | ✓ | ✓ | — | 1, 3 |

*Measured above floor level.

(Continued)

TABLE 1 RECOMMENDED CO-ORDINATING DIMENSIONS OF COMPONENTS FOR FUNCTIONAL GROUP 5 — FIXTURES, FURNITURE AND EQUIPMENT — Contd

| Sl No. | FUNCTIONAL ACTIVITY | COMPONENT | GRAD-ING | CO-ORDINATING DIMENSIONS | | | | CROSS REFERENCE TO OTHER FUNCTIONAL GROUPS |
|--------|----------------------------|-------------------------------------------------------------------------|----------|--------------------------|-------|--------|-------------|--------------------------------------------|
| | | | | Length | Width | Height | Thick-ness. | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| iv) | Production, manufacture: | | | | | | | |
| | a) Agriculture and farming | | | | | | | |
| | | Animal and poultry crates and cages | B | ✓ | ✓ | ✓ | — | — |
| | | Animal and poultry housing | A | ✓ | ✓ | ✓ | — | 3 |
| | | Animal crushes and weighing crates | B | ✓ | ✓ | ✓ | — | — |
| | | Augers for feed and waste products | C | — | — | — | — | — |
| | | Cleaning equipment (seeds and vegetables) | C | — | — | — | — | — |
| | | Cleansing pipe lines, fixed | B | ✓ | — | ✓ | — | — |
| | | Cleansing trough | C | — | — | — | — | — |
| | | Conveyor belts, chain and flight, for animal feeding and waste products | A | ✓ | ✓ | ✓ | — | 2, 4 |
| | | Dairy sterilizing chests | C | — | — | — | — | — |
| | | Dressing equipment (seeds) | C | — | — | — | — | — |
| | | Dry food hoppers | A | ✓ | ✓ | ✓ | — | 3 |
| | | Drying equipment (grain, grass, hops and manure) | C | — | — | — | — | — |
| | | Ducts, laterals for grain and potato storage | A | ✓ | ✓ | ✓ | — | 2 |
| | | Dung and slurry channels and conveyors | A | ✓ | ✓ | ✓ | — | 2, 4 |

| | | | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|------------|
| Dust extraction equipment | C | — | — | — | — | 4 |
| Egg cold stores | A | ✓ | ✓ | ✓ | — | 1, 2, 3, 4 |
| Egg conveyors and graders | B | ✓ | ✓ | ✓ | — | — |
| Feed bunkers and forage boxes | A | ✓ | ✓ | ✓ | — | — |
| Floor units, ventilated, for grain, potatoes and grass | A | ✓ | ✓ | ✓ | — | 3 |
| Fodder racks | A | ✓ | ✓ | ✓ | — | 3 |
| Fruit cold stores | A | ✓ | ✓ | ✓ | — | 1, 2, 3, 4 |
| Glass-house blinds; grading equipment (seeds and vegetables); hop presses and bine removal equipment; humidifiers; infra-red heating units | C | — | — | — | — | — |
| Internal feeding yokes and barriers | A | ✓ | ✓ | ✓ | — | 3 |
| Internal gates | A | ✓ | ✓ | ✓ | — | 3 |
| Internal handling pens and races | A | ✓ | ✓ | ✓ | — | 3 |
| Internal pen divisions | A | ✓ | ✓ | ✓ | — | 3 |
| Lighting equipment | C | — | — | — | — | 4 |
| Liquid food containers | B | ✓ | ✓ | ✓ | — | — |
| Liquid food pipe lines | C | — | — | — | — | 4 |
| Mangers and troughs, adjustable and fixed | A | ✓ | ✓ | ✓ | — | 3 |
| Milk bottling plants | C | — | — | — | — | — |
| Milk bucket plants | C | — | — | — | — | — |
| Milk, bulk milk tanks | B | ✓ | ✓ | ✓ | — | — |
| Milk churns | C | — | — | — | — | — |
| Milk churn trolleys, conveyors and hoists | C | — | — | — | — | — |
| Milk, cold stores | A | ✓ | ✓ | ✓ | — | 1, 2, 3, 4 |
| Milk, fixed pipe lines | B | ✓ | — | ✓ | — | — |
| Milk, fixed vacuum lines | B | ✓ | — | ✓ | — | — |
| Milk, ice-bank coolers | B | ✓ | ✓ | ✓ | — | 4 |
| Milk: measuring jars, measuring meters, multiple switch valves, pulsators, rubber pipe lines and teat clusters | C | — | — | — | — | — |

(Continued)

TABLE 1 RECOMMENDED CO-ORDINATING DIMENSIONS OF COMPONENTS FOR FUNCTIONAL GROUP 5 — FIXTURES, FURNITURE AND EQUIPMENT — Contd

| Sl. No. | FUNCTIONAL ACTIVITY | COMPONENT | GRADING | CO-ORDINATING DIMENSIONS | | | | CROSS REFERENCE TO OTHER FUNCTIONAL GROUPS |
|---------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------------------|-------|--------|-----------|--------------------------------------------|
| | | | | Length | Width | Height | Thickness | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| | iv) Production, manufacture — <i>Contd</i> : | | | | | | | |
| | a) Agriculture and farming — <i>Contd</i> | | | | | | | |
| | | Milling and mixing equipment; mist-spray irrigation equipment; mobile feed barrows and trolleys; packing and washing equipment (seeds and vegetables); pelleting and cubing equipment; point drinking; water containers; poultry processing equipment and rabbit pelting equipment | C | — | — | — | — | — |
| | | Service pens | B | ✓ | ✓ | ✓ | — | — |
| | | Sprout depressors | C | — | — | — | — | — |
| | | Stall divisions (cowhouse) | A | ✓ | ✓ | ✓ | — | 3 |
| | | Stall divisions, cubicles | A | ✓ | ✓ | ✓ | — | 3 |
| | | Stall divisions, milking bails | C | — | — | — | — | — |
| | | Stall divisions (milking parlour) | A | ✓ | ✓ | ✓ | — | 1, 2, 3 |
| | | Steam sterilizing equipment | C | — | — | — | — | 4 |
| | | Storage bins for grain, fertilizer and potatoes | A | ✓ | ✓ | ✓ | — | 1, 2, 3 |

| | | | | | | |
|--------------------------------------------|---|---|---|---|---|---------|
| Swill sterilizers | C | — | — | — | — | 4 |
| Swill tanks | C | — | — | — | — | — |
| Tower silos (silage and slurry) | C | — | — | — | — | — |
| Underfloor heaters (pigs and poultry) | C | — | — | — | — | 4 |
| Ventilation chilling units | C | — | — | — | — | 4 |
| Ventilation ducting | A | ✓ | ✓ | ✓ | — | 2, 3, 4 |
| Ventilation fans, heaters and motors | C | — | — | — | — | 4 |
| Wall panels for grain, silage and potatoes | A | ✓ | ✓ | ✓ | — | 1, 2, 3 |

b) Manufacturing*

| | | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|
| Bench shears, brazing hearths, centre-lathes (metalwork), circular saws, clay bins, crucible furnaces, drilling machines, forges, grinding machines, grindstones (powered), metalwork benches, milling machines, moulding benches, planing machines, polishing machines, potter's kilns, potter's wheels, power hacksaws, pugmills, shaping machines, wedging benches, wood-turning lathes, wood working benches, distillation units, dilution pots | C | — | — | — | — | — |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|

v) Distribution retailing:

a) Shops and retail stores

| | | | | | | |
|-------------------------------------------------------|---|---|---|---|---|------|
| Burglar alarms | C | — | — | — | — | 4 |
| Cash booths | B | ✓ | ✓ | ✓ | — | — |
| Counters (including display) | A | ✓ | ✓ | ✓ | — | — |
| Display cases and cabinets | A | ✓ | ✓ | ✓ | — | — |
| Display framing, system units and associated cabinets | A | ✓ | ✓ | ✓ | — | — |
| Display racks, stands (clothes) | B | ✓ | ✓ | ✓ | — | — |
| Grilles (security) | A | — | ✓ | ✓ | — | 2, 3 |

*Only components common to light and non-specialized engineering have been included.

(Continued)

TABLE 1 RECOMMENDED CO-ORDINATING DIMENSIONS OF COMPONENTS FOR FUNCTIONAL GROUP 5 — FIXTURES, FURNITURE AND EQUIPMENT — Contd

| Sl. No. | FUNCTIONAL ACTIVITY | COMPONENT | GRADING | CO-ORDINATING DIMENSIONS | | | | CROSS REFERENCE TO OTHER FUNCTIONAL GROUPS |
|---------|-----------------------------------------|---------------------------------------------|---------|--------------------------|-------|--------|-----------|--------------------------------------------|
| | | | | Length | Width | Height | Thickness | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| v) | Distribution retailing — <i>Contd</i> : | | | | | | | |
| | a) Shops & retail stores — <i>Contd</i> | | | | | | | |
| | | Internal communicating systems | B | ✓ | ✓ | ✓ | — | 3 |
| | | Mat wells and foot scrapers | A | ✓ | ✓ | — | ✓ | 4 |
| | | Seating, fitted | A | ✓ | ✓ | ✓ | — | — |
| | | Storage racking and shelving | A | ✓ | ✓ | ✓ | — | — |
| | | Window fittings | C | — | — | — | — | 2 |
| | b) Warehousing | | | | | | | |
| | | Blinds, louvres, louver slats (sun control) | A | ✓ | ✓ | — | ✓ | 2 |
| | | Bucket points (built-in units) | A | ✓ | ✓ | ✓ | — | 4 |
| | | Conveyors — horizontal, ramped and vertical | A | ✓ | ✓ | ✓ | — | 2, 4 |
| | | Cranes, travel (gantry) and fixed (swivel) | B | ✓ | ✓ | ✓ | — | — |
| | | Fire equipment, smoke detector devices | C | — | — | — | — | 2, 3 |
| | | Grilles (security) | A | — | ✓ | ✓ | — | 2, 3 |
| | | Heated storage | C | — | — | — | — | 4 |
| | | Hose reels (built-in units) | A | ✓ | ✓ | ✓ | — | 4 |
| | | Refrigerated storage | C | — | — | — | — | 4 |
| | | Storage pallets, duckboards | B | ✓ | ✓ | ✓ | — | — |
| | | Storage racking (stacks) | A | ✓ | ✓ | ✓ | — | — |
| | | Storage shelving, general | A | ✓ | ✓ | ✓ | — | — |
| | | Weighing bridges | C | — | — | — | — | — |

vi) Communication:
 a) Administration

| | | | | | | |
|---------------------------------------------|---|---|---|---|---|------|
| Bookshelves, cabinets, etc | A | ✓ | ✓ | ✓ | — | — |
| Compositors, duplicators, printers | C | — | — | — | — | — |
| Computers, printers, storage banks | B | ✓ | ✓ | ✓ | — | — |
| Desks and benches (typist, clerical ledger) | A | ✓ | ✓ | ✓ | — | — |
| Drawing and drafting tables and benches | A | ✓ | ✓ | ✓ | — | — |
| Drawing storage (plan filing units) | A | ✓ | ✓ | ✓ | — | — |
| Filing cabinets, horizontal and vertical | A | ✓ | ✓ | ✓ | — | — |
| Office machines, typewriters, etc | C | — | — | — | — | — |
| Paper storage racks | A | ✓ | ✓ | ✓ | — | — |
| Photographic benching, sinks, etc | A | ✓ | ✓ | ✓ | — | — |
| Photographic equipment | C | — | — | — | — | — |
| Pin-up display units | B | ✓ | — | ✓ | — | — |
| Post boxes, built-in or fixed | A | ✓ | ✓ | ✓ | — | 2, 3 |
| Reception counters | A | ✓ | ✓ | ✓ | — | — |
| Reception seating, fitted | A | ✓ | ✓ | ✓ | — | — |
| Safes and strong rooms | A | ✓ | ✓ | ✓ | — | — |
| Shelving, general storage units | A | ✓ | ✓ | ✓ | — | — |
| Sorting equipment (letters, parcels) | B | ✓ | ✓ | ✓ | — | — |
| Steps (library type) | C | — | — | — | — | — |
| Telephone switchboards | B | ✓ | ✓ | ✓ | — | — |
| Weighing and franking equipment | B | ✓ | ✓ | ✓ | — | — |

b) Intercommunication

| | | | | | | |
|----------------------------------|---|---|---|---|---|------|
| Advertising signs and hoardings | B | ✓ | — | ✓ | — | 2 |
| Directional signs, external | B | ✓ | — | ✓ | — | 2 |
| Directional signs, internal | A | ✓ | ✓ | ✓ | — | 2, 3 |
| Postal counter storage pedestals | A | ✓ | ✓ | ✓ | — | — |
| Post boxes, independent | C | — | — | — | — | — |
| Post boxes, wall fitted | A | ✓ | ✓ | ✓ | — | 3 |
| Post office counters | A | ✓ | ✓ | ✓ | — | — |

(Continued)

TABLE 1 RECOMMENDED CO-ORDINATING DIMENSIONS OF COMPONENTS FOR FUNCTIONAL GROUP 5 — FIXTURES, FURNITURE AND EQUIPMENT — *Contd*

| SL No. | FUNCTIONAL ACTIVITY | COMPONENT | GRADING | CO-ORDINATING DIMENSIONS | | | | CROSS REFERENCE TO OTHER FUNCTIONAL GROUPS |
|--------------------------------------|---------------------|-------------------------------------|---------|--------------------------|-------|--------|-----------|--------------------------------------------|
| | | | | Length | Width | Height | Thickness | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| vi) Communication — <i>Contd</i> : | | | | | | | | |
| b) Intercommunication — <i>Contd</i> | | | | | | | | |
| | | Post office counter screens | A | ✓ | ✓ | ✓ | — | — |
| | | Post sorting and franking fittings | B | ✓ | ✓ | ✓ | — | — |
| | | Stamp vending machines, independent | C | — | — | — | — | — |
| | | Stamp vending machines, wall fitted | A | ✓ | ✓ | ✓ | — | 2 |
| | | Telephone apparatus racks | B | ✓ | ✓ | ✓ | — | 4 |
| | | Telephone distribution frames | B | ✓ | ✓ | ✓ | — | 4 |
| | | Telephone kiosks, independent | C | — | — | — | — | 4 |
| | | Telephone kiosks, wall fitted | A | ✓ | ✓ | ✓ | — | 2, 3, 4 |
| | | Telephone switchboards | B | ✓ | ✓ | ✓ | — | 4 |
| | | Telephone units, coin operated | C | — | — | — | — | 4 |

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones: 331 01 31, 331 13 75

Telegrams: Manaksanstha
(Common to all Offices)

Regional Offices:

| | Telephone |
|------------------------------------------------------------------------------------|----------------------------------|
| Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002 | { 331 01 31 331 13 75 |
| *Eastern : 1/14 C. I. T. Scheme VII M, V. I. P. Road, Manikola, CALCUTTA 700054 | 36 24 99 |
| Northern : SCO 445-446, Sector 35-C, CHANDIGARH 160036 | { 2 18 43 3 16 41 41 24 42 |
| Southern : C. I. T. Campus, MADRAS 600113 | { 41 25 19 41 29 16 |
| †Western : Manakalaya, E9 MIDC, Marol, Andheri (East), BOMBAY 400093 | 6 32 92 95 |

Branch Offices:

| | |
|------------------------------------------------------------------------------|------------------------|
| *Pushpak', Nurmohamed Shaikh Marg, Khanpur, AHMADABAD 380001 | { 2 63 48 2 63 49 |
| ‡Peenya Industrial Area 1st Stage, Bangalore Tumkur Road BANGALORE 560058 | { 38 49 55 38 49 56 |
| Gangotri Complex, 5th Floor, Bhadbhada Road, T. T. Nagar, BHCPAL 462003 | 6 67 16 |
| Plot No. 82/83, Lewis Road, BHUBANESHWAR 751002 | 5 36 27 |
| 53/5, Ward No. 29, R.G. Barua Road, 5th Byelane, GUWAHATI 781003 | 3 31 77 |
| 5-8-56C L. N. Gupta Marg (Nampally Station Road), HYDERABAD 500001 | 23 10 83 |
| R14 Yudhister Marg, C Scheme, JAIPUR 302005 | { 6 34 71 6 98 32 |
| 117/418 B Sarvodaya Nagar, KANPUR 208005 | { 21 68 76 21 82 92 |
| Patliputra Industrial Estate, PATNA 800013 | 6 23 05 |
| T.C. No. 14/1421, University P.O., Palayam TRIVANDRUM 695035 | { 6 21 04 6 21 17 |

Inspection Offices (With Sale Point):

| | |
|----------------------------------------------------------------------------------------------|---------|
| Pushpanjali, First Floor, 205-A West High Court Road, Shankar Nagar Square, NAGPUR 440010 | 2 51 71 |
| Institution of Engineers (India) Building, 1332 Shivaji Nagar, PUNE 411005 | 5 24 35 |

*Sales Office in Calcutta is at 5 Chowringhee Approach, P. O. Princep 27 68 00
Street, Calcutta 700072

†Sales Office in Bombay is at Novelty Chambers, Grant Road, 89 65 28
Bombay 400007

‡Sales Office in Bangalore is at Unity Building, Narasimharaja Square, 22 36 71
Bangalore 560002