International Property Measurement Standards: Residential Buildings

Consultation Document

International Property Measurement Standards Coalition

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Welcome to IPMS: Residential

On behalf of the currently 65 members of the IPMS Coalition we would like to present to you the IPMS: Residential Buildings consultation document. The Coalition comprises organisations from all over the world, who have come together to create one shared international standard for property measurement. We have recognised that the past practice of inconsistent measurement standards is unacceptable. Our profession and market places deserve better.

This project is a continuation of the work already carried out in relation to measurement of office buildings and part of a programme of work that includes preparing IPMS standards for other building classes (i.e. industrial, retail and mixed use).

The Coalition accepts that standard setting is a never-ending process of continuous improvement and will be listening closely to the market to make updates to the standard as needed.

In preparing this Consultation Document, the Coalition wishes to acknowledge the work on the explanatory drawings undertaken by Professor Marc Grief of Mainz University of Applied Sciences. The Coalition also wishes to thank the RICS School of Built Environment, who hosted the Standards Setting Committee meeting in Delhi and Mohamad El Dah, who provided significant feedback from the Middle East working group.

As a Coalition we are also continuing the important work of implementation through engaging with governments, occupiers, owners and other important stakeholders. Please see www.ipmsc.org to view the list of well over 100 companies and governments that have committed to using IPMS.

On behalf of the Coalition, the Standards Setting Committee and the numerous participants in the consultation, we are proud to present the IPMS for residential buildings.

For further information on IPMS please visit the website www.ipmsc.org.

Kenneth M. Creighton, Trustee for RICS, Chairman of the Board of Trustees IPMS Coalition
Lisa M. 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
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 (at the date of publication) the 65 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 Buildings.

This document for the measurement of Residential Buildings is the second prepared by the Coalition’s Standards Setting Committee (SSC). The Coalition members at the date of publication include:

- 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)
- Asociación de Promotores Constructores de España (APCE)
- Asociación Española de Análisis de Valor (AEV)
- Asociación Española Geómetras Expertos (AECEX)
- Asociación Profesional de Sociedades de Valoración (ATASA)
- ASTM International
- Australian Property Institute (API)
- British Property Federation (BPF)
- Building Owners and Managers Association of Canada (BOMA Canada)
- Building Owners and Managers Association of China (BOMA China)
- Building Owners and Managers Association International (BOMA International)
- Bundesverband der Immobilien-Investment Sachverständigen e. V. (BIS)
- China Institute of Real Estate Appraisers and Agents (CIREA)
- Chongqing Real Estate Association
- Commonwealth Association of Surveying and Land Economy (CASLE)
- Consiglio Nazionale Geometri e Geometri Laureati (CNGeGL)
- CoreNet Global
- Council of European Geodetic Surveyors (CLGE)
- Counselors of Real Estate (CRE)
- Cyprus Architects Association (CAA)
- Cyprus Association of Civil Engineers (CYACE)
- Cyprus Association of Quantity Surveyors and Construction Economists (SEEOKK)
- European Association for Investors in Non-Listed Real Estate Vehicles (INREV)
- European Association of Real Estate Professions (CEPI)
- European Mortgage Federation (EMF)
- Federation of Associations of Building Contractors Cyprus (OSEOK)
- Gesellschaft für Immobilienwirtschaftliche Forschungen e.V. (GIF)
- Ghana Institution of Surveyors (GHIS)
- Hungarian Real Estate Developers Association (HREA)
- HypZertGmbH
- Institute of Philippine Real Estate Appraisers (IPREA)
- Institute of Real Estate Management (IREM)
- International Association of Assessing Officers (IAAO)
- International Consortium of Real Estate Associations (ICREA)
- International Facility Management Association (IFMA)
- International Federation of Surveyors (FIG)
- International Monetary Fund (IMF)
- International Real Estate Federation (FIABCI)
- International Right of Way Association (IRWA)
- Italian Real Estate Industry Association (ASSOIMMOBILIARE)
- Japan Association of Real Estate Appraisers (JAREA)
- Japan Association of Real Estate Counselors (JAREC)
- Japan Building Owners and Managers Association (BOMA Japan)
- National Society of Professional Surveyors (NSPS)
- Nigerian Institution of Estate Surveyors and Valuers (NIESV)
- NP “Cadastral Engineers”
- Open Standards Consortium for Real Estate (OSCRE)
- Ordre des Géomètres-Experts (OGE)
- Property Council of Australia (PCA)
- Property Council New Zealand (PCNZ)
- Real Estate Institute of Zimbabwe (REIZ)
- Real Estate Syndicate of Lebanon (REAL)
- Real Property Association of Canada (REALpac)
- Royal Institution of Chartered Surveyors (RICS)
- Seocovi-SP (SECOVI)
- Society of Chartered Surveyors Ireland (SCSI)
- South African Property Owners Association (SAPOA)
- Technical Chamber of Cyprus (ETEK)
- The Appraisal Foundation (TAF)
- Union Nationale des Economistes de la Construction (UNTEC)
Research by the SSC has found that transaction and valuation practices vary substantially across markets and this standard is not meant to remove these differences. The SSC has focused only on issues directly related to Building measurements and calculated areas within a Building. It is acknowledged that different countries use different Floor Area elements in transaction and valuation practices. IPMS: Residential Buildings will not only enable comparison of differing practices by interfacing to a common measurement language, but will also provide clarity for those purchasing residential property.

IPMS, as an international property measurement standard, has been created through a transparent, detailed and inclusive standard setting process by the SSC. It supports associated financial reporting and valuation standards such as the International Financial Reporting Standards (IFRS) and, in the USA, the Uniform Standards of Professional Appraisal Practice (USPAP). The International Valuation Standards Council (IVSC) supports IPMS, which should be read in conjunction with International Valuation Standards (IVS).

The SSC has spent considerable time researching established standards to ensure that existing intelligence has not been wasted. IPMS is not a hybrid of those standards but does introduce some concepts that may be new to some markets. These concepts have been further refined for the purpose of IPMS.

IPMS is a high level standard. Markets that do not have an existing established measurement standard are encouraged to adopt IPMS. The SSC did not identify any existing measurement standard that was suitable for adoption internationally. Therefore, in all developed markets, where existing measurement conventions are established, significant adjustment will be required. The SSC expects IPMS to work initially in parallel with local standards and for a dual reporting basis and interface to be adopted where appropriate. In time the SSC expects IPMS to become the primary basis of measurement across markets.

The SSC considered it unrealistic to create a single standard that would be immediately applicable to all classes of Buildings because each has distinctive characteristics that require individual analysis. However the principles, methodology and measurement practices developed for IPMS will be similar in standards for office, industrial and retail Buildings. These will need to be consistent as another class of Building, mixed use, would incorporate several Building classes.

In order to resolve confusion with terms that have established definitions the SSC avoided using existing Floor Area descriptions such as Gross External Area (GEA), Gross Internal Area (GIA) and Net Internal Area (NIA). These terms are commonly, but inconsistently, used in markets across the world.

The SSC consulted widely to understand the measurement conventions used in different international markets. Our research found there was a need to measure the external area of a Building, for planning purposes or the summary costing of development proposals. The SSC decided to refer to this as IPMS 1 and apply it to all classes of Buildings. There was also a requirement to identify and categorise internal areas. This is referred to as IPMS 2 - Residential and will assist the Property Industry to make efficient use of space and benchmarking data. It was also important to measure areas in exclusive occupation for transactions and the SSC created IPMS 3 - Residential for this purpose. The SSC researched global residential markets and identified three different measurement bases that need to be accommodated and have called these IPMS 3A - Residential, IPMS 3B - Residential and IPMS 3C - Residential. Some markets require only one of these measurement bases, but others may use two or more for different purposes.
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 SSC brings together experts including academics, real estate fund and asset managers, valuers, and specialists in development and construction. The SSC acts independently from the Coalition and its respective members.

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

Max Crofts FRICS (UK) Chairman
Allen Crawford FRICS, FAPI (Australia) Vice Chairman
Alexander Aronsohn FRICS (UK) Executive Secretary to the Committee
Will Chen MRICS (China)
Anthony Gebhardt MRICS, RQS (South Africa)
Prof. Dipl. Ing. Marc Grief, Architect AKH (Germany)
Kent Gibson BOMA Fellow, CPM (USA)
Prof. Liu Hongyu (China)
Luke Mackintosh MRICS, AAPI, F Fin (Australia)
Howard Morley ANZIV, SNZPI, FREINZ, AAMINZ (New Zealand)
Frederic Mortier MSc (Belgium)
Sara Stephens MAI, CRE (USA)
Peter L. Stevenson CEO (USA)
Nicholas Stolatis CPM, RPA, LEED AP (USA)
V. Suresh FRICS (India)
Koji Tanaka FRICS, ACIArb, RIBA, JIA (Japan)
Prof. Sr Dr. Ting Kien Hwa FRICS, FRISM, MPEPS, MMIPPM (Malaysia)
Dr. Piyush Tiwari MRICS (India)
1.1 Definitions

**Building**
An independent structure forming part of a Property.

**Coalition**
The Trustees of IPMS, comprising not-for-profit organisations, each with a public interest mandate.

**Common Facilities**
Those parts of a Building providing shared facilities that typically do not change over time, including, for example, stairs, escalators, lifts/elevators and motor rooms, toilets, cleaners’ cupboards, plant rooms, fire refuge areas, unallocated parking and maintenance rooms.

**Component**
One of the main elements into which the Floor Area of a Building can be divided.

**Component Area**
The total Floor Area attributed to one of the Components.

**Finished Surface**
The wall surface directly above the horizontal wall-floor junction, ignoring skirting boards, cable trunking, heating and cooling units, and pipework.

**Floor Area**
The area of a normally horizontal, permanent, load-bearing structure for each level of a Building.

**Internal Dominant Face**
The inside finished surface comprising 50% or more of the surface area for each Vertical Section forming the internal perimeter of external construction features.

**IPMS**
International Property Measurement Standards.

**IPMSC**
The International Property Measurement Standards Coalition.

**IPMS 1**
The sum of the areas of each floor level of a Building measured to the outer perimeter of external construction features.

**IPMS 2 – Residential**
The sum of the areas of each floor level of a residential Building measured to the Internal Dominant Face.

**IPMS 3 – Residential**
The Floor Area available on an exclusive basis to an occupier.

**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 managers, property managers, 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 Buildings in accordance with IPMS.
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.

Vertical Section
Each part of a window, wall or external construction feature of a Building where the inside finished surface area varies from the inside finished surface area of the adjoining window, wall or external construction feature, ignoring the existence of any columns.

1.2 Aim of the Standards
The aim of IPMS is to provide a consistent measurement of Property. IPMS will meet the requirements of Users of Property for consistency in measurement and reporting. Until now the stated area of floor space in identical Buildings has varied considerably between countries, and sometimes within the same country, owing to differing measurement conventions. The measurements can be used for valuation, transaction and benchmarking purposes.

This is equally important for Service Providers and Third Parties, so that data can be used with confidence for property financing, marketing, building and facility management, research and other purposes.

1.3 Use of the Standards
IPMS can be used for any purpose agreed between Users, Service Providers and Third Parties.

In some circumstances IPMS can interface between existing measurement standards by providing a common measurement language.
Part 2 Principles of Measurement

2.1 General Principles of Measurement and Calculation

The SSC has adopted the following fundamental principles of measurement and calculation, which apply to all Buildings:

1. The item must be capable of being measured.
2. The measurement must be objectively verifiable.
3. The measurements and calculations must be clearly documented and the following stated:
   - The IPMS standard used, for example, IPMS 1, IPMS 2 – Residential or IPMS - 3A Residential, 3B – Residential or 3C – Residential
   - The method of measurement
   - The unit of measurement
   - The measurement tolerance
   - The date of the measurement.
4. Where an interface is adopted, the reconciliation between IPMS and the standard referred to must be detailed.

Inevitably there will be situations not directly covered by IPMS. In these circumstances the principles of IPMS should be extrapolated using a common-sense approach.

IPMS is a factual measurement and must not include inflated or exaggerated Floor Areas.

2.2 Best Measurement Practice

2.2.1 General

The SSC recommends that all IPMS measurement is supported by CAD (computer-aided design) drawings or BIM (building information modelling) data, but where other drawings are used as a basis for measurement annotated dimensions on drawings should be used in preference to a reliance on scaling alone.

The Service Provider must report how the Floor Area has been established, for example CAD drawings, other drawings or by laser or tape measurement.

Buildings are to be measured individually and reported on a floor-by-floor basis.

2.2.2 Unit of Measurement

Measurements and calculations should be in the unit commonly adopted in the relevant country.

Users and Third Parties may require measurements to be converted, in which case the conversion factor must be stated.

2.2.3 Tolerance

The measurement tolerance is to be specified in the scope of work and report. The Service Provider should provide an appropriate degree of tolerance having regard to the nature of the instruction, the equipment available and conditions at the time of measurement.

2.2.4 Measurement Reporting

Any IPMS area reported to a User, where practical, should be
Special care must be taken by **Service Providers**, when reporting measurements and **Floor Areas** for proposed developments and off-plan transactions to ensure that measurements are cross-referenced as accurately as possible to plans at the date of reporting.

### 2.3 Limited Use Areas

**Service Providers** need to be aware that in certain markets there may be areas in **Buildings** that are incapable of legal or effective occupation due to local or national legislation. Such areas and their limitations are to be identified, measured and stated separately within **IPMS** reported areas. For example, if areas are subject to a height restriction, the height should be stated in the reporting document and in any Component Area spreadsheet.

**Users** and **Third Parties** need to be aware that the inclusion of measured areas in **IPMS** does not necessarily mean that the areas are available for legal occupation or use.

The following examples are not exhaustive:

**Example 1 – Area difference from Internal Dominant Face**

There may be a need to show the difference, if any, in **Floor Area** between measurements taken to the **Internal Dominant Face** and measurements taken to the wall-floor junction.

**Example 2 – Areas with limited height**

In various markets, areas with limited height are identified separately and this height can vary between jurisdictions.

**Example 3 – Areas with limited natural light**

In various jurisdictions, areas with limited natural light in a **Building** may need to be identified separately.

**Example 4 – Above and below ground**

A **Building** is generally composed of floors above ground and floors below ground. For measuring purposes, this distinction may be important in determining the conditions under which the premises may be used in compliance with local or national legislation, rules on fitness for habitation or taxation.

### 2.4 Interface Adjustment

The **SSC** is aware that there are many different measurement conventions in use. In some markets **Floor Area** is measured to the wall-floor junction, in others it is taken to the midpoint of walls or the external face. Other markets have adopted varying interpretations of the dominant face of an inside wall. Against that background of different measurement practices the **SSC** has adopted **Internal Dominant Face** to define the extent of **IPMS 2 – Residential** and **IPMS 3 – Residential**.

**Users** and **Service Providers** wishing to interface with other measurement conventions will need to identify and state the **Floor Area** variation from **IPMS**.
## Residential Component Areas

<table>
<thead>
<tr>
<th>Component Area</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Purple</td>
<td>Vertical Penetrations&lt;br&gt;Examples of vertical penetrations include stairs, lift/elevator shafts and ducts but any penetration of less than 0.25m² is to be disregarded.</td>
</tr>
<tr>
<td>B1</td>
<td>Dark red/pink/maroon</td>
<td>Exterior Wall&lt;br&gt;The external enclosure of a <strong>Building</strong>, which comprises the area between the <strong>Internal Dominant Face</strong> and the outside face of the <strong>Building</strong>.</td>
</tr>
<tr>
<td>B2</td>
<td>Red</td>
<td>Internal Structural Elements&lt;br&gt;This comprises all internal structural walls and columns.</td>
</tr>
<tr>
<td>B3</td>
<td>Light pink</td>
<td>Internal Non-Structural Elements&lt;br&gt;This comprises all internal full height permanent walls other than those included in Component Areas B1 and B2.</td>
</tr>
<tr>
<td>C</td>
<td>Light green</td>
<td>Technical Services (shared and/or exclusive)&lt;br&gt;Examples of technical and building services include mechanical/electrical plant rooms, lift/elevator motor rooms and maintenance rooms (and the like).</td>
</tr>
<tr>
<td>D</td>
<td>Light brown/orange</td>
<td>Hygiene Areas (shared and/or exclusive)&lt;br&gt;Examples of hygiene areas include toilet facilities, cleaners’ cupboards, bath/shower rooms and changing rooms.</td>
</tr>
<tr>
<td>E</td>
<td>Yellow</td>
<td>Circulation Areas (shared and/or exclusive)&lt;br&gt;This comprises all circulation areas, measured horizontally.</td>
</tr>
<tr>
<td>F</td>
<td>Dark green</td>
<td>Amenities&lt;br&gt;Examples of amenities include internal facilities such as cafeterias, day-care facilities sport, leisure and fitness areas and prayer rooms. They are normally but not necessarily <strong>Common Facilities</strong>.</td>
</tr>
<tr>
<td>G</td>
<td>Light blue</td>
<td>Living Space&lt;br&gt;The area available for exclusive use by residential occupiers.</td>
</tr>
<tr>
<td>H</td>
<td>Light yellow hatched</td>
<td>Other Areas&lt;br&gt;Examples of other areas include balconies, covered galleries, internal car parking and storage rooms.</td>
</tr>
</tbody>
</table>
If a Component Area is in multifunctional use, it is to be stated according to its principal use. Portions of the Component Areas may be classified as private, being reserved exclusively for one occupier, or shared, being available for the use of several occupiers.

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

Areas within Component Area H not available for direct residential-related use may be described as ancillary. They are to be measured, but may also be stated in an alternative way. For example, basement car parking may also be reported by the number of spaces.

Limited Use Areas
Limited use areas as defined in Section 2.3 are included within IPMS reported areas, but must be identified, measured and stated separately.
Diagram 1: IPMS – Residential Apartments – Component Areas
Diagram 2: IPMS – Residential Dwelling – Component Areas
### Sample spreadsheet for Component Areas

<table>
<thead>
<tr>
<th>Floor</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Component Area A - Vertical Penetrations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example – stairs, lift/elevator shafts and ducts</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Component Area B1 – Exterior Wall</strong></td>
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<td></td>
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<td></td>
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<tr>
<td>Example – exterior wall of a building</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>* Limited use areas</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
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<tr>
<td><strong>Component Area B2 – Internal Structural Elements</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Example – internal structural walls and columns</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>* Limited use areas</td>
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<tr>
<td><strong>Component Area B3 – Internal Non-Structural Elements</strong></td>
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<tr>
<td>Example – all internal full height permanent walls other than those included in Component Areas B1 and B2.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>* Limited use areas</td>
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<tr>
<td><strong>Component Area C - Technical Services</strong></td>
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<tr>
<td>Example – mechanical/electrical plant rooms, lift/elevator motor rooms and maintenance rooms and the like</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>* Limited use areas</td>
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<tr>
<td><strong>Component Area D - Hygiene Areas</strong></td>
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<tr>
<td>Example – toilet facilities, cleaners’ cupboards, bath/shower rooms, laundry and changing rooms</td>
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<td><strong>Component Area E - Circulation Areas</strong></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Example – all horizontal circulation areas</td>
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<tr>
<td>* Limited use areas</td>
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<tr>
<td><strong>Component Area F - Amenities</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example – cafeterias, day-care facilities, sports, leisure and fitness areas and prayer rooms</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>* Limited use areas</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>IPMS total</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Sample spreadsheet for Component Areas continued

<table>
<thead>
<tr>
<th>Floor</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component Area G – Living Space</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living Space</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>* Limited use areas</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>IPMS total</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Will be yellow hatched</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Component Area H - Other Areas

| Example – balconies, covered galleries, internal car parking and storage rooms ** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| * Limited use areas                                                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IPMS total                                                                     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

TOTAL IPMS 1

| Aggregate non-limited use Component Areas                                      | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| * Limited use areas                                                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total IPMS 1                                                                    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Additional areas outside IPMS 1

| External car parking                                                             | 0 |
| Decks, patios not forming part of the building structure                        | 0 |
| Any other areas (Example – equipment yards, cooling equipment, refuse areas)   | 0 |

* Each limitation, if any, is to be stated separately

** The extent of each use within Component Area H is to be stated separately
The IPMS standards (and their principal uses) are:

- IPMS 1 (External)
- IPMS 2 – Residential (Internal)
- IPMS 3 – Residential (Occupier)

### 4.1 IPMS 1 (External)

#### 4.1.1 Use

IPMS 1 is used for measuring the area of a building including external walls. In some markets it can be used by parties for planning purposes or the summary costing of development proposals.

#### 4.1.2 Definition

**IPMS 1:** The sum of the areas of each floor level of a building measured to the outer perimeter of external construction features. The definition for IPMS 1 is the same for all classes of building.

In many markets, but not universally, this is known as Gross External Area.

**Measurement Practice:**
Areas for IPMS 1 are to be taken from drawings or on site.

If required IPMS 1 can be reported on a Component-by-Component basis for each floor of the building. The aggregate of the Component Areas must equal IPMS 1.

**Inclusions:**

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 of the wall thickness if the extent of the basement differs from the footprint of the building.

**Measurements included but stated separately:**

Balconies, covered galleries and generally accessible rooftop terraces are included. They are to be measured to their outer face and their areas are to be stated separately.

**Exclusions:**

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

- Open light wells or the upper level voids of an atrium
- Open external stairways that are not an integral part of the structure, for example, an open framework fire escape
- Patios and decks at ground level, external car parking, equipment yards, cooling equipment and refuse areas, and other ground level areas that are not enclosed are not to be included within IPMS 1, but may be measured and stated separately.
Diagram 3: IPMS 1 – Residential Apartments
Diagram 4: IPMS 1 – Residential Dwelling
4.2 IPMS 2 – Residential (Internal)

4.2.1 Use

IPMS 2 – Residential is for measuring the interior boundary area in a residential Building. It can be used to provide data on the use of space, for benchmarking and marketing.

IPMS 2 – Residential enables Users and Service Providers to make direct floor space comparisons between data from different market practices.

4.2.2 Definition

IPMS 2 – Residential: The sum of the areas of each floor level of a residential Building measured to the Internal Dominant Face.

In many markets, but not universally, this is similar to Gross Internal Area.

Measurement Practice:

Measurements for IPMS 2 – Residential are to be taken to the Internal Dominant Face for external construction features and otherwise to the Finished Surface.

If required this can be reported on a Component-by-Component basis for each floor of a Building. The aggregate of the Component Areas minus Component Area B1 must equal IPMS 2 – Residential.

Inclusions:

IPMS 2 – Residential includes all areas, including internal walls, columns, and enclosed walkways or passages between separate Buildings, available for direct or indirect use. Covered void areas such as atria are only included at their lowest floor level.

Measurements included but stated separately:

Balconies, covered galleries and generally accessible rooftop terraces are included. They are to be measured to their Finished Surface and their areas are to be stated separately.

Exclusions:

Measurement for IPMS 2 – Residential is not to include the area of:

- Open light wells or the upper level void of an atrium
- Patios and decks at ground level, external car parking, equipment yards, cooling equipment and refuse areas, and other ground level areas that are not enclosed are not to be included within IPMS 2 – Residential, but may be measured and stated separately.
Diagram 5: IPMS 2 – Residential Apartments
Diagram 6: IPMS 2 – Residential Dwelling
4.2.3 Internal Dominant Face

The Internal Dominant Face is the finished surface comprising 50% or more of the surface area for each Vertical Section forming the internal perimeter of external construction features.

A Vertical Section refers to each part of a window, wall or external construction feature of a residential Building where the inside finished surface area varies from the inside finished surface area of the adjoining window, wall or external construction feature, ignoring the existence of any columns.

If there is no Internal Dominant Face, because no face in a Vertical Section exceeds 50%, or if the Internal Dominant Face is not vertical, the measurement should be to the Finished Surface.

Diagram 7: Internal Dominant Face within Unit 1 floor plan
Diagram 8: Internal Dominant Face
4.3 IPMS 3 – Residential (Occupier)

4.3.1 Use

IPMS 3 – Residential is for measuring the occupation of Floor Areas in exclusive use.

4.3.2 Definition

IPMS 3 – Residential: The Floor Area available on an exclusive basis to an occupier.

Measurement Practice:

Depending on the variation used, the measurements for IPMS 3 – Residential may be taken to the external face or the Internal Dominant Face for the exterior wall, while interior walls would be measured to the Finished Surface or the centre-line, as more fully described in the definitions below. Note that internal walls or columns are to be ignored in all variants except for IPMS 3C – Residential.

IPMS 3 – Residential is not directly related to IPMS 1 or IPMS 2 – Residential, neither is it a Component Area. There could be a single IPMS 3 – Residential area or there would be numerous separate IPMS 3 – Residential areas within a multi-occupied Building.

The SSC has researched global residential markets and identified different measurement bases that need to be accommodated. Some markets require only one of these measurement bases, but others may use two or more for different purposes.

Service Providers must always specify to Users which IPMS 3 – Residential basis is reported.

IPMS 3A: The area in exclusive occupation measured to:
- the external face of the exterior wall
- the centre-line of shared walls between occupants and
- the Finished Surface of walls shared with Common Facilities.

Measurements included but stated separately:

Attics, cellars, balconies, covered galleries, parking, remote storage and terraces in exclusive use and the perimeter of the ground floor area functioning similar to balconies on an upper floors, are to be measured to their outer face and their areas stated separately including identifying any elements, which are limited use areas.

This measurement may be most appropriate for measuring freestanding dwellings in single occupation.

IPMS 3B: The area in exclusive occupation measured to:
- the Internal Dominant Face;
- the centre-line of shared walls between occupants, and
- the Finished Surface of walls shared with Common Facilities.

Measurements included but stated separately:

Attics, cellars, balconies, covered galleries, parking, remote storage and terraces in exclusive use and the perimeter of the ground floor area functioning similar to balconies on the upper floors, are to be measured to their Finished Surface and their areas stated separately including identifying any elements, which are limited use areas.

IPMS 3C: The area in exclusive occupation, excluding the floor area occupied by full height internal walls and columns, measured to:
- the Internal Dominant Face and
- the Finished Surface of all full height internal perimeter walls.

Measurements included but stated separately:

Attics, cellars, balconies, covered galleries, parking, remote storage and terraces in exclusive use and the perimeter of the ground floor area functioning similar to balconies on an upper floors, are to be measured to their Finished Surface and their areas stated separately.
Diagram 9: IPMS 3A – Residential Apartments

Hatched areas are to be stated separately.
Diagram 10: IPMS 3A – Residential Dwelling
Diagram 12: IPMS 3B – Residential Dwelling
Diagram 13: IPMS 3C – Residential Apartments
Diagram 14: IPMS 3C – Residential Dwelling