

# **INTERNATIONAL PROPERTY MEASUREMENT STANDARDS: OFFICES**

**Consultation Document**

**International Property Measurement Standards  
Coalition**

**[www.ipmsc.org](http://www.ipmsc.org)**

Comments on this Consultation Document are invited by Friday 4 April 2014. Responses may be placed on public record, unless confidentiality is requested, and sent as email attachments to:  
[consultation@ipmsc.org](mailto:consultation@ipmsc.org)

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[www.ipmsc.org](http://www.ipmsc.org)

*On behalf of the Board of Trustees of the IPMS Coalition it is our pleasure to invite your comments and feedback on this draft of the International Property Measurement Standards (IPMS) for Offices.*

*Please take the time to read this draft in detail and tell us whether or not it meets your needs and expectations.*

*Your feedback and insights are vitally important to ensuring we produce a standard that meets all of our high expectations. Inconsistent measurement of property is a burden on our profession and economy; with the benefit of your feedback we will produce a final standard that makes a positive difference.*

*Through the following pages you will witness the hard work and deep experience of the independent IPMS Standards Setting Committee (SSC). The SSC members have risen to the task and worked together across borders and time zones to produce this detailed text. We would like to extend a sincere thank you to the excellent leadership of Max Crofts, Chairman, Allen Crawford, Vice Chairman and Alexander Aronsohn, Executive Secretary. Through their able guidance and the hard work of all 18 experts on the committee this text has been produced to the scope and deadlines set by the IPMS Coalition.*

*The IPMS Coalition is a rapidly growing partnership of 28 (as at 1 January 2014) leading organisations from around the world committed to producing and supporting one shared standard of measurement. Starting with meetings at the World Bank offices in May 2013, the Coalition created the independent SSC and committed to the vision of universally adopted international measurement standards. This consultation document presents the standard for office buildings. It is the intent of the IPMSC to develop standards for all asset classes.*

*We hope you support this project through providing your feedback. Please also share this text with colleagues to ensure we receive the insight necessary to produce a standard fit for this purpose.*

*Again, thank you for taking to the time to read this draft in detail and provide your comments. Visit us at [www.ipmsc.org](http://www.ipmsc.org) to participate in the success of the IPMS Coalition.*

*Sincerely*



*Kenneth M Creighton, Trustee for RICS  
Chairman of the Board of Trustees  
IPMS Coalition*



*Lisa Prats, Trustee for BOMA International  
Vice Chair of the Board of Trustees  
IPMS Coalition*



*Jean-Yves Pirlot, Trustee for CLGE  
Secretary General of the Board of Trustees  
IPMS Coalition*

## Introduction to IPMS Coalition

The International Property Measurement Standards Coalition (**IPMSC**) was formed on 30 May 2013 after meeting at the World Bank in Washington DC. The **Coalition**, comprising the 28 organisations listed below, aims to bring about the harmonisation of national property measurement standards through the creation and adoption of agreed international standards for the measurement of office, residential, industrial and retail property. This Consultation Document for the measurement of offices is the first prepared by the Coalition's Standards Setting Committee.

The aim of the **Coalition** is to enable properties to be measured on a transparent basis that promotes market efficiency through greater confidence between investors, occupiers and funds. The growth of cross-border property investment and expansion by global corporate occupiers underpins the demand for transparency against the background of many differing national and local measurement conventions.

IPMS have been developed to work with associated financial reporting and valuation standards such as International Financial Reporting Standards (IFRS) and the Uniform Standards of Professional Appraisal Practice (USPAP) in the USA. The International Valuation Standards Council (IVSC) supports IPMS and these Standards should be read in conjunction with International Valuation Standards (IVS).

*American Society of Farm Managers and Rural Appraisers (ASFMRA)*  
*Appraisal Institute (AI)*  
*Asia Pacific Real Estate Association (APREA)*  
*Asian Association for Investors in Non-listed Real Estate Vehicles (ANREV)*  
*Asociacion Profesional de Sociedades de Valoracion (ATASA)*  
*Italian Real Estate Industry Association (ASSOIMMOBILIARE)*  
*ASTM International*  
*Australian Property Institute (API)*  
*Building Owners and Managers Association International (BOMA International)*  
*China Institute of Real Estate Appraisers and Agents (CIREA)*  
*Commonwealth Association of Surveying and Land Economy (CASLE)*  
*CoreNet Global*  
*Council of European Geodetic Surveyors (CLGE)*  
*Counselors of Real Estate (CRE)*  
*European Council of Real Estate Professions (CEPI)*  
*International Consortium of Real Estate Associations (ICREA)*  
*International Federation of Surveyors (FIG)*  
*International Monetary Fund (IMF)*  
*International Real Estate Federation (FIABCI)*  
*Japan Association of Real Estate Appraisers (JAREA)*  
*National Society of Professional Surveyors (NSPS)*  
*Open Standards Consortium for Real Estate (OSCRE)*  
*Property Council of Australia (PCA)*  
*Property Council of New Zealand (PCNZ)*  
*Royal Institution of Chartered Surveyors (RICS)*  
*Seocovie SP (SECOVI)*  
*South African Property Owners Association (SAPOA)*  
*The Appraisal Foundation (TAF)*

The Standards Setting Committee decided to give priority to setting a measurement standard for offices because investors and major occupiers operate in a high-value global market that does not have a global language. The CLGE Measurement Code for the floor area of buildings, having been generously donated to the Coalition, provided our starting point. Current terminology used to describe office floor areas – rentable, usable, net internal, net lettable, carpet area – is not only confusing but means different things in different markets. An organisation occupying 10,000 sq m in one country could find the identical space described as 12,000 sq m in another.

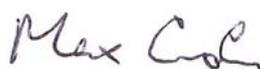
In the Consultation Document we have avoided using existing descriptions. Instead we have used generic terms by defining floor areas as IPMS Office Area 1, IPMS Office Area 2 and IPMS Office Area 3, the latter being divided into Categories and Sub-categories. Those enable the adoption of an International Floor Area and conversion between existing standards.

Responses to the Consultation Document, especially from parties actively involved in cross-border transactions, will be very helpful in finalising the Standard. Comments, whether on general issues or on specific sections of the Draft will be welcome, as well as responses to the following questions.

- 1 *Do you support the concept of IPMS for Offices?*
- 2 *Is the Draft fit for purpose as it stands? If not, what issues need to be addressed in the Standard or in supporting Guidance Notes?*
- 3 *Does the Standard need to enable areas in exclusive occupation and those in shared use to be separately identified?*
- 4 *Does the Standard need to define more explicitly whether a floor is above or below ground level?*
- 5 *In relation to IPMS Office Area 2 should 'the predominant face' be defined in more detail?*
- 6 *In IPMS Office Area 3 should Sub-category E(i) separately identify areas with a restricted floor-to-ceiling height? If so, should that be below 1.5m, or what alternative height?*

We look forward to receiving your comments.

Sincerely



Max Crofts  
Chairman of the Standards Setting Committee  
IPMS Coalition

## Notes for respondents:

In order to analyse and give due weight to all comments, please observe the following:

- 1 Responses should be made in letter format where possible and, where appropriate, on an organisation's own letterhead.
- 2 Letters should be sent as an email attachment in either MS Word or an ununlockable PDF format and no larger than 1MB to [consultation@ipmsc.org](mailto:consultation@ipmsc.org). All documents will be converted to secure PDF files before being placed on the website [www.ipmsc.org](http://www.ipmsc.org)
- 3 Unless anonymity is requested, all comments received may be displayed on the website.
- 4 Hard copy submissions may be sent to:  
  
Alexander Aronsohn  
IPMSC Standards Committee  
12 Great George Street  
London  
SW1P 3AD
- 5 The closing date for responses is Friday 4 April 2014.

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## IPMS Standards Setting Committee

In July 2013 the **IPMSC** selected real estate experts from around the world to form its Standards Setting Committee (SSC) and develop global standards for property measurement.

The SCC brings together experts with first-hand property knowledge from 50 countries, across five continents, and includes academics, real estate fund and asset managers, residential professionals, valuers, and specialists in development and construction. It acts independently from the **Coalition** and is tasked with the role of drafting, for consultation by the **IPMSC** across the **Property Industry**, a global standard measurement methodology.

The SSC does not promote the use of any particular measurement standard, but does encourage the modification of existing market standards to comply with **IPMS**.

The SSC members and co-authors of this standard for offices are:

|                            |                                      |
|----------------------------|--------------------------------------|
| Max Crofts (UK)            | Chairman                             |
| Allen Crawford (Australia) | Vice Chairman                        |
| Alexander Aronsohn (UK)    | Executive Secretary to the Committee |

Will Chen (China)  
Anthony Gebhardt (South Africa)  
Prof. Marc Grief (Germany)  
Kent Gibson (USA)  
Liu Hongyu (China)  
Luke Mackintosh (Australia)  
Howard Morley (New Zealand)  
Frederic Mortier (Belgium)  
Sara Stephens (USA)  
Peter L. Stevenson (USA)  
Nicholas Stolatis (USA)  
V. Suresh (India)  
Koji Tanaka (Japan)  
Prof. Sr Dr Ting Kien Hwa, (Malaysia)  
Dr. Piyush Tiwari, (India)

The SSC will issue draft standards for the measurement of various asset classes, including residential, industrial and retail. This draft standard is the first to be issued for consultation: it is applicable to purpose-built office buildings, either with a single occupier or with a number of tenants each leasing one or more entire floors.

## Part 1 Aim and Scope of the Standards

### 1.1 Definitions

**Application:** A method using **Categories** for defining floor areas within a **Building**.

**Building:** An independent structure forming all or part of a **Property**.

**Category:** One of the main elements into which the floor area of a **Building** can be sub-divided.

**Coalition:** The Trustee of **IPMS**, comprising not-for-profit organisations, each with a public interest mandate and including professional members in more than 150 countries.

**IPMS:** International Property Measurement Standards.

**IPMSC:** The **Coalition**.

**Property:** Any real estate asset in the built environment.

**Property Industry:** Comprises **Users**, **Service Providers** and **Third Parties**.

**Service Provider:** Any entity providing real estate advice to a **User** including, but not limited to, valuers, surveyors, facility, property and asset managers, agents and brokers, space measurement professionals, cost consultants, interior designers and architects.

**Space Measurement Professional:** A **Service Provider** qualified by experience or training to measure **Property** in accordance with **IPMS**.

**Sub-category:** A sub-division of a **Category**.

**Third Party:** Any entity other than a **User** or **Service Provider** with an interest in property measurement including, but not limited to, governments, banks, other property financing bodies, data analysts and researchers.

**User:** An owner-occupier, developer, investor, purchaser, vendor, landlord or tenant.

**Valuer:** A **Service Provider** with an appropriate professional qualification in valuation or appraisal.

### 1.2 Aim of the Standards

The aim of **IPMS** is to meet the requirements of **Users** of **Property** for consistency in measurement. Until now the stated area of floorspace in identical buildings has varied considerably between countries, and possibly within various markets in the same country, because of differing measurement conventions.

The objective is equally important for **Third Parties**, so that data can be used with confidence whether for facility management, property financing or other purposes.

### 1.3 Use of the Standards

**IPMS** and **Applications** can be used for any purposes agreed between **Users**, **Service Providers** and **Third Parties**.

In the event of conflict between **IPMS** and the provisions or intent of national or local legislation then the legislative provisions prevail.

### 1.4 Purpose of IPMS

Any measurement used as part of a valuation calculation should be consistent with the method that is used to analyse data from comparable transactions or other evidence. That is, the valuation should be calculated after consideration of evidence on a like-with-like basis.

If a particular basis of measurement is used for the analysis of rental or capital value, then the valuation should reflect the same basis of measurement for the **Property**. This **IPMS** is drafted for use by **Service Providers**, who should endeavour to relate **IPMS** to the basis of measurement that is commonly used in each market sector or location.

The basis of floorspace measurement and reference to relevant **IPMS Applications** must be stated in reports by **Service Providers** so that **Users** and **Third Parties** are clear as to what floorspace has been included and, if required by the **User** or **Third Party**, cross-referenced to plans showing the extent of the relevant floorspace.

## Part 2 Principles of Measurement

### 2.1 Principles of Measurement

The **SSC** has adopted the following fundamental principles of measurement, which are applicable to all **Properties**:

- 1 The item must be physically capable of being measured.
- 2 There must be a unit of measurement.
- 3 The measurement must be quantifiable.
- 4 The measurement must be repeatable.
- 5 The measurement must be comparable against other similar forms of measurement.
- 6 The measurement must be objectively verifiable.
- 7 The basis of measurement must be explicit.
- 8 The standard or unit of measurement must be explicit.
- 9 The measurement must be transparent.
- 10 The measurement tolerance must be explicit.

#### Commentary

- 1 *For the moment it is not possible to measure esoteric concepts.*
- 2 *Numbers produced without a unit of measurement are meaningless.*
- 3 *One must be able to express the quantity of the measurement.*
- 4 *The measurement must produce the same result when repeated by another individual.*
- 5 *A measurement that cannot be compared is meaningless.*
- 6 *The measurement must be an accurate reflection of actual conditions without any personal bias from a vested interest.*
- 7 *This is particularly important when there is an element of negotiation between parties.*
- 8 *From the point of view of units of measurement the SSC has adopted the measurement definitions used by the International Organisation for Standardisation. (ISO – [www.iso.org](http://www.iso.org))*
- 9 *All aspects of the measurement must be clearly visible and understandable to all parties.*
- 10 *Certain measurement functions will need to be carried out to an agreed level of tolerance/acceptable accuracy.*

## 2.2 General Principles of IPMS

- a) **Buildings** are to be measured individually.
- b) **Buildings** are to be measured and scheduled on a floor-by-floor basis.
- c) Floor area dimensions are to be measured horizontally.
- d) Measurements are to be taken using methods in accordance with local market practice.

### 2.2.1 Measurement Practice

There are various options for measuring **Property**. In the most sophisticated and high value markets a specialist **Space Measurement Professional** will be employed to prepare detailed as-built plans of each floor level. Areas may then be provided and estimated by the specialist scaling from plans. Where as-built plans are used as a basis for measurement, figured dimensions should be used in preference to scaling. It will be for the **Service Provider** to state whether check measurements have been taken on site if the plans have not been warranted.

In the absence of plans it is for the **Service Provider** to state how or whether the floorspace has been established, for example by laser or tape measure or by adopting pre-agreed areas.

### 2.2.2 Accuracy and Tolerance

The accuracy of measurement will depend on the method used and individual site conditions at the time of measurement. The need for the highest possible level of accuracy will depend on the use to which the measurements are being put, for example, whether acting as an expert to determine a financial dispute directly relating to floor area or, on the other hand, preparing a draft estimate of likely service charge costs based on incomplete information.

The **Service Provider** should nevertheless seek to achieve the highest degree of accuracy possible given any practical constraints. The measurement tolerance must be explicit and ideally agreed. A table of suggested tolerances is included at Appendix 2.

### 2.2.3 Measurement Reporting

The **Service Provider** should select the appropriate method of measurement, which should be clearly stated in the report together with the date of measurement.

### 2.2.4 Unit of Measurement

Measurements should be in the unit commonly adopted in the relevant country. **Users** and **Third Parties** may require measurements to be converted using appropriate conversion factors.

## Part 3 IPMS Standards

The **IPMS** measurement standards are:

- **IPMS Office Area 1**
- **IPMS Office Area 2**
- **IPMS Office Area 3**

### 3.1 IPMS Office Area 1

#### 3.1.1 Definition

**IPMS Office Area 1:** The aggregate of the areas of each floor of a **Property** measured to the outer perimeter of external construction features and reported on a **Building-by-Building** basis. It is often, but not universally, known as Gross External Area.

#### 3.1.2 Use

**IPMS Office Area 1** can be used in some markets for planning purposes or by contractors and cost consultants for outline costing of architectural plans.

#### 3.1.3 Measuring IPMS Office Area 1

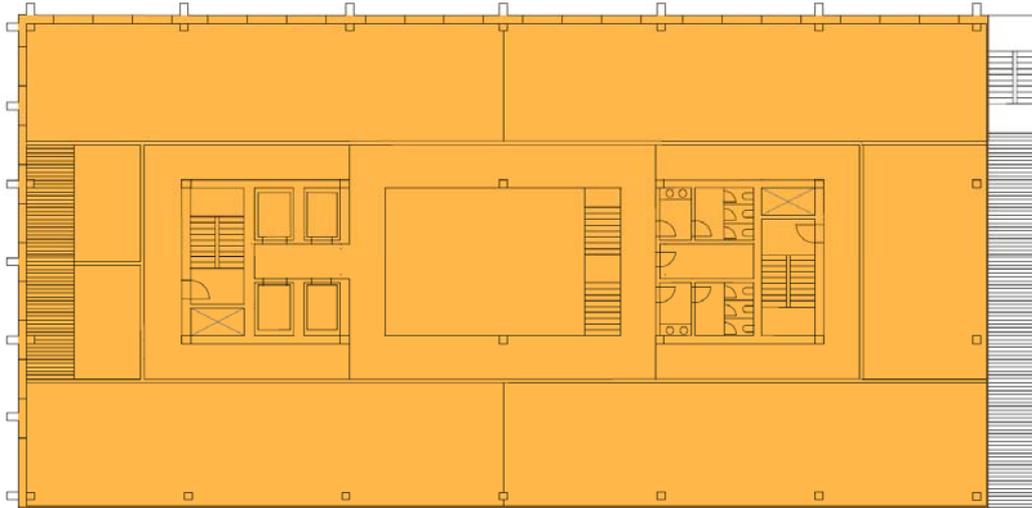
**IPMS Office Area 1** is the sum of the external areas of each floor of the **Property** measured from the predominant external wall face excluding protruding elements, and can be the sum of the external areas of each **Building** if more than one.

Covered galleries above ground level are deemed to have a notional external wall face consistent with the adjacent predominant wall face of the **Building**.

The external area of basement levels is calculated by extending the exterior plane of the perimeter walls at ground floor level downwards, or by estimation if the extent of the basement differs from the footprint of the **Building**.

Measurement of **IPMS Office Area 1** is to include the area of:

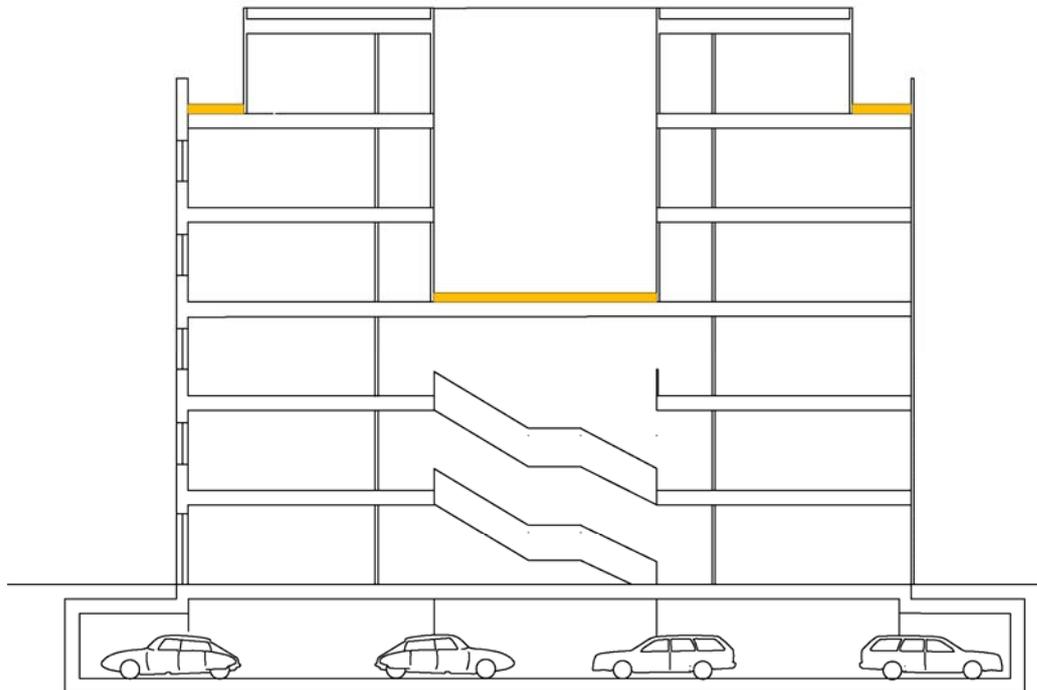
- roof space, if readily accessible
- covered voids
- enclosed walkways or passages between separate buildings
- any area at ground floor level open to the sides and covered, unless by a roof overhang or decorative projection.



**Diagram 1 – IPMS Office Area 1**

Measurement for **IPMS Office Area 1** is not to include the area of:

- open light wells
- open external emergency stairways
- roof terraces



**Diagram 2 – IPMS Office Area 1 and IPMS Office Area 2**

- Measurement for IPMS Office Area 1 does not include roof terraces, which are to be measured and stated separately.
- Measurement for IPMS Office Area 2 includes the floor area of an atrium at its lowest level.

## 3.2 IPMS Office Area 2

### 3.2.1 Definition

**IPMS Office Area 2:** The aggregate of the areas of each floor of a **Property** measured to the inner perimeter of external construction features and reported on a **Building-by-Building** basis. It is often, but not universally, known as Gross Internal Area.

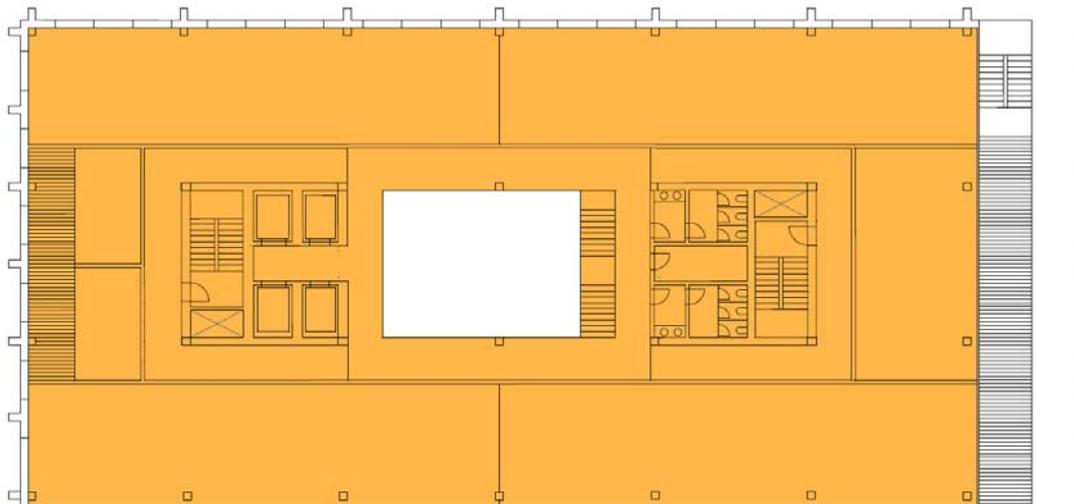
### 3.2.2 Use

**IPMS Office Area 2** can be used by facility managers and cost consultants. It is not used for leasing purposes, but it is the foundation of all further calculations in this standard.

### 3.2.3 Measuring IPMS Office Area 2

**IPMS Office Area 2** is the sum of the internal areas of each floor in a **Building** measured from the predominant internal wall face. In doing so, columns or other building support systems that protrude inward are disregarded.

**IPMS Office Area 2** includes all areas including internal walls, columns, covered galleries and enclosed walkways or passages between separate buildings, available for direct or indirect use. Covered void areas such as atria are included at their lowest level but do not form part of IPMS Office Area 2 at upper levels.



**Diagram 3 – IPMS Office Area 2**

### 3.3 IPMS Office Area 3

#### 3.3.1 Definition

**IPMS Office Area 3** comprises various **Categories**, the aggregate floor areas of which equal **IPMS Office Area 2**.

#### 3.3.2 Use

The **Categories** in **IPMS Office Area 3** enable **Users** and **Service Providers** to make direct floor space comparisons between different standards by adapting or creating **Applications**.

#### 3.3.3 Measuring IPMS Office Area 3

**Categories** contained within the **Building** should be measured or calculated individually in sequence from **A** to **E**.

In some markets structural walls and columns are measured independently; in others those elements are included within a **Category** without a separate measurement. The **Sub-categories** enable both market practices to be accommodated and **Applications** generated, in which case these **Sub-categories** may need to be separately measured. However, when comparisons are made across markets the entire **Category** should be adopted with measurement of all the **Sub-category** elements.

**Category A**      **Vertical Penetrations** (Appendix 1 – Diagram 4)

- (i) Stairs, lift shafts and ducts
- (ii) Structural enclosing walls
- (iii) Non-structural enclosing walls

**Category B**      **Technical Services** (Appendix 1 – Diagram 5)

- (i) Plant rooms, lift rooms and maintenance rooms
- (ii) Structural enclosing walls
- (iii) Non-structural enclosing walls
- (iv) Columns

**Category C**      **Hygiene Areas** (Appendix 1 – Diagram 6)

- (i) Toilet facilities, cleaners' cupboards, shower rooms and changing rooms
- (ii) Structural enclosing walls
- (iii) Non-structural enclosing walls
- (iv) Columns

**Category D**      **Circulation Areas** (Appendix 1 – Diagrams 7 & 8)

- (i) Circulation for emergency exits, technical services and any other circulation areas

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- (ii) Structural enclosing walls
- (iii) Non-structural enclosing walls
- (iv) Columns

### **Category E**      **Workspace/Amenities** (Appendix 1 – Diagrams 9 & 10)

All areas not included in Categories A, B, C and D.

- (i) Office workspace and amenity areas  
(for example, cafeterias, fitness areas and day-care facilities)
- (ii) Structural enclosing walls
- (iii) Non-structural enclosing walls
- (iv) Columns

Where an enclosing wall is common to two **Categories** the area occupied by the enclosing wall may be either allocated to one of the **Categories** in sequence **A, B, C** and **D** or divided equally between the respective **Categories**.

In some markets it is relevant to distinguish between structural and non-structural walls (**Sub-categories** (ii) and (iii)). Where that is not the case the **Sub-categories** may be combined and referred to as walls.

In **Categories B, C, and D**, if in multifunctional use, the area is to be categorised according to the predominant use.

Standard Hygiene facilities provided within a **Building** are included within **Category C**, but additional facilities provided by a tenant within specifically leased areas would form part of **Category E**.

Floor levels are to be recorded in accordance with local market practice with the main entrance stated and other floor levels scheduled accordingly.

Entrance level reception areas may either be allocated to **Sub-category D(i)** or separately identified within **Category E**.

Areas within **Category E** not available for direct office-related use may be stated in an alternative way, for example, basement car parking reported by the number of spaces instead of floor area. To that extent the aggregate of areas reported in the categories in **IPMS Office Area 3** will not equate to **IPMS Office Area 2**. In the case of indirect office-related accommodation this could be described as additional or ancillary.

Amenity areas are included in **Sub-category E(i)** if occupied exclusively with the Office Workspace, but otherwise are to be separately identified within **Sub-category D(i)**.

The areas of balconies and roof terraces are not included in **IPMS Office Area 1** and hence **IPMS Office Area 2** and **IPMS Office Area 3**, but are to be measured and stated separately.

## Part 4 Applications

### 4.1 International Floor Area (IFA)

In order to facilitate cross-border comparison of rental and capital values and to enable performance benchmarking, the **SSC** advises the use of the following **Applications**, to be known as International Floor Area.

To calculate the International Floor Area **Users** and **Service Providers** need to exclude from **IPMS Office Area 2** the following categories contained within **IPMS Office Area 3**.

#### International Floor Area Office 1 (IFA Office 1)

$$\text{IFA1} = \text{IPMS 2} - [\text{Category A}]$$

#### International Floor Area Office 2 (IFA Office 2)

$$\text{IFA2} = \text{IPMS 2} - [\text{Category A} + \text{Category B} + \text{Category C} + \text{Category D}]$$

#### International Floor Area Office 3 (IFA Office 3)

$$\text{IFA3} = \text{IPMS 2} - [\text{Category A} + \text{Category B} + \text{Category C} + \text{Category D} + \text{Sub-category E(iv)}]$$

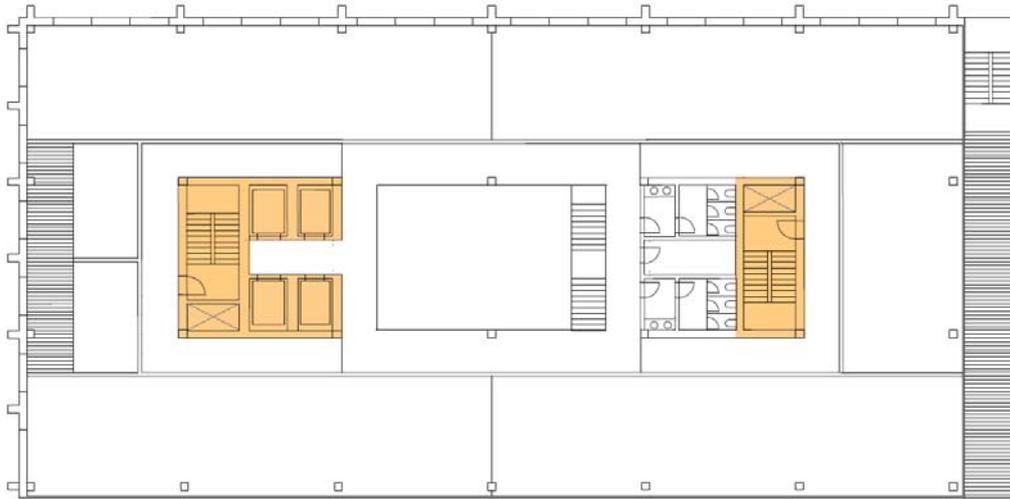
#### International Floor Area Office 4 (IFA Office 4)

$$\text{IFA4} = \text{IPMS 2} - [\text{Category A} + \text{Category B} + \text{Sub-categories C(ii), (iv)} + \text{Sub-categories D(ii), (iv)} + \text{Sub-categories E(ii), (iv)}]$$

It is equally appropriate to calculate IFA Office 2 or 3 directly, for example, by only measuring Category E providing the **Service Provider** has regard to the other **Categories** and **Sub-categories** within this Standard.

**Appendix 1 Categories**

**Category A Vertical Penetrations**

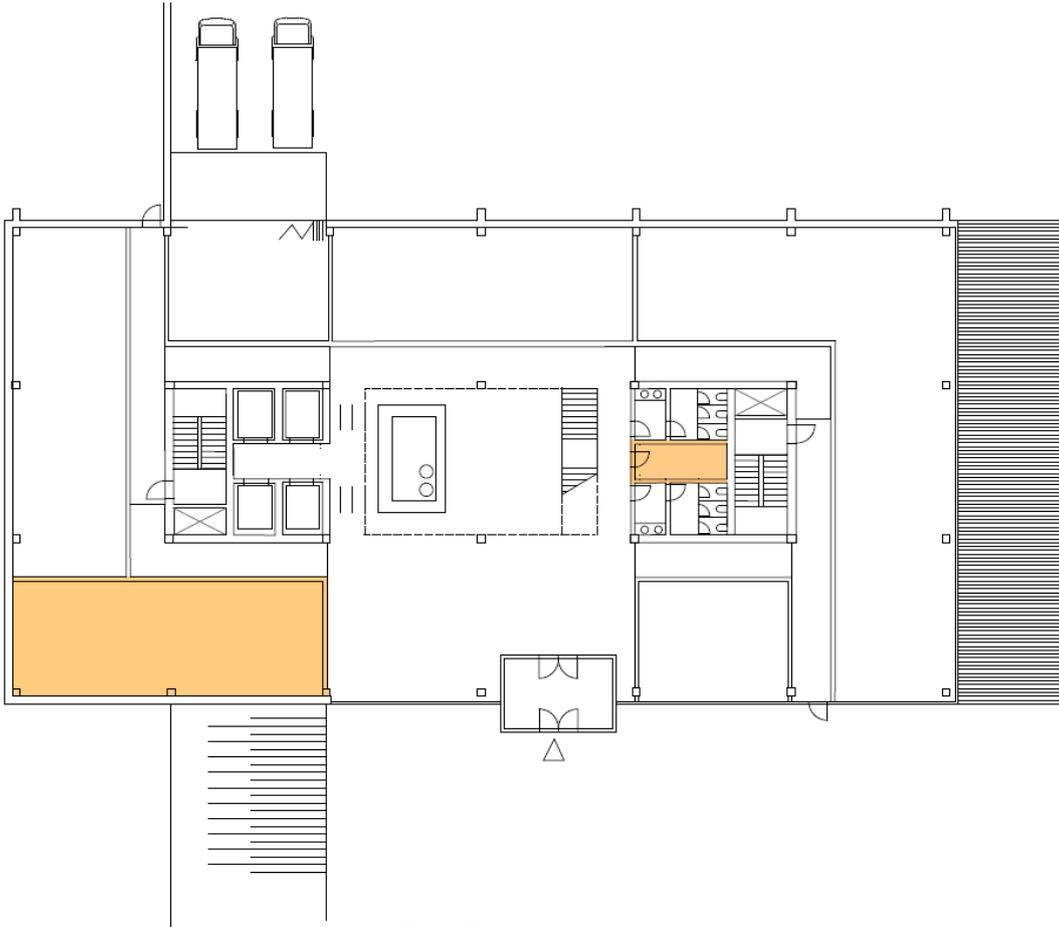


**Diagram 4 Category A – Vertical Penetrations**

**Upper floor illustration**

-  (i) Stairs, lift shafts and ducts
-  (ii) Structural enclosing walls
-  (iii) Non-structural enclosing walls

**Category B Technical Services**

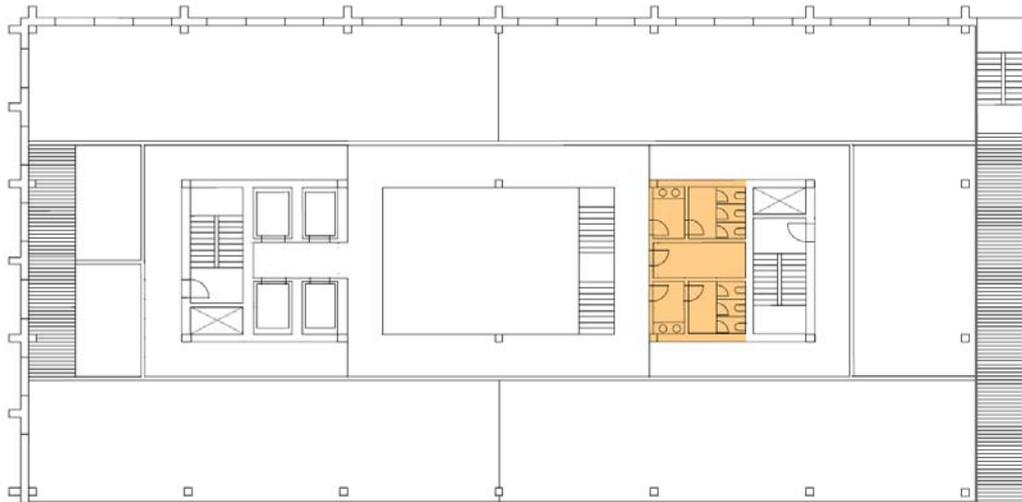


**Diagram 5 Category B – Technical Services**

**Ground floor illustration**

-  (i) Plant rooms, lift rooms and maintenance rooms
-  (ii) Structural enclosing walls
-  (iii) Non-structural enclosing walls
-  (iv) Columns

**Category C Hygiene Areas**

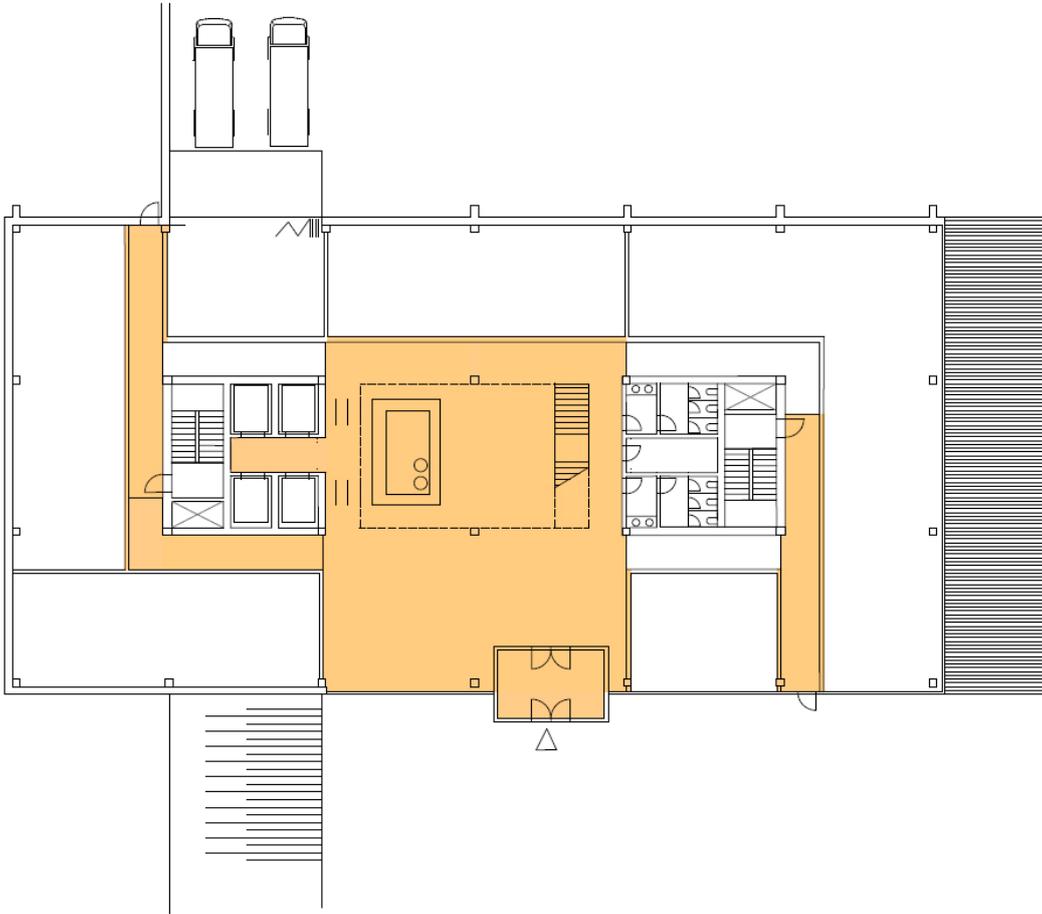


**Diagram 6 Category C – Hygiene Areas**

**Upper floor illustration**

- (i) Toilet facilities, cleaners' cupboards, shower rooms and changing rooms
- (ii) Structural enclosing walls
- (iii) Non-structural enclosing walls
- (iv) Columns

**Category D Circulation Areas**

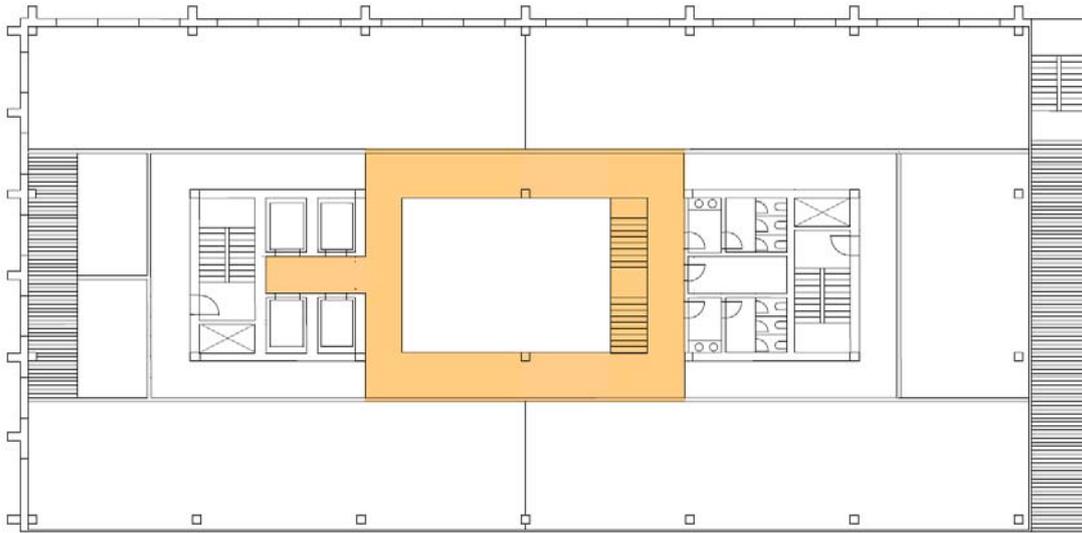


**Diagram 7**      **Category D – Circulation Areas**

**Ground floor illustration**

-  (i) Circulation for emergency exits, technical services and any other circulation areas
-  (ii) Structural enclosing walls
-  (iii) Non-structural enclosing walls
-  (iv) Columns

**Category D (cont.)    Circulation Areas**



**Diagram 8    Category D – Circulation Areas**

**Upper floor illustration**

-  (i) Circulation for emergency exits, technical services and any other circulation areas
-  (ii) Structural enclosing walls
-  (iii) Non-structural enclosing walls
-  (iv) Columns

**Category E Workspace/Amenities**

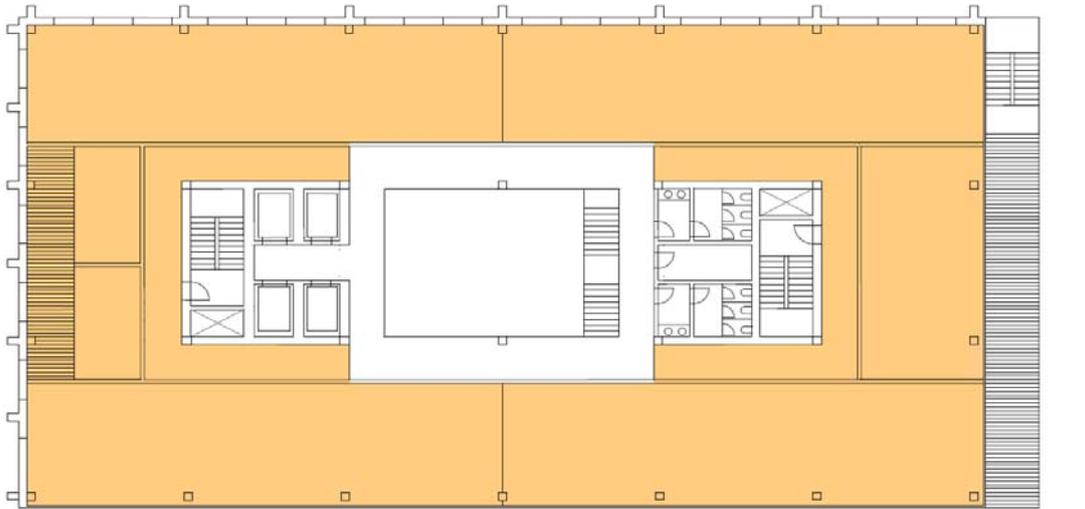


**Diagram 9 Category E – Workspace/Amenities**

**Ground floor illustration**

-  (i) Office workspace and amenity areas  
(for example, cafeterias, fitness areas and day-care facilities)
-  (ii) Structural enclosing walls
-  (iii) Non-structural enclosing walls
-  (iv) Columns

**Category E (cont.)    Workspace/Amenities**



**Diagram 10    Category E – Workspace/Amenities**

**Upper floor illustration**

-  (i) Office workspace and amenity areas  
(for example, cafeterias, fitness areas and day-care facilities)
-  (ii) Structural enclosing walls
-  (iii) Non-structural enclosing walls
-  (iv) Columns

**Appendix 2 Tolerances**

| Survey scale | Accuracy (X,Y) | Percentage accuracy | Minimum size of feature to be shown to scale without generalisation | Example of survey  | Typical use  |
|--------------|----------------|---------------------|---|--|--|
| 1:100        | +/- 25mm       | 1%                  | 50mm  | Measured building surveys, topographic surveys, low accuracy setting out, net area surveys, valuation surveys  | General arrangement drawings for space planning, estate agency, valuation, ratings, determined boundary surveys, cadastral surveying, engineering design |
| 1/16":1'     | +/- 1"         | 1%                  | 2"  |  |  |
| 1:200        | +/- 50mm       | 2%                  | 100mm   | Low accuracy measured building surveys, topographic surveys, high accuracy utility tracing, gross area surveys | Planning, building footprint or detail design  |
| 1/32":1'     | +/- 2"         | 2%                  | 4"  |  |  |

**Notes:**

The tolerances are applicable to specialist measurement surveyors, but not necessarily others using lasers or tape measures, and are shown for guidance to **Service Providers** and **Users** in the absence of any other specific agreement. They are not a mandatory requirement of **IPMS**.