

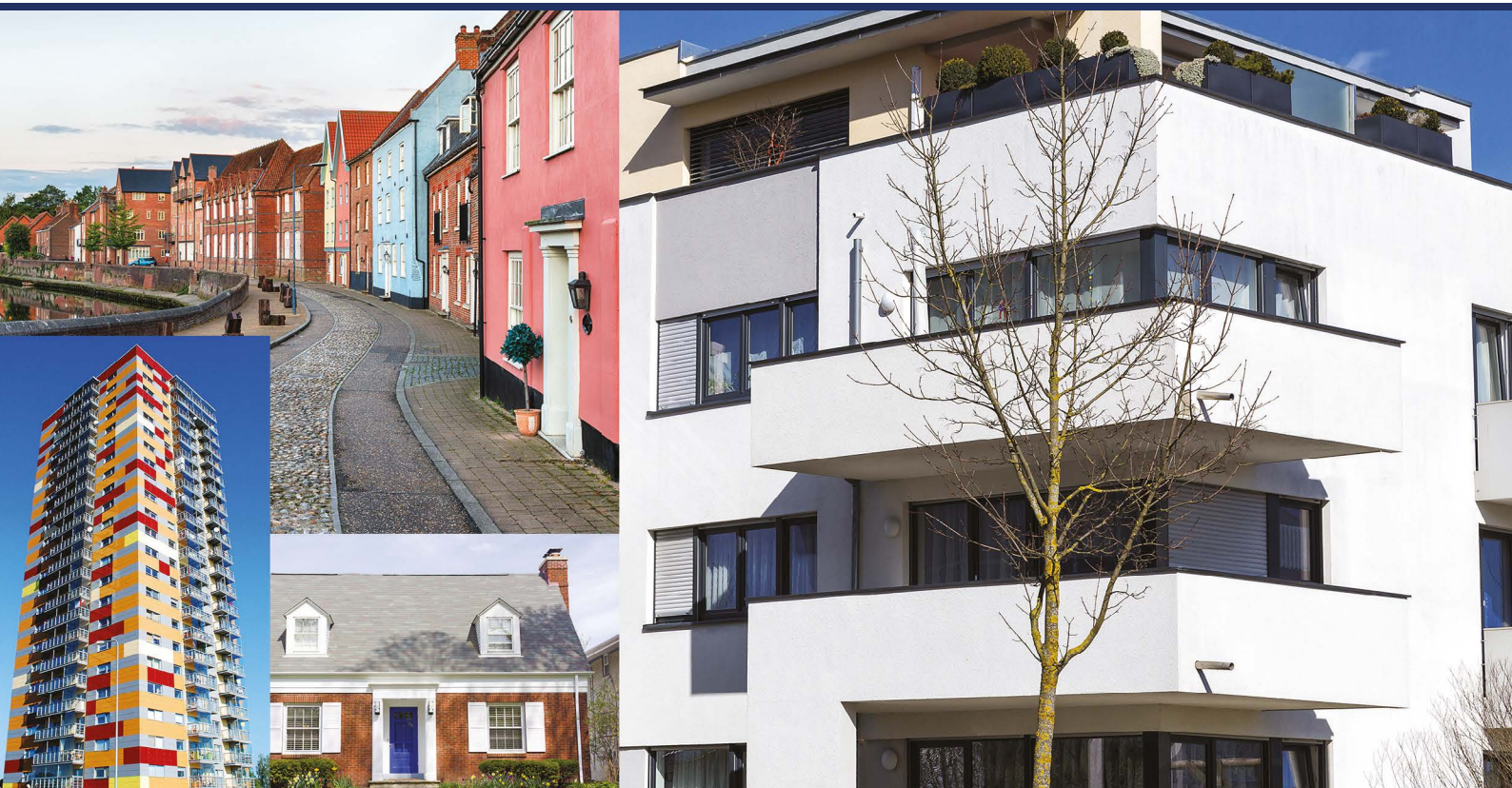
IPMS INTERNATIONAL
PROPERTY
MEASUREMENT
STANDARDS

www.ipmsc.org

International Property Measurement Standards: Residential Buildings

International Property Measurement Standards Coalition

September 2016





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September 2016

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Welcome to *IPMS: Residential Buildings*

On behalf of the IPMS Coalition we present *IPMS: Residential Buildings*. 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 there has been a lack of consistent measurement standards within many markets. Our profession and consumers deserve better.

IPMS: Residential Buildings follows the responses to a Consultation Document, an Exposure Draft and feedback from many stakeholders. It is a continuation of the work already carried out in relation to measurement of office buildings and is part of a programme of work that includes preparing IPMS standards for other building classes: 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 future developments to the standard as and when needed.

As a Coalition we are also continuing the important work of implementation through engaging with governments, occupiers, owners and other important stakeholders.

You can view the list of more than 200 companies and governments that have committed to using IPMS at www.ipmsc.org

In preparing *IPMS: Residential Buildings*, the Coalition wishes to acknowledge the work on the diagrams undertaken by Professor Marc Grief of Mainz University of Applied Sciences.

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

Introduction

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 84 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 Consultoras Inmobiliarias (ACI)*
- Asociación de Promotores Constructores de España (APCE)*
- Asociación Española de Análisis de Valor (AEV)*
- Asociación Española Geómetras Expertos (AEGEX)*
- 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 Indonesia (BOMA Indonesia)*
- Building Owners and Managers Association International (BOMA International)*
- Bulgarian Chamber of Professional Valuers (KPO)*
- Bundesverband der Immobilien-Investment-Sachverständigen e.V. (BIIS)*
- China Institute of Real Estate Appraisers and Agents (CIREA)*
- Chongqing Real Estate Association (CREA)*
- 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-CEI)*
- European Mortgage Federation (EMF)*
- Facility Management Institute Czech Republic*
- Facility Management Institute Slovakia (FMI)*
- Federation of Associations of Building Contractors Cyprus (OSEOK)*
- Gesellschaft für Immobilienwirtschaftliche Forschung e. V. (GIF)*
- Ghana Institution of Surveyors (GhIS)*
- GRESB*
- Hungarian Real Estate Developers Association (IFK)*
- HypZert GmbH*
- Institute of Estate Agents, Singapore (IEA)*
- Institute of Philippine Real Estate Appraisers (IPREA)*
- Institute of Real Estate Management (IREM)*
- Institution of Surveyors of Kenya (ISK)*
- International Association of Assessing Officers (IAAO)*
- International Consortium of Real Estate Associations (ICREA)*
- International Facility Management Association (IFMA)*
- International Facility Management Association Poland (IFMA Poland)*
- International Federation of Surveyors (FIG)*
- International Monetary Fund (IMF)*
- International Real Estate Federation (FIABCI)*
- International Right of Way Association (IRWA)*
- International Union of Property Owners (UIPI)*
- International Union of Tenants (IUT)*
- Italian Real Estate Industry Association (ASSOIMMOBILIARE)*

Introduction *continued*

Japan Association of Real Estate Appraisers (JAREA)
Japan Association of Real Estate Counselors (JAREC)
Japan Building Owners and Managers Association (BOMA Japan)
Middle East Council of Shopping Centres
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)
Polish Green Building Council (PLGBC)
Property Council of Australia (PCA)
Property Council New Zealand (PCNZ)
Property Institute of New Zealand (PINZ)
Pro Progressio
Queensland Spatial & Surveying Association (QSSA)
Real Estate Institute of Botswana (REIB)
Real Estate Institute of Zimbabwe (REIZ)
Real Estate Syndicate of Lebanon (REAL)
Real Property Association of Canada (REALpac)
Royal Institute of British Architects (RIBA)
Royal Institution of Chartered Surveyors (RICS)
Royal Society of Ulster Architects (RSUA)
Secovi-SP (Secovi)
Society of Chartered Surveyors Ireland (SCSI)
Society of Industrial and Office Realtors (SIOR)
South African Property Owners Association (SAPOA)
Technical Chamber of Cyprus (ETEK)
The Appraisal Foundation (TAF)
Union Nationale des Economistes de la Construction (UNTEC)
Zentraler Immobilien Ausschuss e.V. (ZIA)

Research by the SSC has found that measurement practices vary substantially across local and global residential markets. The SSC has focused only on issues directly related to **Building** measurements and calculated areas within a **Building**. It is acknowledged that globally there are different **Floor Area** measurements adopted in construction, transactions and valuation. *IPMS: Residential Buildings* will not

only provide clarity for those purchasing residential property, but also enable comparison of differing measurement standards by interfacing to **IPMS**.

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. The **SSC** did not identify any existing residential measurement standard that was suitable for adoption internationally. **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 and over-arching standard. Markets that do not have an existing established measurement standard are encouraged to adopt **IPMS**. 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 all markets.

The **SSC** considered it unrealistic to create a single standard that would immediately apply 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 for all **Buildings**. **IPMS** needs to be consistent as another class of **Building**, mixed use, incorporates 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 against the background of the impact on consumers of non-transparent and varying local market practices.

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**.

IPMS 1 can be apportioned into **Component Areas** to assist the **Property Industry** in making efficient use of space and benchmarking data. The aggregate of the **Component Areas** must equal **IPMS 1**.

IPMS 2 – Residential was developed to measure the internal area of a **Building**. It was also important to measure areas in exclusive occupation for transactions and other purposes. **IPMS 2 – Residential** can be similarly apportioned into **Component Areas**, excluding the **External Wall**.

The **SSC** identified three different measurement bases, **IPMS 3A – Residential**, **IPMS 3B – Residential** and **IPMS 3C – Residential**, that were required to meet global market needs. Some markets require only one of these measurement bases, but others may use two or more for different purposes.

IPMS Standards Setting Committee

In July 2013 the **IPMSC** selected real estate experts from around the world to form the 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, Space Measurement Professionals**, 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)

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Luke Mackintosh MRICS, AAPI, F Fin (Australia)

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(New Zealand)

Frederic Mortier MSc (Belgium)

Sara Stephens MAI, CRE (USA)

Peter L. Stevenson MRICS, 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)

Prof. Dr. Piyush Tiwari MRICS (Australia)

Part 1 Aim and Scope of the Standards

1.1 Definitions

Balcony

An external platform at an upper floor level with a balustrade to the open sides projecting from or recessed from an **External Wall** and including in this definition generally accessible rooftop terraces, external galleries and loggia.

Building

An independent **Structure** forming part of a **Property**.

Catwalk

An internal or external walkway above the surrounding area that provides higher level access.

Clearance Height

The maximum height within a **Building** or section of a **Building** measured to the lowest point of the roof structural element, roof access door or building equipment such as ducting, gantries, pipework and sprinklers.

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, circulation areas, stairs, escalators, lifts/elevators and motor rooms, toilets, cleaners' cupboards, plant rooms, fire refuge areas, maintenance rooms and unallocated parking spaces.

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**.

Covered Area

The extent at ground level of the area of a **Building** covered by one or more roofs, the perimeter of which (sometimes referred to as the drip line) is the outermost structural extension, exclusive of ornamental overhangs.

External Wall

The external enclosure of a **Building**, which comprises the area between the **Internal Dominant Face** and the outside of a **Building**.

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**.

IDF (Internal Dominant Face) Wall Section

Each internal finish of a section of an **External Wall**, ignoring the existence of any columns, that is either recessed from or protrudes from its adjacent section. (See Diagram 5.)

Internal Dominant Face (IDF)

The internal finish comprising more than 50% of the floor to ceiling height for each **IDF Wall Section**. If such does not occur, then the **Finished Surface** is deemed to be the **IDF**.

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, which may be reported on a **Component-by-Component** basis for each floor of a **Building**.

IPMS 2 – Residential

The sum of the areas of each floor level of a **Building** measured to the **Internal Dominant Face**, which may be reported on a **Component-by-Component** basis for each floor of a **Building**.

IPMS 3 – Residential

The **Floor Area** available on an exclusive basis to an occupier.

Loading Bay(s)

Area(s) designed for vehicles next to or adjacent to a **Loading Dock**.

Loading Dock(s)

Elevated platform(s) designed for receiving or dispatching goods or equipment.

Mezzanine

An intermediate or partial storey, other than a **Catwalk**, between the floor levels or roof of a **Building** and usually fully or partially open on one or more sides.

Patio

A paved or floored terrace, adjacent to a **Building**, which may or may not be covered by an independent framework.

Permanent Mezzanine

A **Mezzanine** that is an integral part of the structure of a **Building**.

Property

Any real estate asset in the built environment.

Property Industry

Service Providers, **Third Parties** and **Users** with interests in real estate assets.

Residential Building

A **Building** predominantly used for residential purposes, whether or not part of the **Building** is used for other purposes.

Service Provider

Any entity providing real estate advice to a **User** or **Third Party** 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.

Sheltered Area

Any part of a **Covered Area** that is not fully enclosed.

Space Measurement Professional

A **Service Provider** qualified by experience or training to measure **Buildings** in accordance with **IPMS**.

SSC

The Standards Setting Committee appointed by the **IPMSC** to develop global standards for property measurement.

Standard Facilities

See **Common Facilities**.

Structure

A construction that provides shelter or serves an ancillary function, but is not necessarily fully enclosed.

Temporary Mezzanine

A **Mezzanine** that is not an integral part of the structure of a **Building**.

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.

Veranda

An open or partly enclosed area on the outside of a **Building** at ground level (Level 0), and covered by a roof that is an integral part of the **Building**.

1.2 Aim of the Standards

The aim of **IPMS** is to provide transparency through a consistent measurement of **Property**. **IPMS** will meet the requirements of **Service Providers**, **Third Parties** and **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.

1.3 Use of the Standards

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

The measurements can be used for asset management, benchmarking, construction, facility management, marketing, property financing, research, transactions, valuation and other purposes.

IPMS can interface with existing measurement standards by providing a common measurement language.

1.4 Floor Level Designation

The **SSC** found there to be no market consistency in the designation of floor levels.

To provide consistency in **IPMS** the primary ground level has been designated Level 0, with the levels above as Level 1, 2, 3, etc. and levels below the primary ground level as Level -1, -2, -3, etc.

Part 2 Principles of Measurement

2.1 General Principles of Measurement and Calculation

IPMS is a factual measurement and must not include inflated or exaggerated **Floor Areas**. 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, IPMS 3A – Residential, IPMS 3B – Residential** and **IPMS 3C – Residential**
 - The method of measurement
 - The unit of measurement
 - The measurement tolerance
 - The date of the measurement.
4. **Buildings** are to be measured individually and reported on a floor-by-floor basis.
5. The principles of **IPMS** should be extrapolated using a common-sense approach.

2.2 Best Measurement Practice

2.2.1 General

The **SSC** recommends that all **IPMS** measurement is supported by computer-generated drawings, if available, 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 by computer-generated drawings, other drawings or by laser or tape measurement.

It is highly recommended that where possible measurements are verified on site.

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 **Service Provider**, while measuring as accurately as is reasonably possible, albeit having regard to the equipment used and the conditions at the time of measurement, should state the degree of tolerance, as a percentage of the area measurement reported, to reflect the maximum potential for inaccuracy.

The **Service Provider** who conducts the measurement is best placed to understand the tolerance and that tolerance must be reported to the **User** or **Third Party**. The **Service Provider** may also decide a further contingency is appropriate but in all instances the tolerance must reflect the maximum potential for inaccuracy.

2.2.4 Measurement Reporting

Any **Component Area** under **IPMS 1** or **IPMS 2** reported to a **User** or **Third Party** should, where practical and where appropriate, be cross-referenced to an appropriately coloured drawing and **Component Area** spreadsheet.

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 is reasonably 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.

IPMS does not specify what a limited use area is, as that differs from market to market. For example, one market may classify an area as limited use but in another it is not regarded as limited use. In all cases the area is included but where appropriate identified as limited 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. When parts of a **Building** with restricted height need to be separately identified, the **Clearance Height** is to be stated.

Example 3 – Areas with limited natural light

In various jurisdictions, areas with limited natural light in a **Building** may need to be identified separately. If areas are subject to any such restriction, the area should be stated in the reporting document.

Example 4 – Above and below ground

A **Building** is generally composed of floors above ground, and possibly 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.

Example 5 – Area difference from Covered Area

Where a **Sheltered Area** is not functional for the primary use, this part of the **Covered Area** may be classified as limited use area.

2.4 Adjustment between IPMS and other standards

Where dual reporting is adopted, a reconciliation between **IPMS** and the standard referred to must be appropriately explained.

Part 3 IPMS Standards

The IPMS standards (and their principal uses) are:

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

3.1 IPMS 1 (External)

3.1.1 Use

IPMS 1 is used for measuring the area of a **Building** including **External Walls**. It can be used by parties for planning purposes or the summary costing of development proposals. In some instances it may be the same as IPMS 3A – Residential. (See Diagrams 6–9.)

3.1.2 Definition

IPMS 1: The sum of the areas of each floor level of a **Building** measured to the outer perimeter of external construction features, which may be reported on a **Component** basis for each floor of a **Building**.

The definition for IPMS 1 is the same for all classes of **Building** and therefore some of the terminology below may not relate to all asset classes.

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.

If there are no available plans for a basement, the area must include an estimation of the exterior wall thickness.

In respect of roller shutters and other openings, the principal external perimeter line of the **Building** across such openings should be followed to calculate IPMS 1.

In the absence of external construction features, for example an open-sided **Building** or a free-standing canopy, IPMS 1 is to be measured to the **Covered Area**.

IPMS 1 is intended for measuring whole **Buildings**. In attached or semi-detached housing, if an IPMS 1 measurement is required of a single house, the measurement is to be taken to the centre-line with the adjoining house.

For multi-unit **Buildings**, areas in exclusive use and **Common Facilities** can be stated separately.

Inclusions:

IPMS 1 includes all areas and 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, Verandas, internal Catwalks, Sheltered Areas and internal Permanent Mezzanines 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 following:

- Temporary Mezzanines
- Open light wells or the upper level voids of an atrium
- Open external stairways that are not an integral part of the Building, for example, an open framework fire escape
- External areas such as external vehicle parking, external Catwalks, vehicle circulation and other areas or Structures (such as equipment yards, cooling equipment, refuse areas), and Patios and decks at ground level (Level 0).

Measurement for IPMS 1 excludes any other ground level areas or Structures beyond the Covered Area. Such areas may be measured and stated separately.

3.2 IPMS 2 – Residential (Internal)

3.2.1 Use

IPMS 2 – Residential is for measuring the interior area of a Residential Building. It can be used to provide data on the use of space, for benchmarking and marketing. In some instances it may be the same as IPMS 3B – Residential.

IPMS 2 – Residential enables Users or Third Parties and Service Providers to make direct floor space comparisons between Buildings using data derived from different market practices.

(See Diagrams 10–13.)

3.2.2 Definition

IPMS 2 – Residential: The sum of the areas of each floor level of a Residential Building measured to the Internal Dominant Face, which may be reported on a Component-by-Component basis for each floor of a Building.

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 there are no External Walls there is no IPMS 2 – Residential.

If required, IPMS 2 – Residential 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 (External Wall) must equal IPMS 2 – Residential.

For multi-unit Buildings, areas in exclusive use and Common Facilities can be stated separately.

Inclusions:

IPMS 2 – Residential includes all areas within the **IDF** 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, internal **Catwalks**, covered galleries, internal **Loading Bays** internal **Permanent Mezzanines** and **Verandas**. 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 following:

- **Temporary Mezzanines**
- Open light wells and the upper level voids of an atrium
- Any ground level areas or **Structures** beyond the **External Wall** such as **Sheltered Areas**, **External Catwalks** and external **Loading Bays**.

Such areas may be measured and stated separately.

3.3 IPMS 3 – Residential (Occupier)

3.3.1 Use

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

The **SSC** has researched international property 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.

It is not appropriate for a **Service Provider** to simply state that the measurement is in accordance with **IPMS 3 – Residential**. The reference must include whether the measurement is **IPMS 3A – Residential**, **IPMS 3B – Residential** or **IPMS 3C – Residential**.

3.3.2 Definition

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

Measurement Practice:

IPMS 3 – Residential is not directly related to **IPMS 1** or **IPMS 2 – Residential**, nor is it a **Component Area**.

In a multi-occupied **Building** each unit would have its own **IPMS 3** measurement. **Service Providers** must always specify to **Users** and **Third Parties** which **IPMS 3 – Residential** basis is reported.

Depending on the variation used (**IPMS 3A**, **3B** or **3C – Residential**), the measurements for **IPMS 3 – Residential** may need to be taken to the outer face or the **Internal Dominant Face** of the **External Wall**, while other walls would be measured to the **Finished Surface** or the centre-line, as more fully described below.

Note that the areas occupied by internal walls or columns are included in **IPMS 3A – Residential** and **IPMS 3B – Residential**. The **Floor Area** occupied by stairs is only to be included at the lowest level. All vertical penetrations or voids that are greater than 0.25m², including the enclosing wall, are to be excluded from the **Floor Area** measurement.

In some cases, in addition to the **IPMS 3** measurements stated below, **Service Providers** and **Users** may also wish to state individual room dimensions. Dimensions are to be to the **Internal Dominant Face** or **Finished Surface**, as appropriate.

3.3.3 IPMS 3A – Residential

IPMS 3A: The area in exclusive occupation is measured as follows:

Detached dwellings

- to the outer face of the **External Wall**.

Attached dwellings

- to the outer face of the **External Wall** and
- to the centre-line of shared walls between occupants.

Multi-unit dwellings

- to the outer face of the **External Wall** and
- to the centre-line of shared walls between occupants and
- to the **Finished Surface** of walls shared with **Common Facilities**.

In the case of detached dwellings Level 0 of **IPMS 3A – Residential** may be the same as **IPMS 1**.

Measurements included but stated separately and individually:

- Attics, basements/cellars
- **Balconies** and **Verandas** in exclusive use
- Enclosed garages
- Limited use areas.

Measurements excluded but which may be stated separately and individually:

- **Patios**
- Unenclosed parking areas, which may be measured or defined by number of spaces
- Staircase openings
- Voids where the area, including the enclosing wall (if there is one), is greater than 0.25m²
- Vertical penetrations that form part of **Common Facilities**.

(See Diagrams 14–17.)

3.3.4 IPMS 3B – Residential

IPMS 3B: The area in exclusive occupation, including the **Floor Area** occupied by internal walls and columns, measured to:

- the **Internal Dominant Face** and
- the **Finished Surface** of internal perimeter walls.

In the case of detached dwellings Level 0 of **IPMS 3B – Residential** may be the same as **IPMS 2 – Residential**.

Measurements included but stated separately and individually:

- Attics, basements/cellars
- **Balconies** and **Verandas** in exclusive use
- Enclosed garages
- Limited use areas.

Measurements excluded but which may be stated separately and individually:

- **Patios**
- Unenclosed parking areas, which may be measured or defined by number of spaces
- Staircase openings
- Voids where the area, including the enclosing wall (if there is one), is greater than 0.25m²
- Vertical penetrations that form part of **Common Facilities**.

(See Diagrams 18–21.)

3.3.5 IPMS 3C – Residential

IPMS 3C: The area in exclusive occupation, excluding the **Floor Area** occupied by full-height, permanent, internal walls and columns, measured to:

- the **Internal Dominant Face** and
- the **Finished Surface** of all full-height internal walls.

Fully glazed partitions are not regarded as permanent internal walls.

Measurements included but stated separately and individually:

- Attics, basements/cellars
- **Balconies** and **Verandas** in exclusive use
- Enclosed garages
- Limited use areas.

Measurements excluded but which may be stated separately and individually:

- **Patios**
- Unenclosed parking areas, which may be measured or defined by number of spaces
- Staircase openings
- Voids where the area, including the enclosing wall (if there is one), is greater than 0.25m².








(See Diagrams 22–25.)

Part 4 Technical

4.1 IPMS Residential Component Areas

Below are suggested residential **Component Areas** that may be used when areas need to be separately allocated for cost or other purposes under IPMS 1 and IPMS 2.

Residential Component Areas

	(Purple)	Component Area A	Vertical Penetrations Examples of vertical penetrations include stairs, lift/elevator shafts and ducts but any penetration of less than 0.25m ² is to be disregarded.
	(Dark pink/ maroon)	Component Area B1	External Wall The external enclosure of a Building , which comprises the area between the Internal Dominant Face and the outside face of the Building .
	(Red)	Component Area B2	Internal Structural Elements This comprises all internal structural walls and columns.
	(Light pink)	Component Area B3	Internal Non-Structural Elements This comprises all internal, full-height, permanent walls other than those included in Component Areas B1 and B2 .
	(Light green)	Component Area C	Technical Services Examples of technical and building services include mechanical/ electrical plant rooms, lift/elevator motor rooms and maintenance rooms.
	(Light brown/ orange)	Component Area D	Hygiene Areas Examples of hygiene areas include toilet facilities, cleaners' cupboards, bath/shower rooms and changing rooms.
	(Yellow)	Component Area E	Circulation Areas This comprises all circulation areas, measured horizontally.
	(Dark green)	Component Area F	Amenities 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 Common Facilities .
	(Light blue)	Component Area G	Living Space The area available for use by residential occupiers. Some of the Component Areas in this table can be further used for IPMS 3 if required.
	(Light yellow hatched)	Component Area H	Other Areas Examples of other areas include balconies, covered galleries, internal car parking and storage rooms.

If a **Component Area** is in multifunctional use, it is to be stated according to its principal use. Sections 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.

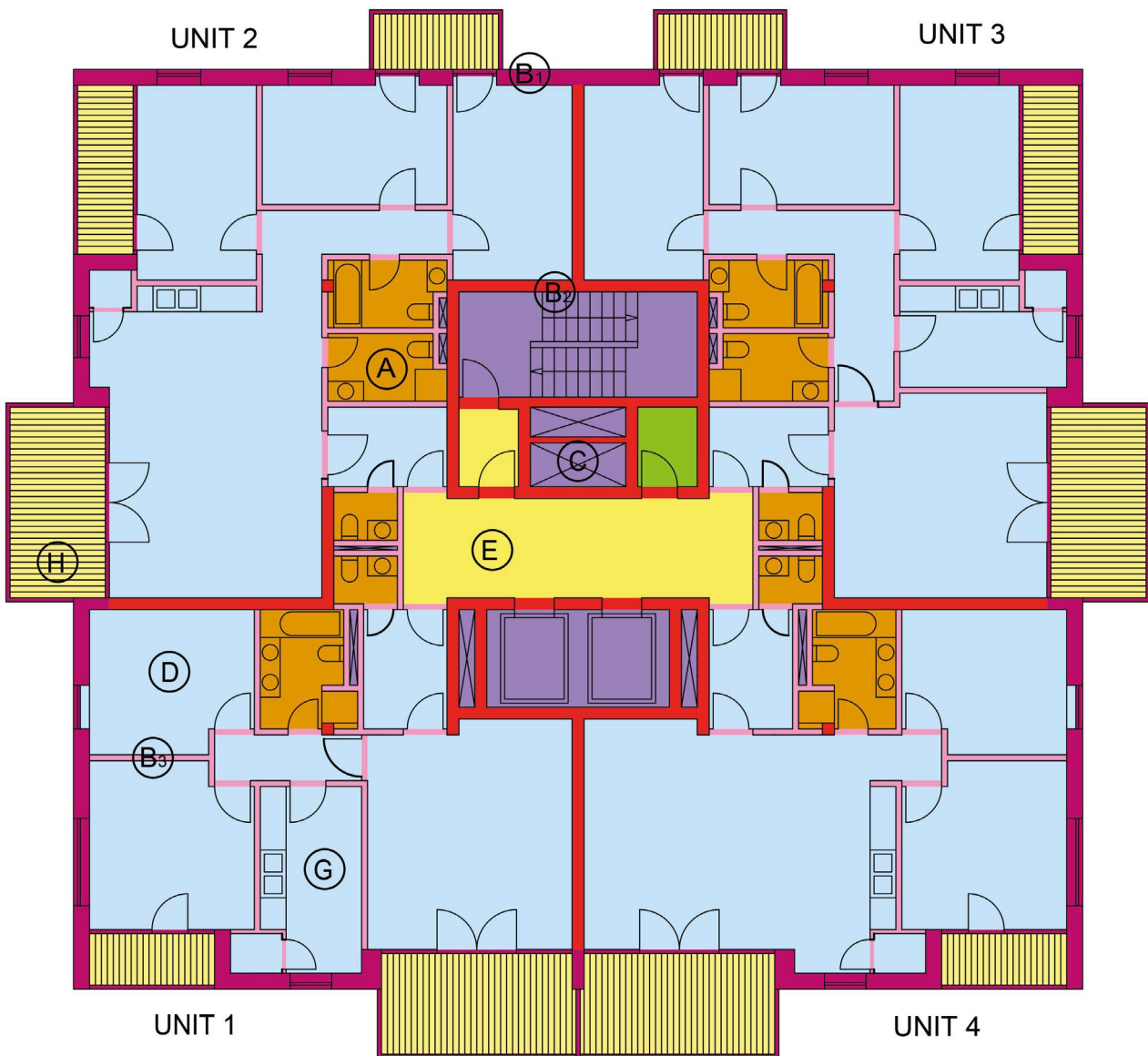
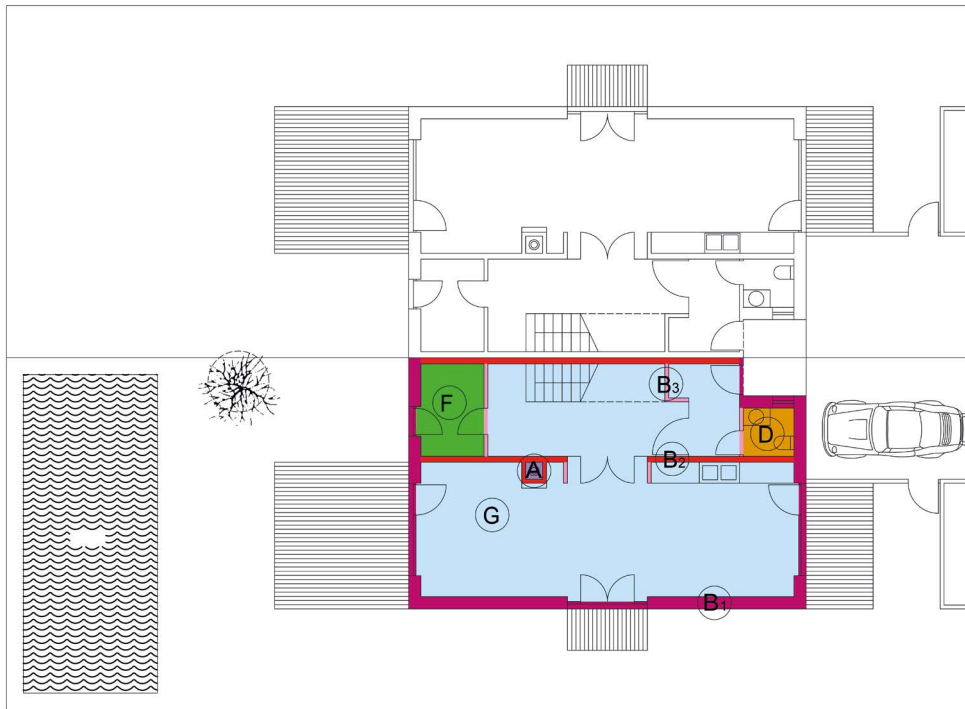


Diagram 1: IPMS – Residential Apartments – Component Areas

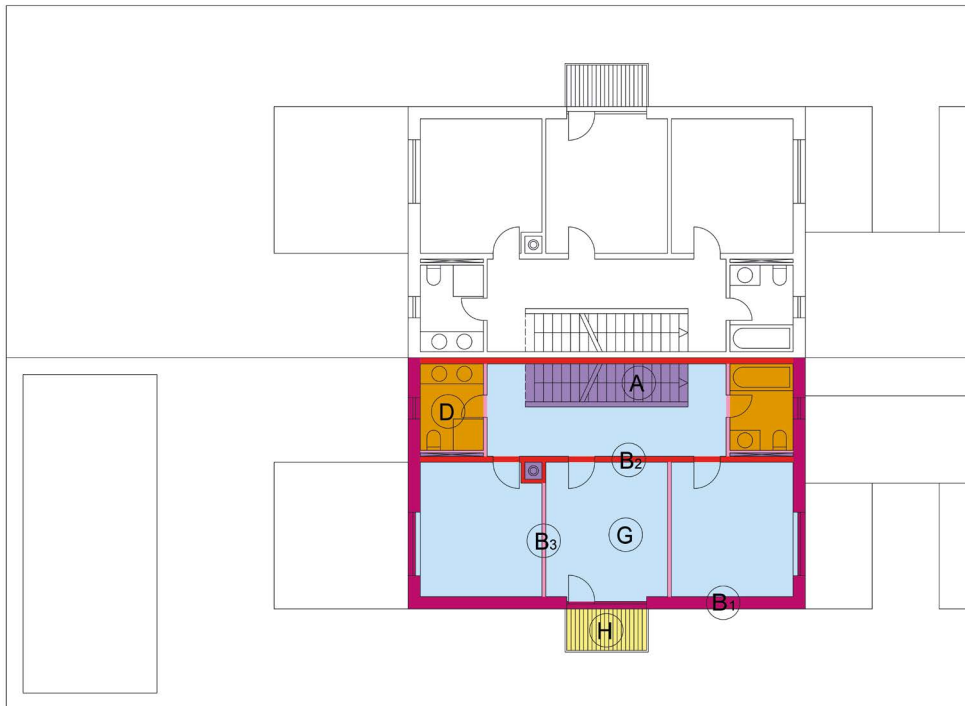
- Component Area A – Vertical Penetrations
- Component Area B1 – External Wall
- Component Area B2 – Internal Structural Elements
- Component Area B3 – Internal Non-Structural Elements
- Component Area C – Technical Services
- Component Area D – Hygiene Areas
- Component Area E – Circulation Areas
- Component Area F – Amenities
- Component Area G – Living Space
- Component Area H – Other Areas

Door openings are shown as **Component Area B1**, **B2** or **B3** if there is a lintel, but as an alternate **Component Area** if the opening is full height.



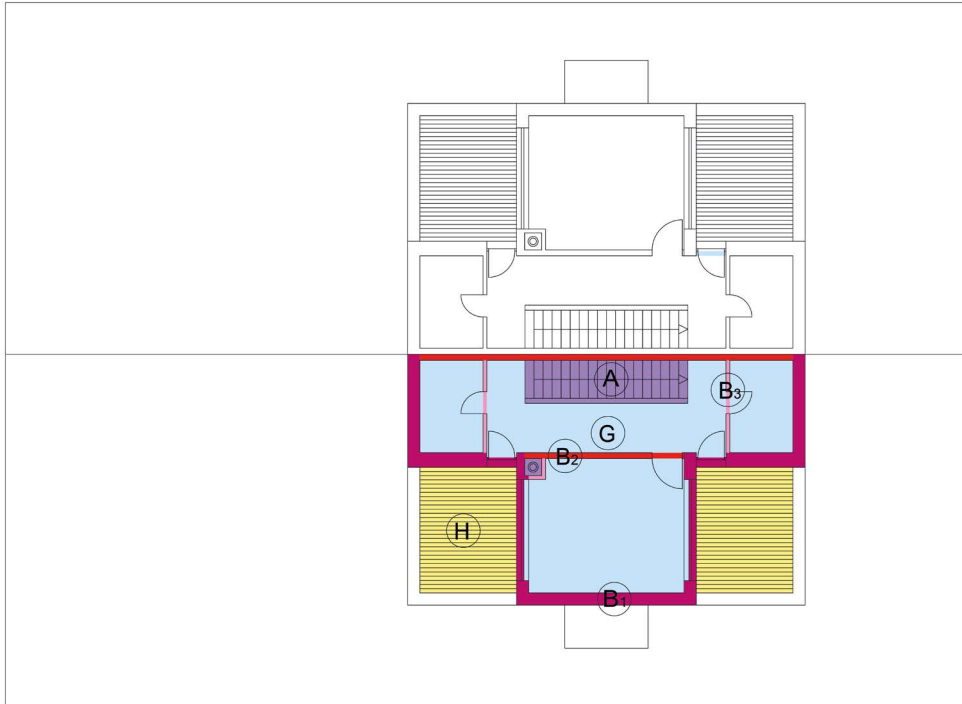
Level 0

Diagram 2: IPMS – Residential Dwelling Ground Floor (Level 0) – Component Areas



Level 1

Diagram 3: IPMS – Residential Dwelling First Floor (Level 1) – Component Areas



Level 2

Diagram 4: IPMS – Residential Dwelling Second Floor (Level 2) – Component Areas

4.2 Sample spreadsheet for Component Areas

Floor	-2	-1	0	1	2	3	4	Total
Component Area A – Vertical Penetrations								
Example – stairs, lift/elevator shafts and ducts	0	0	0	0	0	0	0	0
Component Area B1 – External Wall								
Example – exterior wall of a building	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
Component Area B2 – Internal Structural Elements								
Example – internal structural walls and columns	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
Component Area B3 – Internal Non-Structural Elements								
Example – all internal, full-height, permanent walls other than those included in Component Areas B1 and B2	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
Component Area C – Technical Services								
Example – mechanical/electrical plant rooms, lift/elevator motor rooms and maintenance 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
Component Area D – Hygiene Areas								
Example – toilet facilities, cleaners' cupboards, bath/shower rooms, laundry and changing 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

4.2 Sample spreadsheet for Component Areas *continued*

Floor	-2	-1	0	1	2	3	4	Total
Component Area E – Circulation Areas								
Example – all horizontal circulation areas	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
Component Area F – Amenities								
Example – cafeterias, day-care facilities, sports, leisure and fitness areas, and prayer 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
Component Area G – Living Space								
Living space	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
Component Area H – Other Areas								
Example – balconies, verandas, 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
Patios								0
Any other areas (example – equipment yards, cooling equipment, refuse areas)								0

All subcomponents are to be stated separately.

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

** The extent of each use within Component Area H is to be stated separately.

4.3 Internal Dominant Face

The **Internal Dominant Face (IDF)** is the inside **Finished Surface** comprising more than 50% of the floor to ceiling height for each **IDF Wall Section**. If such does not occur, then the **Finished Surface** is deemed to be the **IDF**.

An **IDF Wall Section** refers to each internal finish of a section of an **External Wall**, ignoring the existence of any columns, that is either recessed from or protrudes from its adjacent section.
(See Diagram 5.)

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

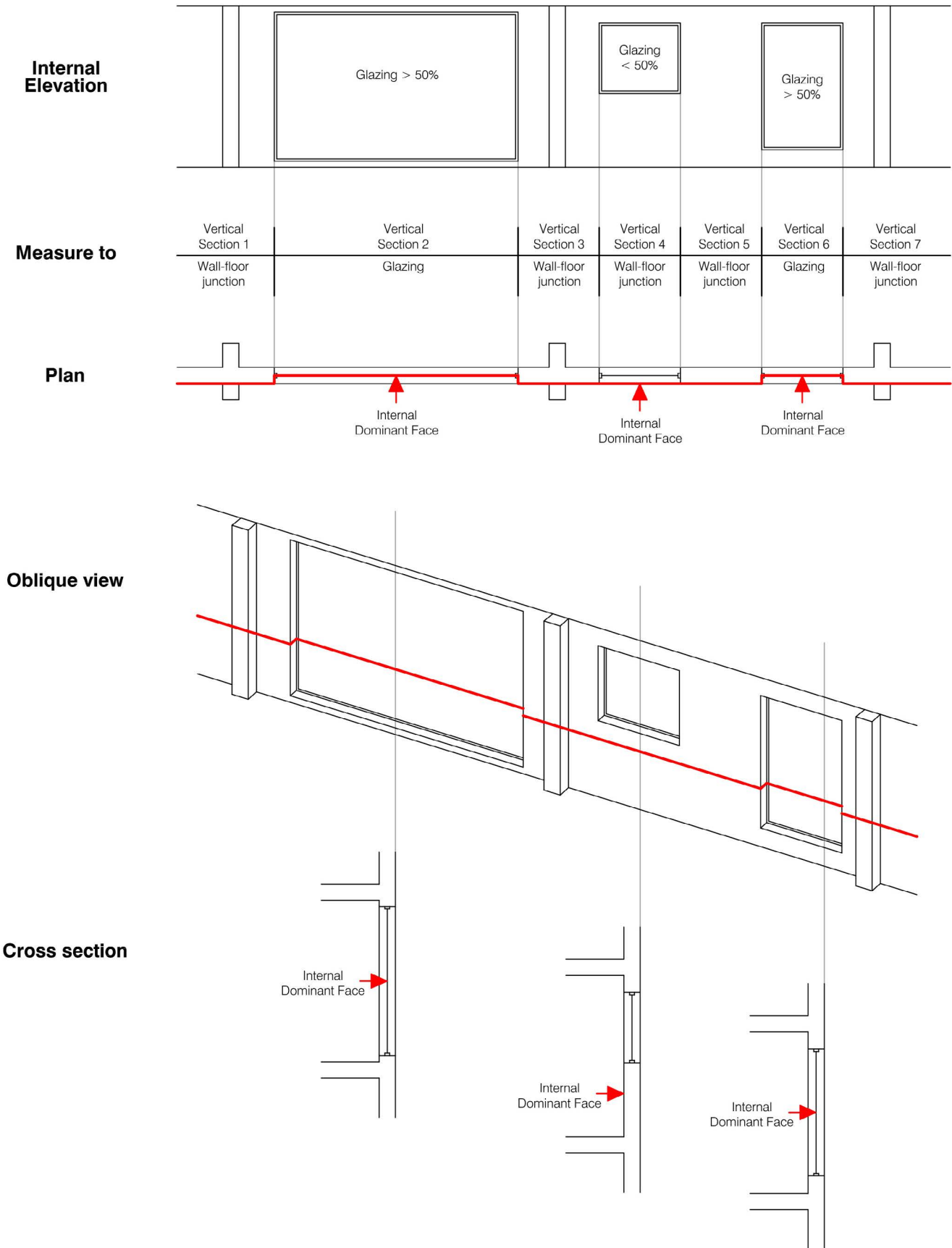


Diagram 5: Internal Dominant Face

Part 5 Floorplans

5.1 IPMS 1 (External)

5.1.1 IPMS 1 – Residential Apartment

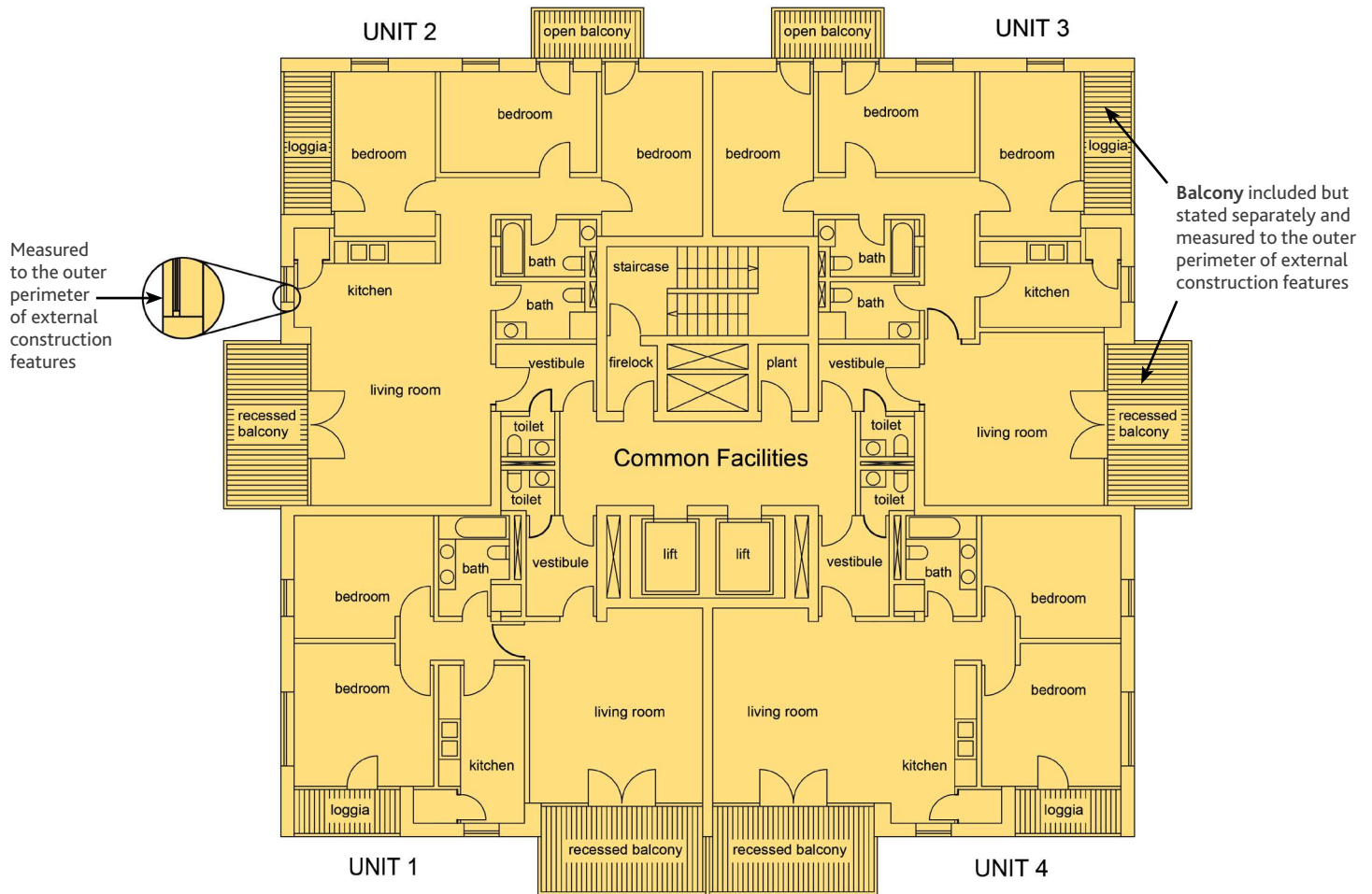


Diagram 6: IPMS 1 – Residential Apartment

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

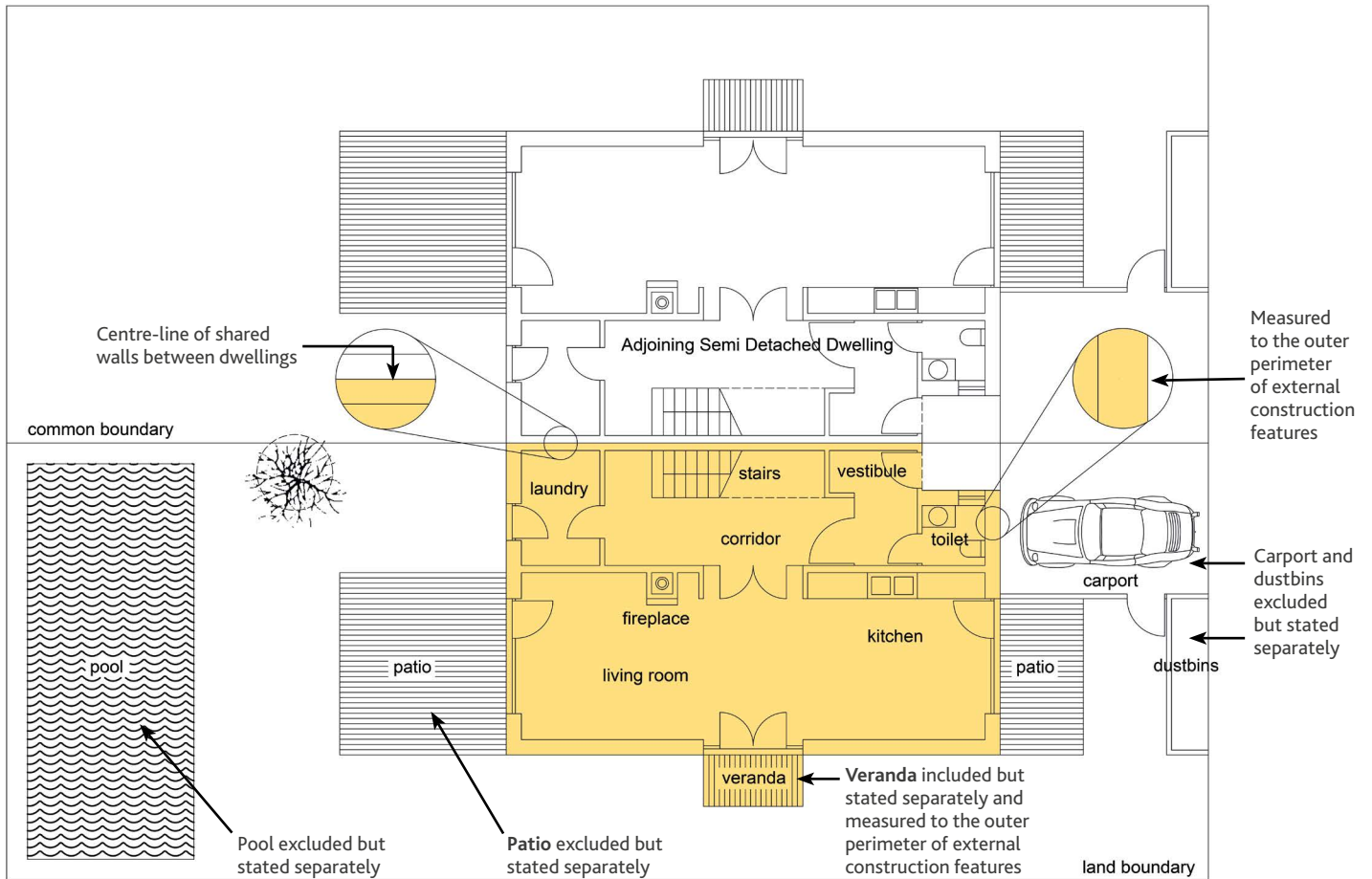
Covered void areas such as atria are only included at their lowest floor level.

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. If there are no available plans for the basement, the area must include an estimation of the exterior wall thickness.

For further details see section 3.1.2.

5.1.2 IPMS 1 – Residential Dwelling



Level 0

Diagram 7: IPMS 1 – Residential Dwelling Ground Floor (Level 0)

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

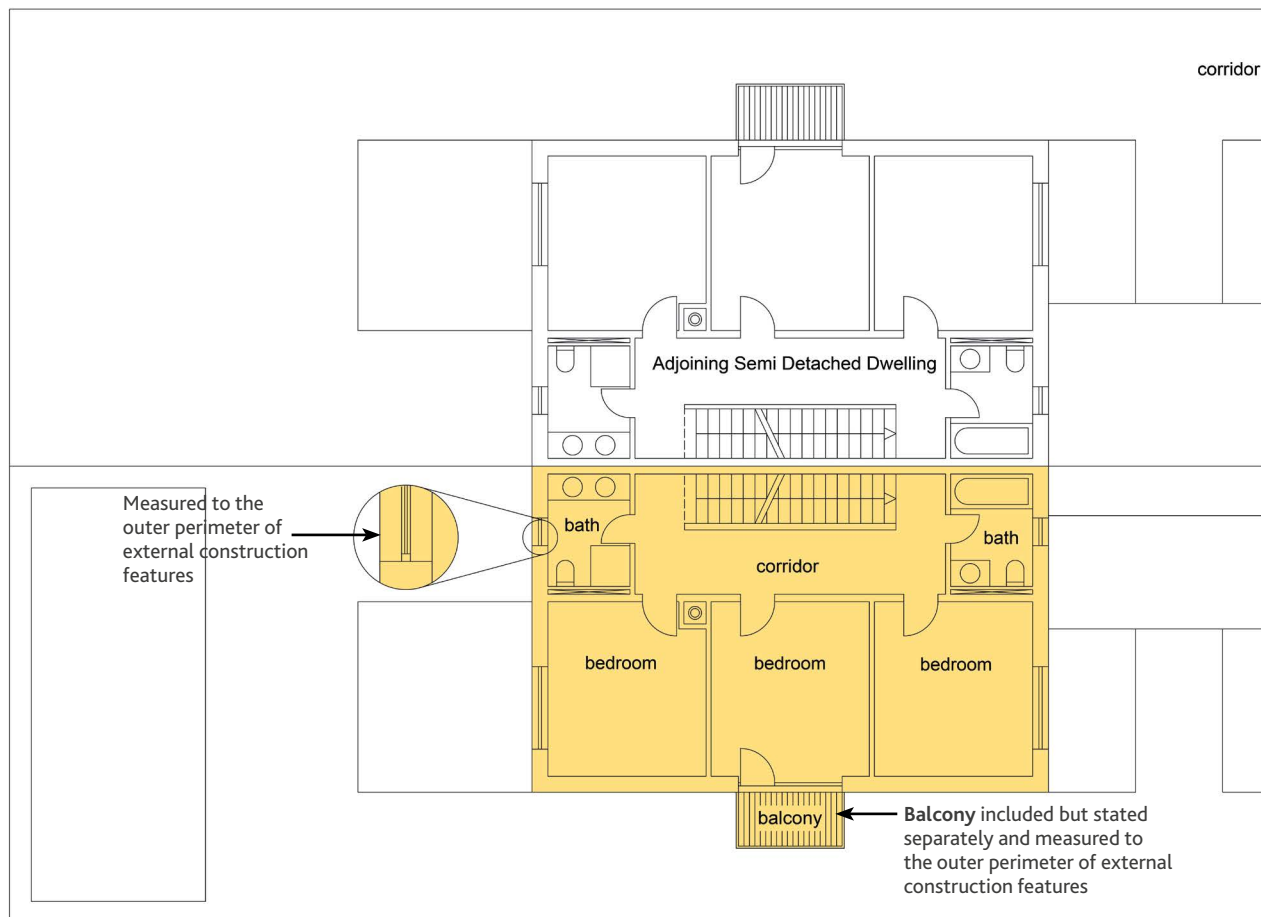
Covered void areas such as atria are only included at their lowest floor level.

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. If there are no available plans for the basement, the area must include an estimation of the exterior wall thickness.

For further details see section 3.1.2.

5.1.2 IPMS 1 – Residential Dwelling *continued*



Level 1

Diagram 8: IPMS 1 – Residential Dwelling First Floor (Level 1)

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

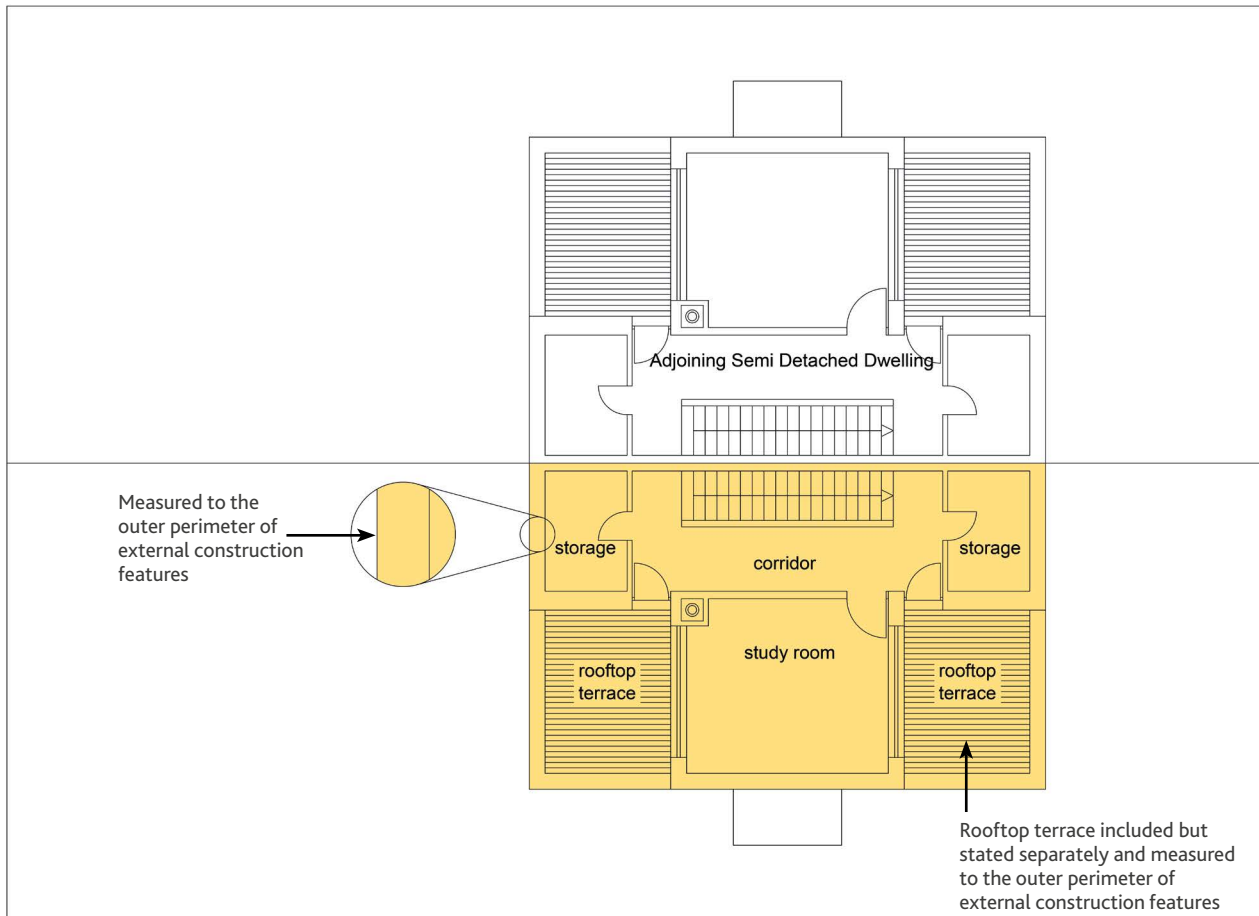
Covered void areas such as atria are only included at their lowest floor level.

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. If there are no available plans for the basement, the area must include an estimation of the exterior wall thickness.

For further details see section 3.1.2.

5.1.2 IPMS 1 – Residential Dwelling *continued*



Level 2

Diagram 9: IPMS 1 – Residential Dwelling Second Floor (Level 2)

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

Covered void areas such as atria are only included at their lowest floor level.

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. If there are no available plans for the basement, the area must include an estimation of the exterior wall thickness.

For further details see section 3.1.2.

5.2 IPMS 2 – Residential (Internal)

5.2.1 IPMS 2 – Residential Apartment

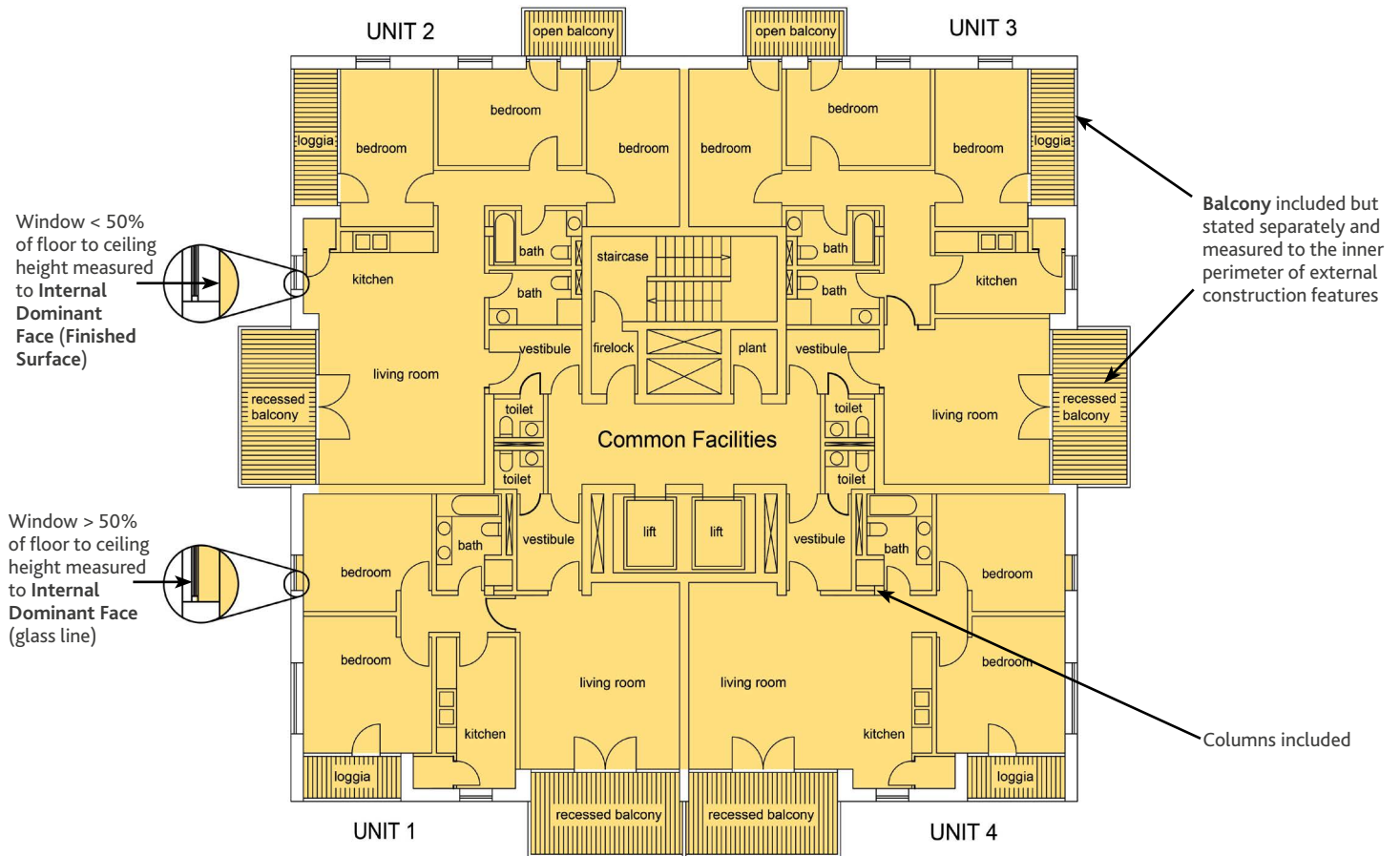


Diagram 10: IPMS 2 – Residential Apartment

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

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

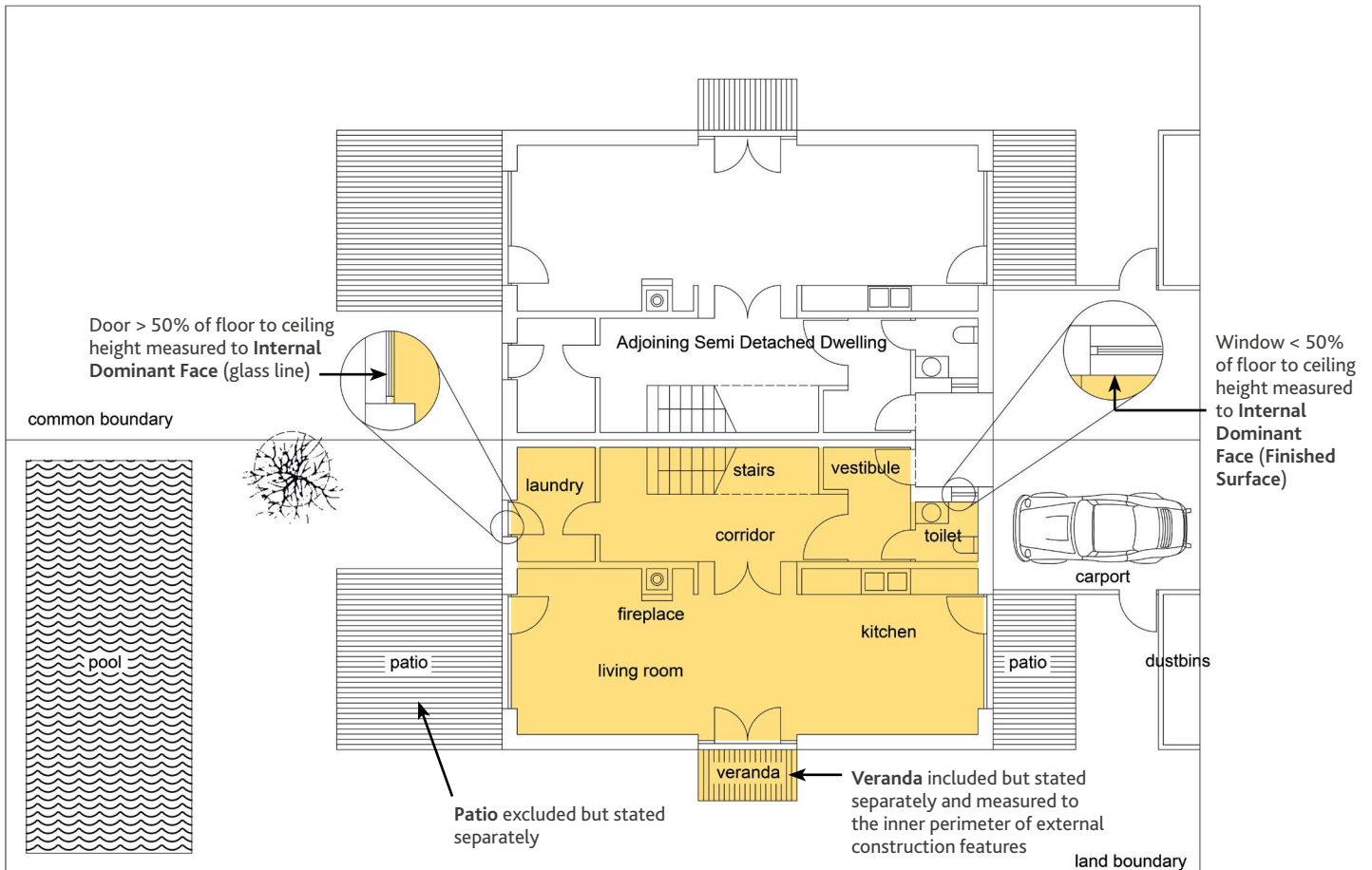
Covered void areas such as atria are only included at their lowest floor level.

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 (External Wall)** must equal **IPMS 2 – Residential**.

For multi-unit **Buildings**, private and common areas can be stated and identified separately.

For further details see section 3.2.2.

5.2.2 IPMS 2 – Residential Dwelling



Level 0

Diagram 11: IPMS 2 – Residential Dwelling Ground Floor (Level 0)

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

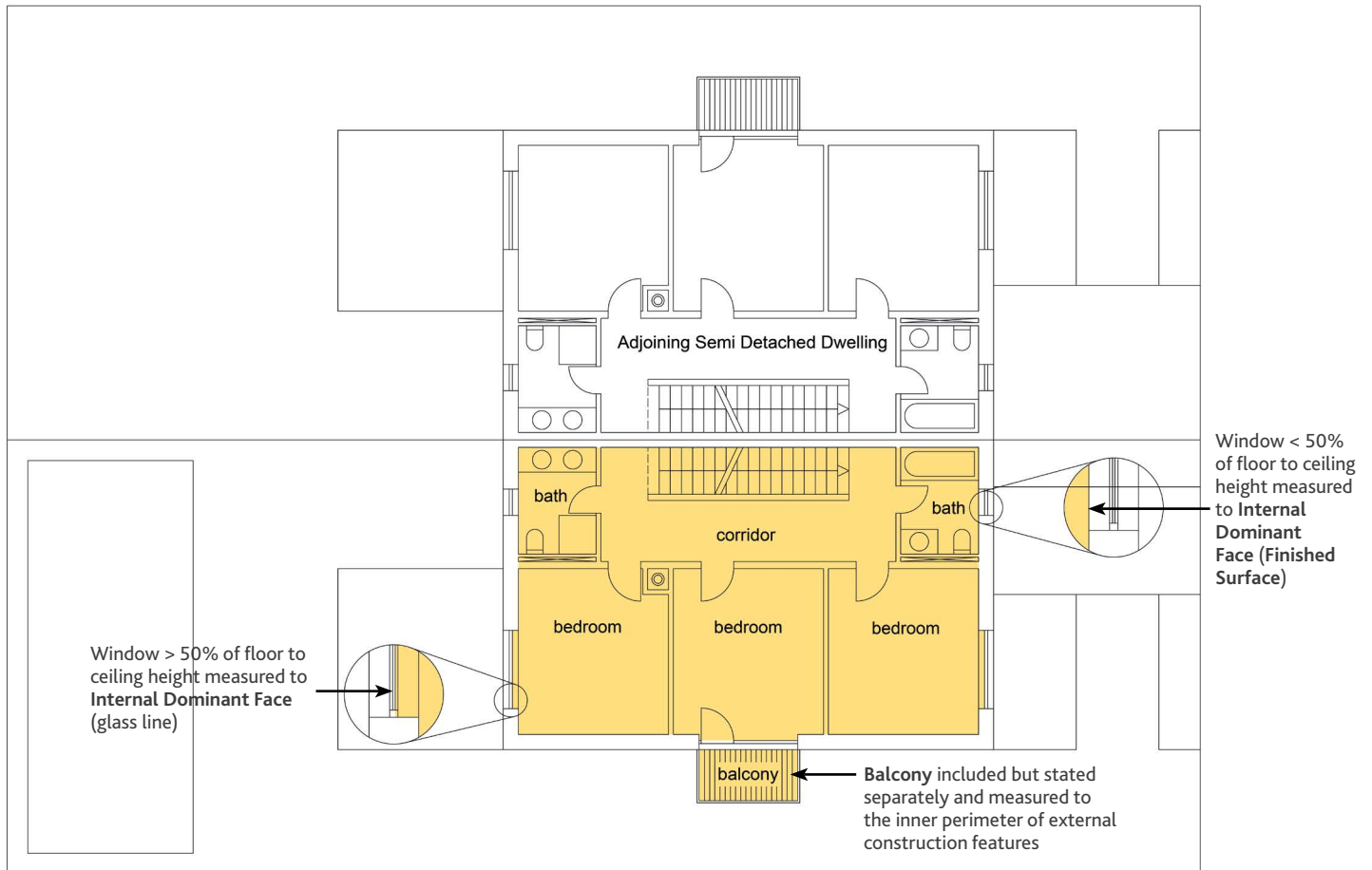
Measurements for IPMS 2 – Residential are to be taken to the Internal Dominant Face for external construction features and otherwise to the Finished Surface.

Covered void areas such as atria are only included at their lowest floor level.

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 (External Wall) must equal IPMS 2 – Residential.

For further details see section 3.2.2.

5.2.2 IPMS 2 – Residential Dwelling *continued*



Level 1

Diagram 12: IPMS 2 – Residential Dwelling First Floor (Level 1)

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

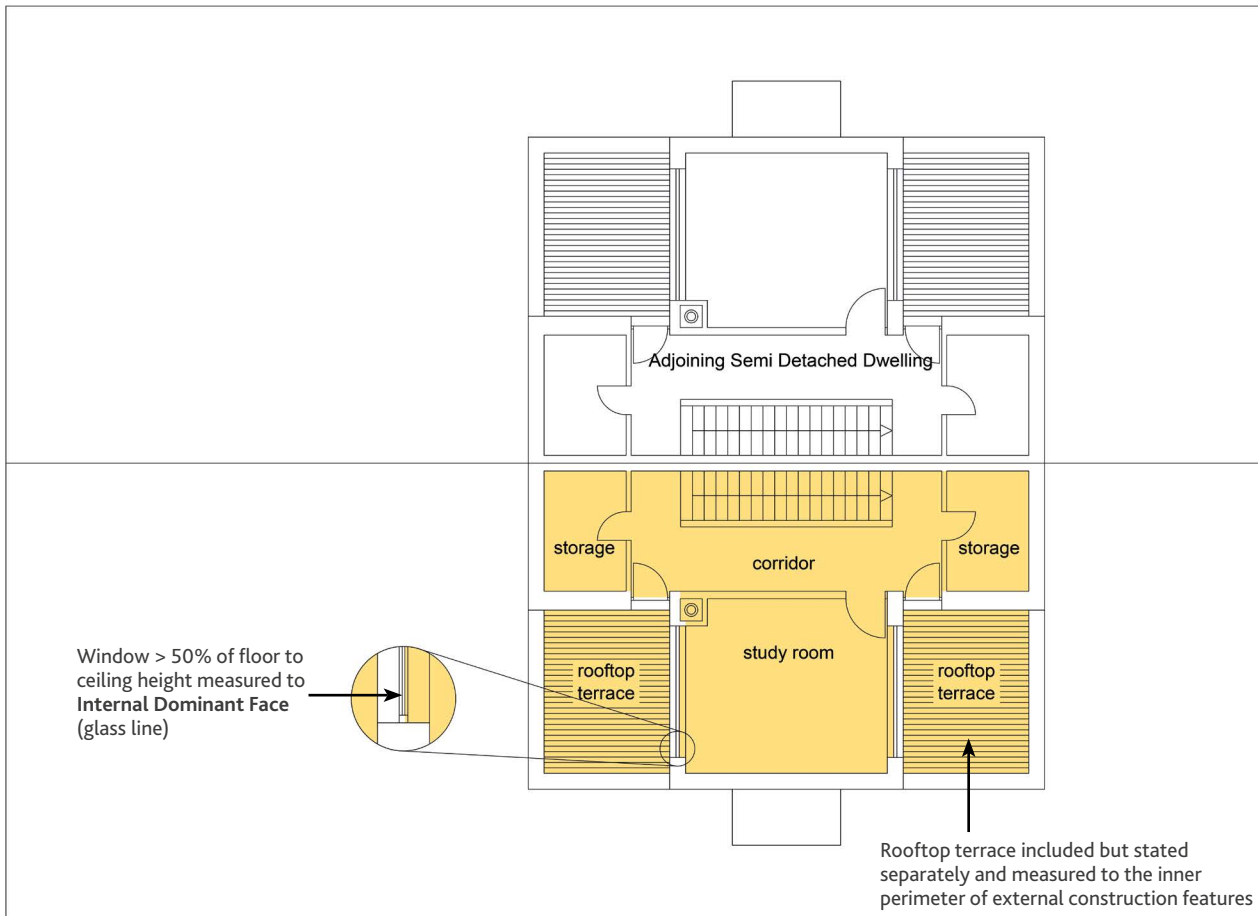
Measurements for IPMS 2 – Residential are to be taken to the Internal Dominant Face for external construction features and otherwise to the Finished Surface.

Covered void areas such as atria are only included at their lowest floor level.

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 (External Wall) must equal IPMS 2 – Residential.

For further details see section 3.2.2.

5.2.2 IPMS 2 – Residential Dwelling *continued*



Level 2

Diagram 13: IPMS 2 – Residential Dwelling Second Floor (Level 2)

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

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

Covered void areas such as atria are only included at their lowest floor level.

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 (External Wall)** must equal **IPMS 2 – Residential**.

For further details see section 3.2.2.

5.3 IPMS 3 – Residential (Occupier)

5.3.1 IPMS 3A – Residential Apartment

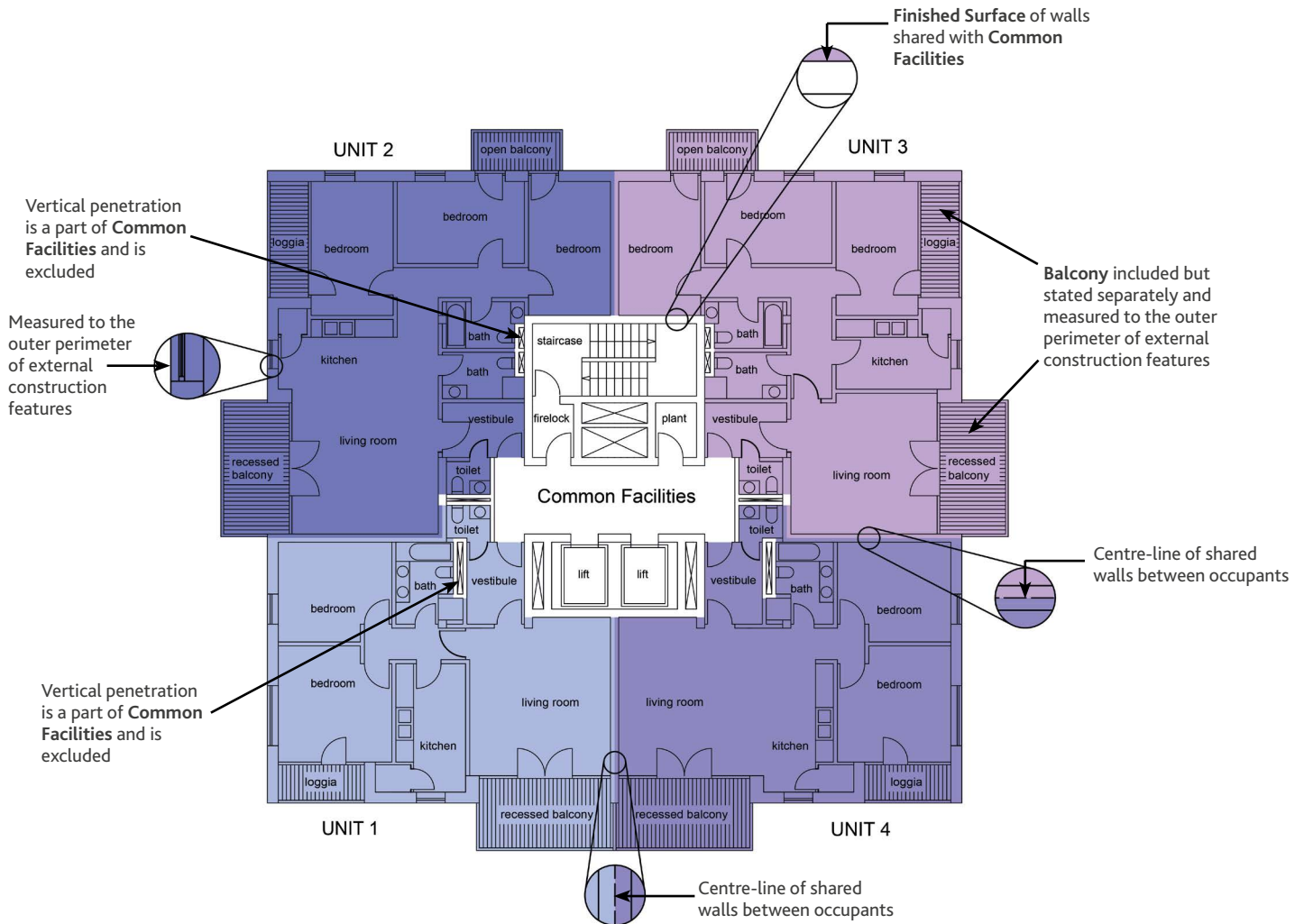


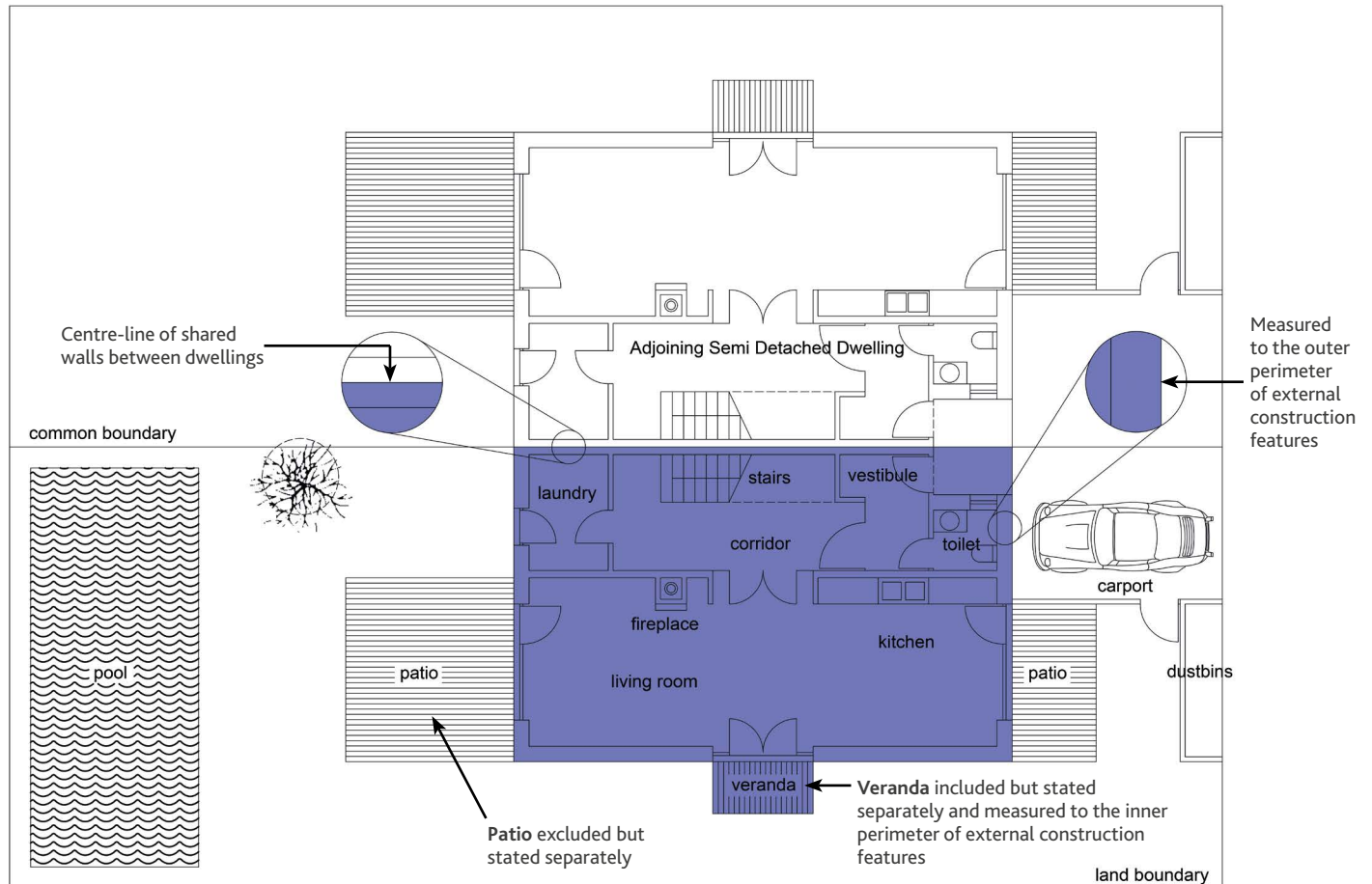
Diagram 14: IPMS 3A – Residential Apartment – Multi-Unit

IPMS 3A – Residential is the area in exclusive occupation measured to:

- the outer face of the **External Wall** and
- the centre-line of shared walls between occupants and
- the **Finished Surface** of walls shared with **Common Facilities**.

For further details see section 3.3.3.

5.3.2 IPMS 3A – Residential Dwelling



Level 0

Diagram 15: IPMS 3A – Residential Dwelling Ground Floor (Level 0)

IPMS 3A – Residential is the area in exclusive occupation measured for:

Detached dwellings

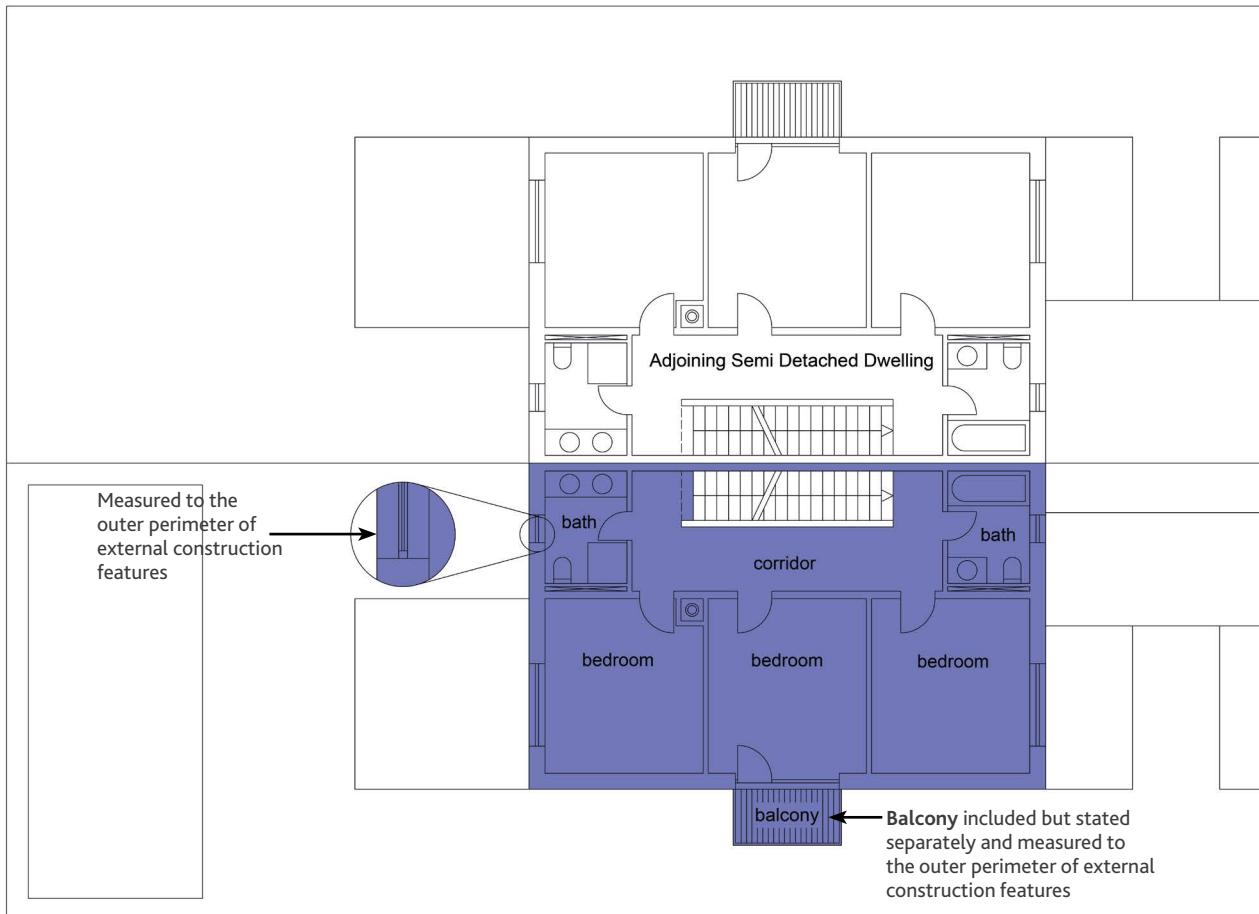
- to the outer face of the **External Wall**.

Attached dwellings

- to the outer face of the **External Wall** and
- the centre-line of shared walls between occupants.

For further details see section 3.3.3.

5.3.2 IPMS 3A – Residential Dwelling *continued*



Level 1

Diagram 16: IPMS 3A – Residential Dwelling First Floor (Level 1)

IPMS 3A – Residential is the area in exclusive occupation measured for:

Detached dwellings

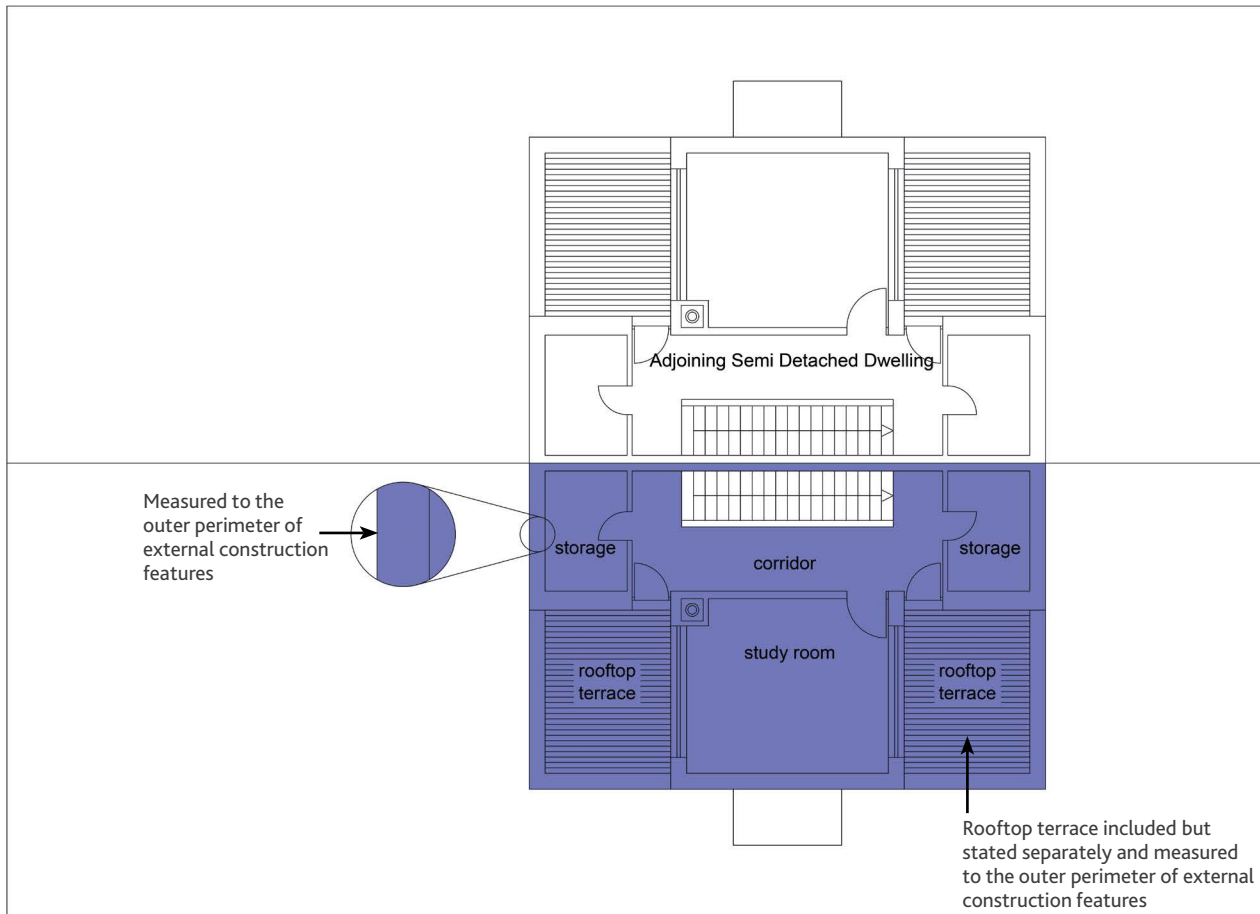
- to the outer face of the **External Wall**.

Attached dwellings

- to the outer face of the **External Wall** and
- the centre-line of shared walls between occupants.

For further details see section 3.3.3.

5.3.2 IPMS 3A – Residential Dwelling *continued*



Level 2

Diagram 17: IPMS 3A – Residential Dwelling Second Floor (Level 2)

IPMS 3A – Residential is the area in exclusive occupation measured for:

Detached dwellings

- to the outer face of the **External Wall**.

Attached dwellings

- to the outer face of the **External Wall** and
- the centre-line of shared walls between occupants.

For further details see section 3.3.3.

5.3.3 IPMS 3B – Residential Apartment

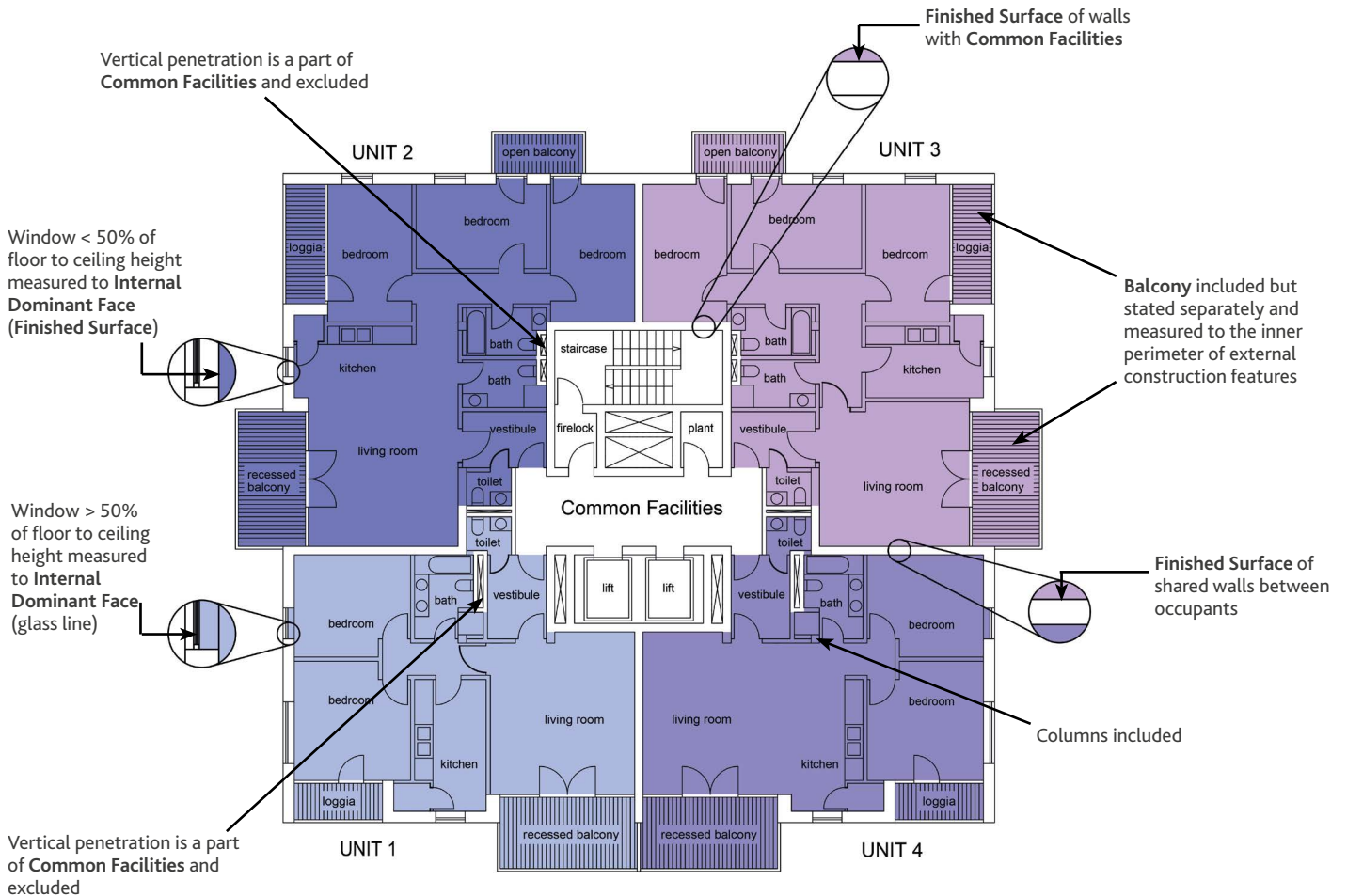


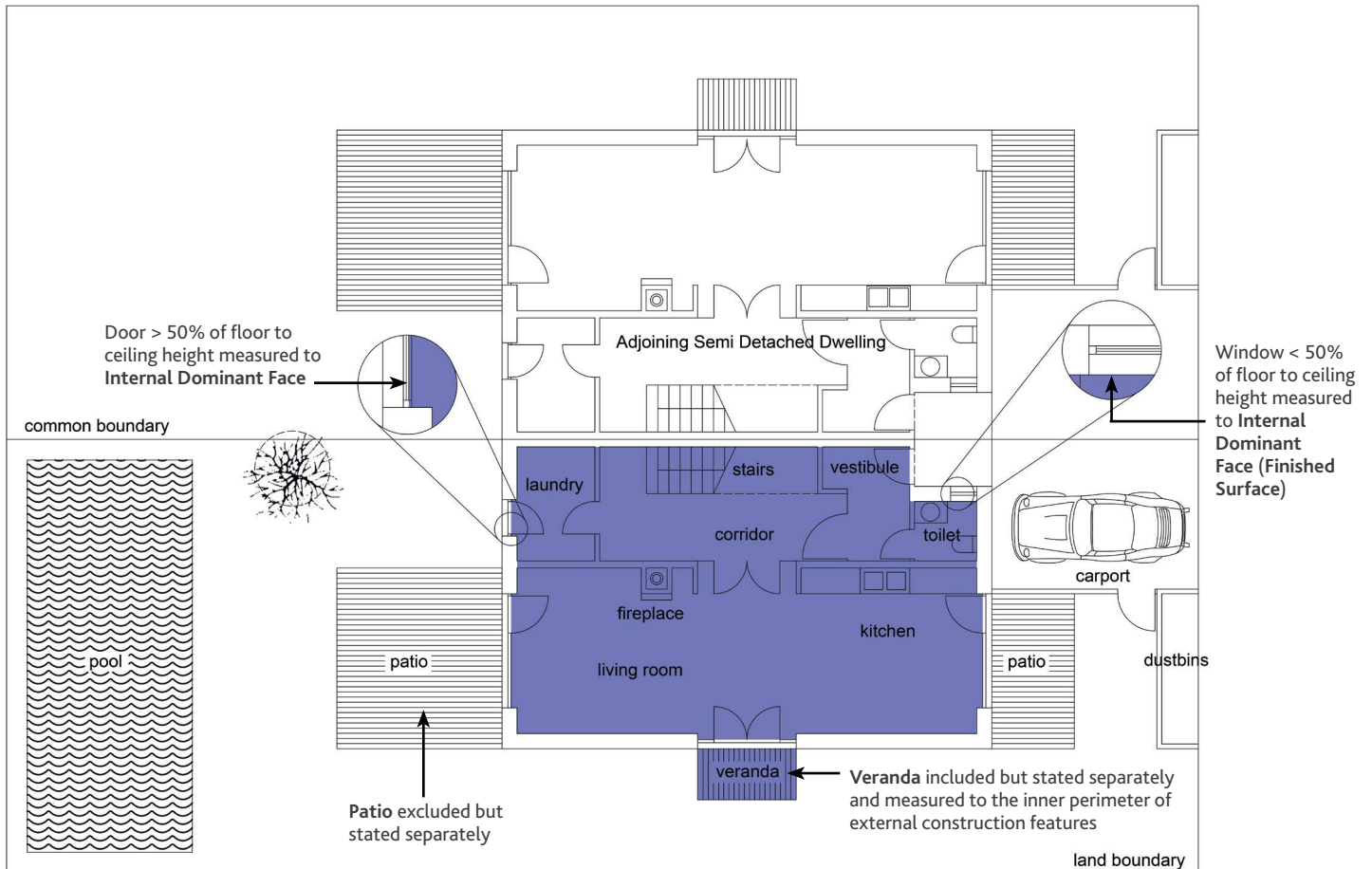
Diagram 18: IPMS 3B – Residential Apartment – Multi-Unit

IPMS 3B – Residential is the area in exclusive occupation, including the Floor Area occupied by internal walls and columns, measured to:

- the **Internal Dominant Face** and
- the **Finished Surface** of internal perimeter walls.

For further details see section 3.3.4.

5.3.4 IPMS 3B – Residential Dwelling



Level 0

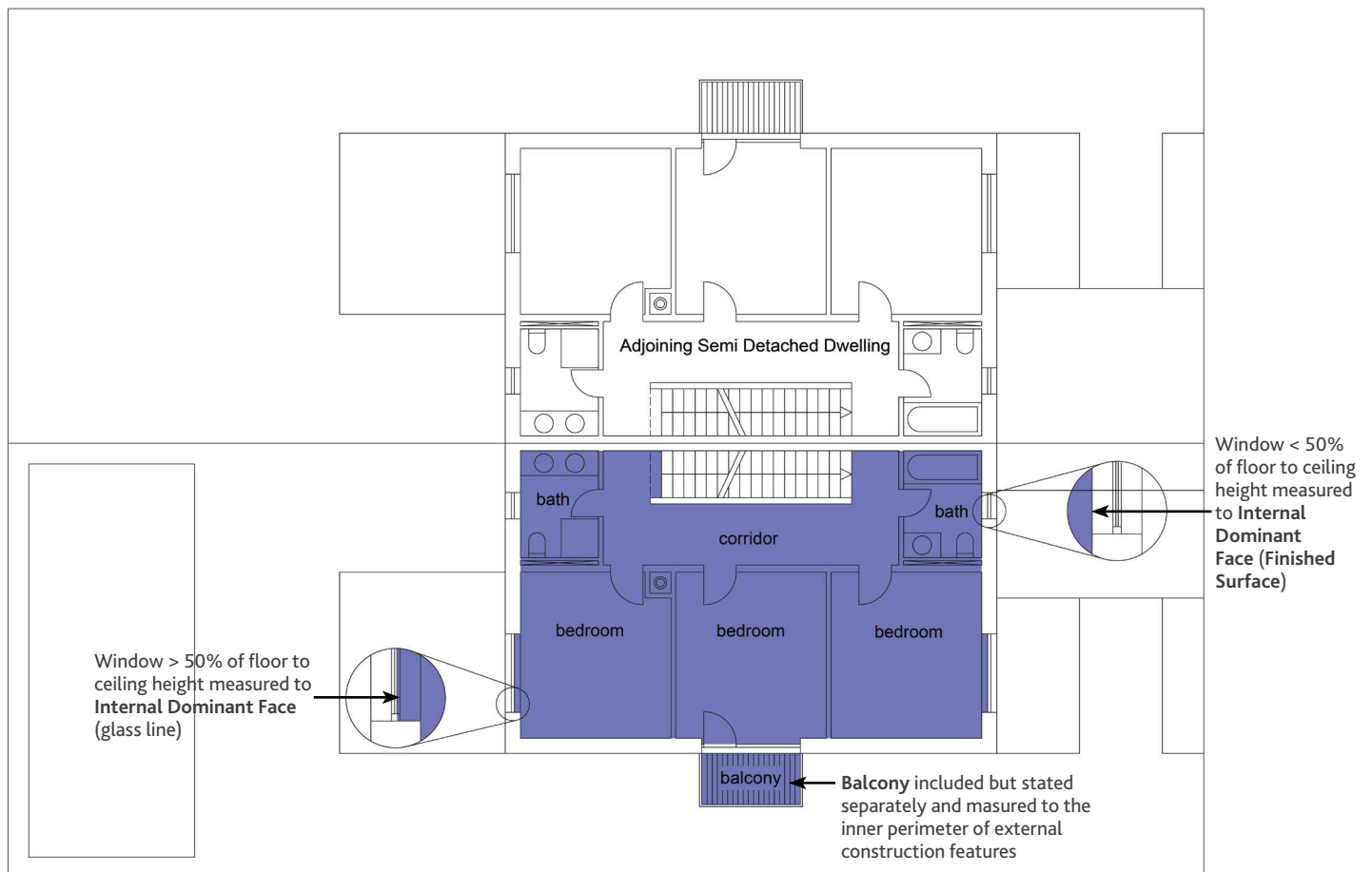
Diagram 19: IPMS 3B – Residential Dwelling Ground Floor (Level 0)

IPMS 3B – Residential is the area in exclusive occupation, including the Floor Area occupied by internal walls and columns, measured to:

- the **Internal Dominant Face** and
- the **Finished Surface** of internal perimeter walls.

For further details see section 3.3.4.

5.3.4 IPMS 3B – Residential Dwelling *continued*



Level 1

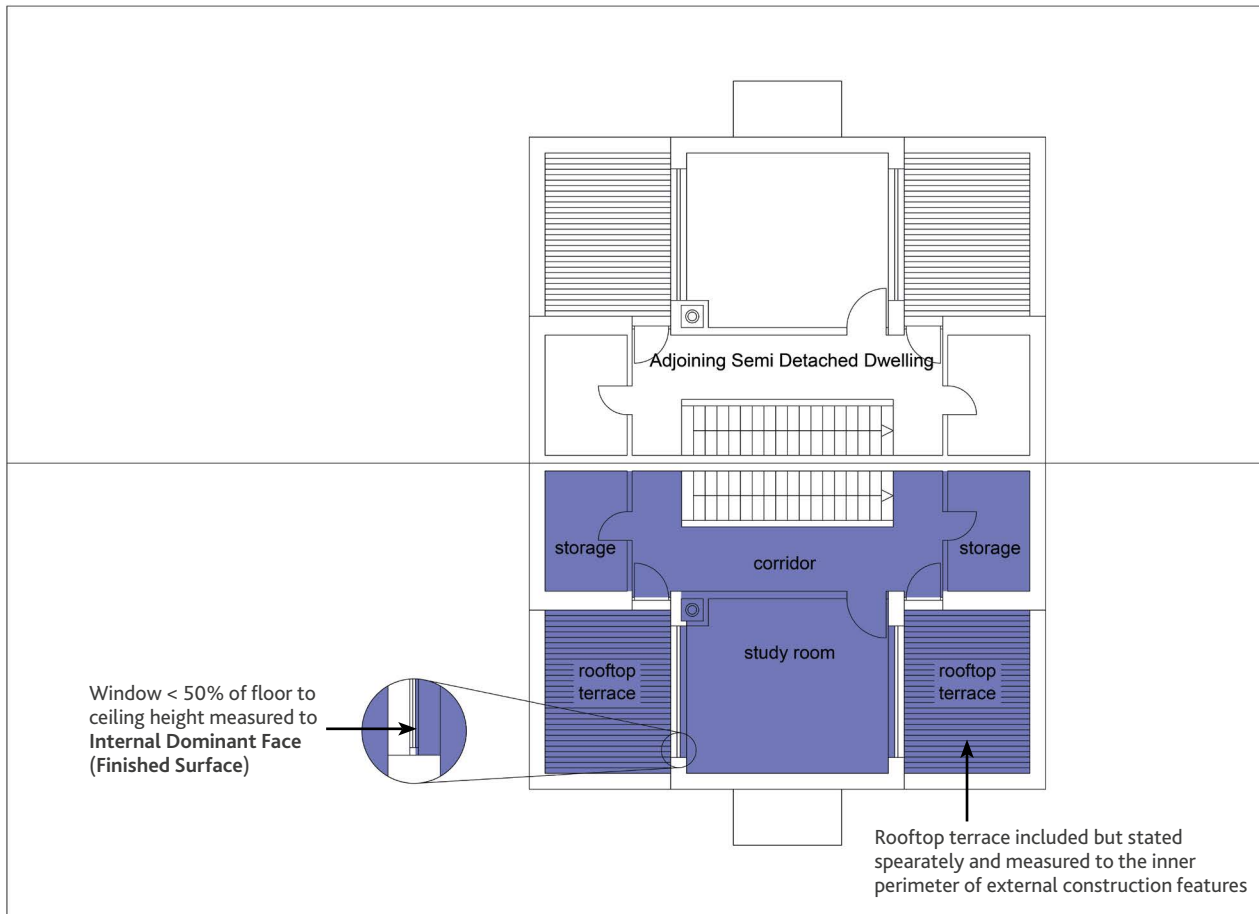
Diagram 20: IPMS 3B – Residential Dwelling First Floor (Level 1)

IPMS 3B – Residential is the area in exclusive occupation, including the Floor Area occupied by internal walls and columns, measured to:

- the **Internal Dominant Face** and
- the **Finished Surface** of internal perimeter walls.

For further details see section 3.3.4.

5.3.4 IPMS 3B – Residential Dwelling *continued*



Level 2

Diagram 21: IPMS 3B – Residential Dwelling Second Floor (Level 2)

IPMS 3B – Residential is the area in exclusive occupation, including the Floor Area occupied by internal walls and columns, measured to:

- the **Internal Dominant Face** and
- the **Finished Surface** of internal perimeter walls.

For further details see section 3.3.4.

5.3.5 IPMS 3C – Residential Apartment

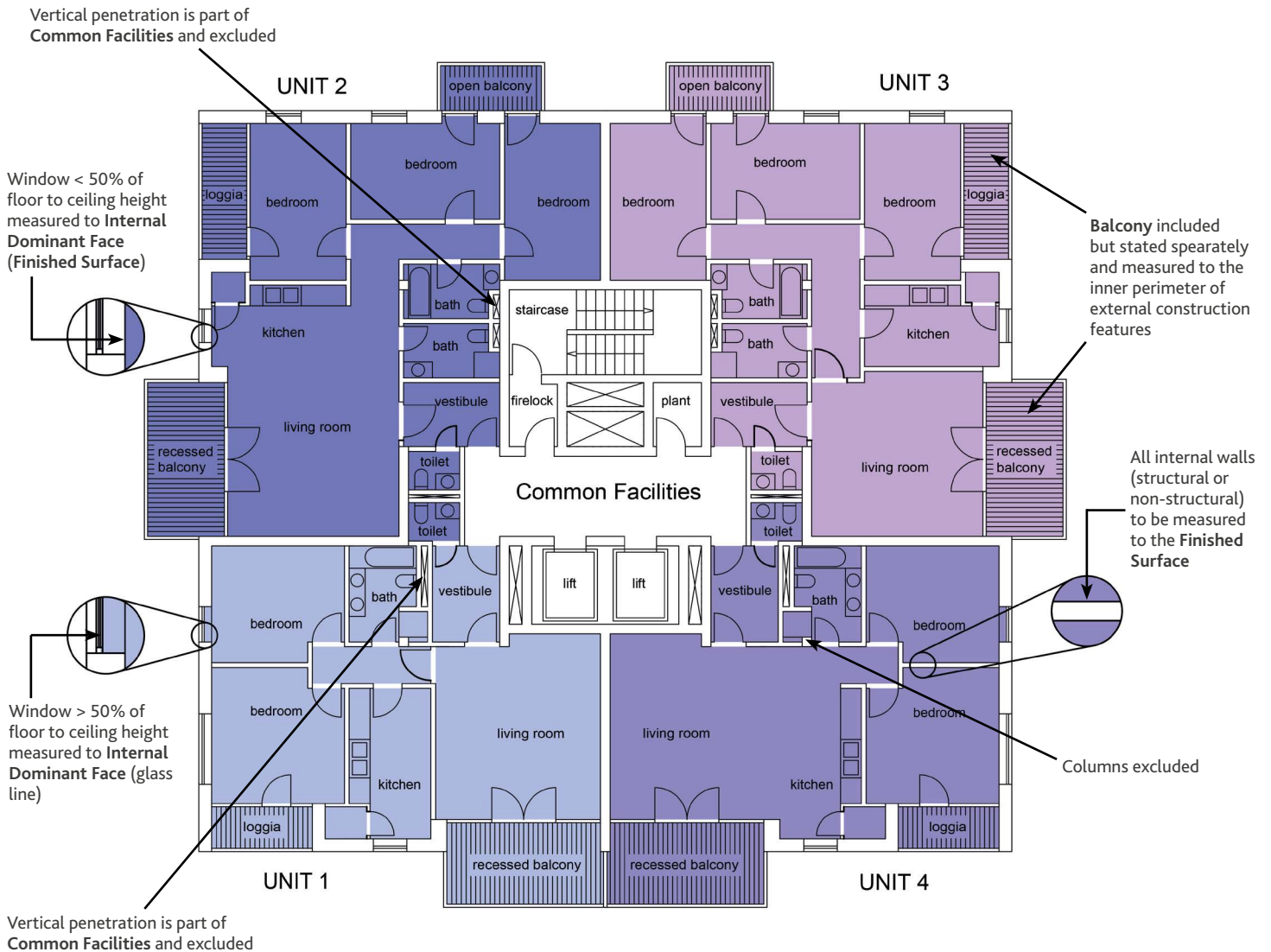


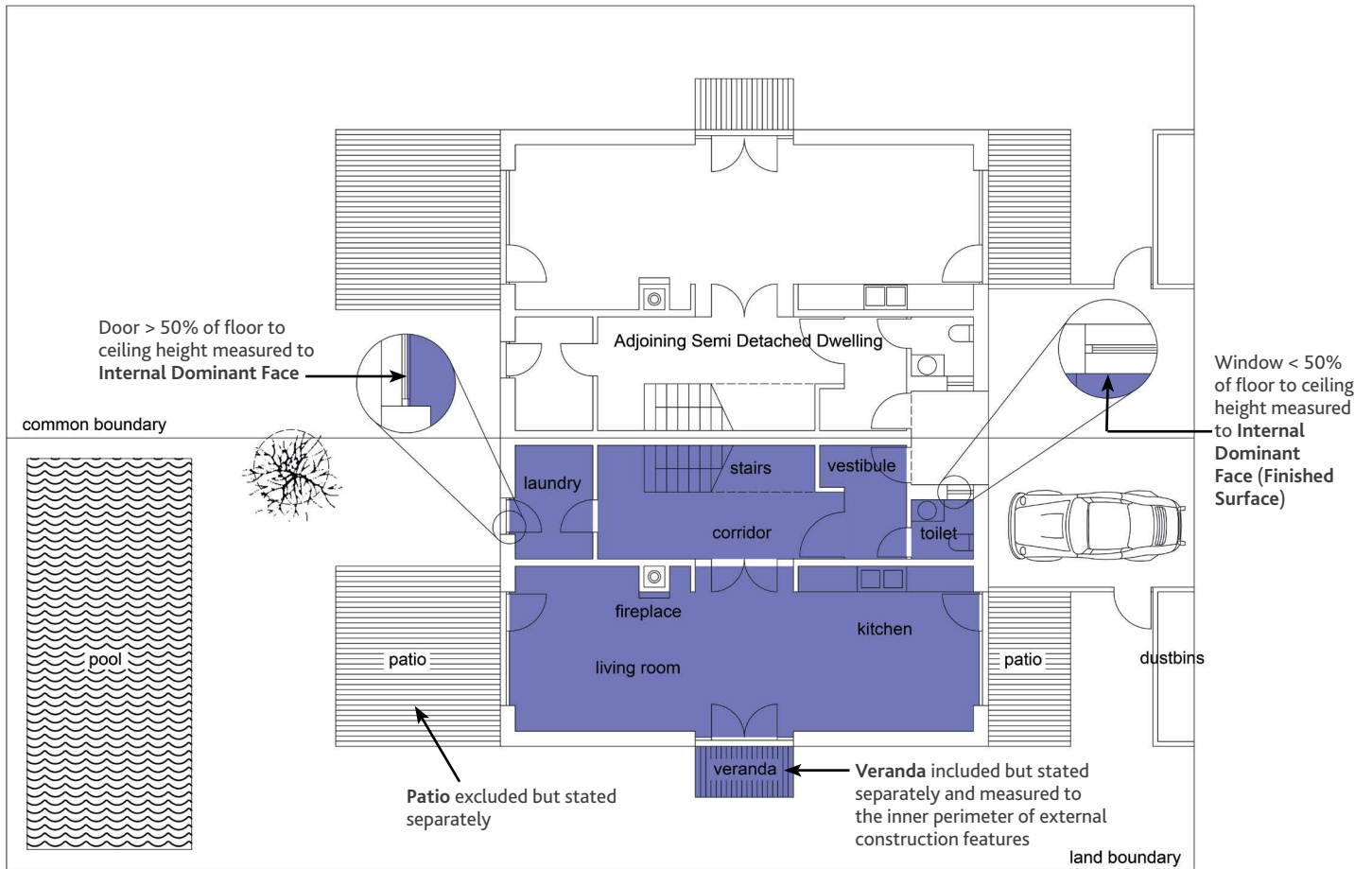
Diagram 22: IPMS 3C – Residential Apartment – Multi-Unit

IPMS 3C – Residential is 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 walls.

For further details see section 3.3.5.

5.3.6 IPMS 3C – Residential Dwelling



Level 0

Diagram 23: IPMS 3C – Residential Dwelling Ground Floor (Level 0)

IPMS 3C – Residential is 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 walls.

For further details see section 3.3.5.

5.3.6 IPMS 3C – Residential Dwelling *continued*

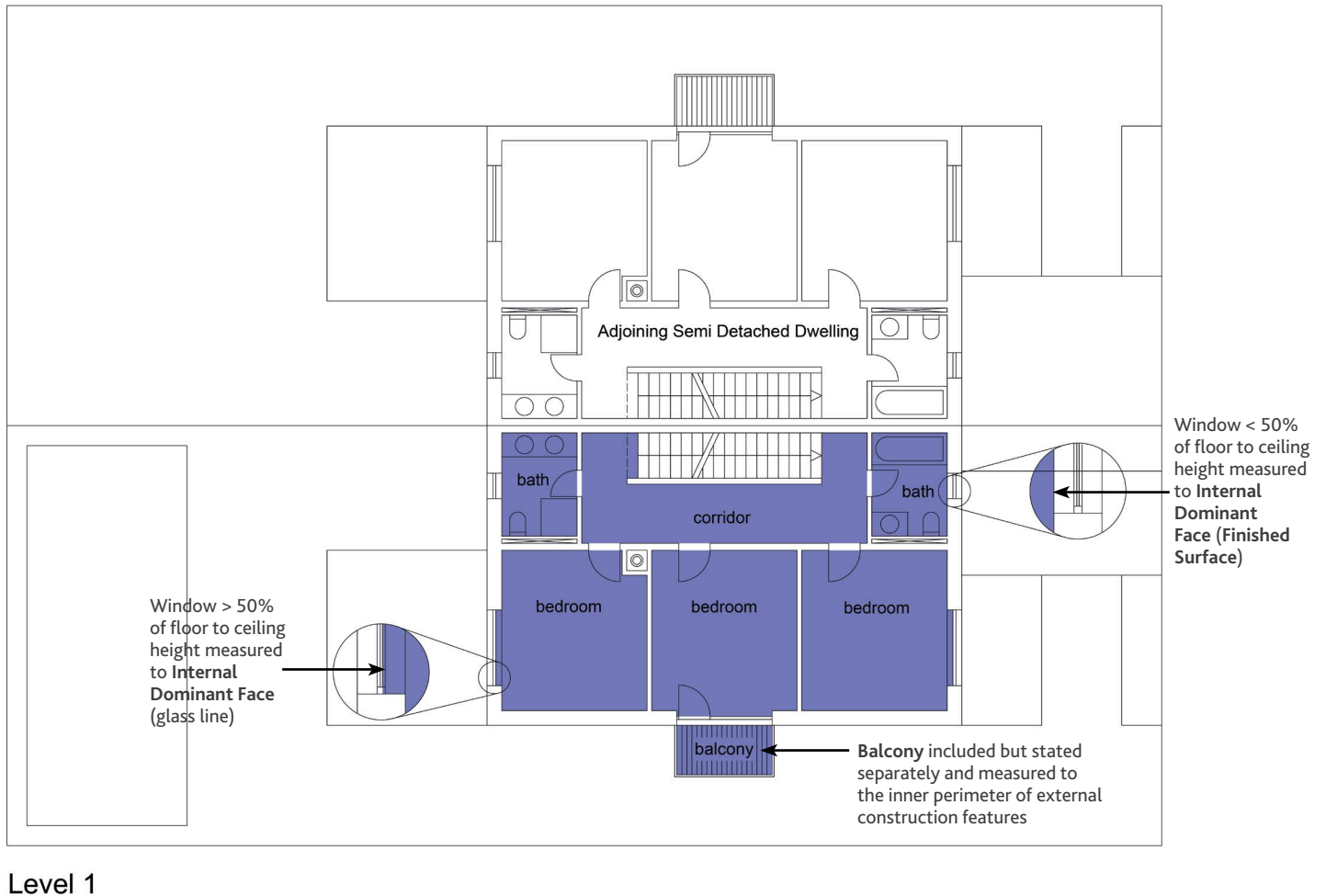


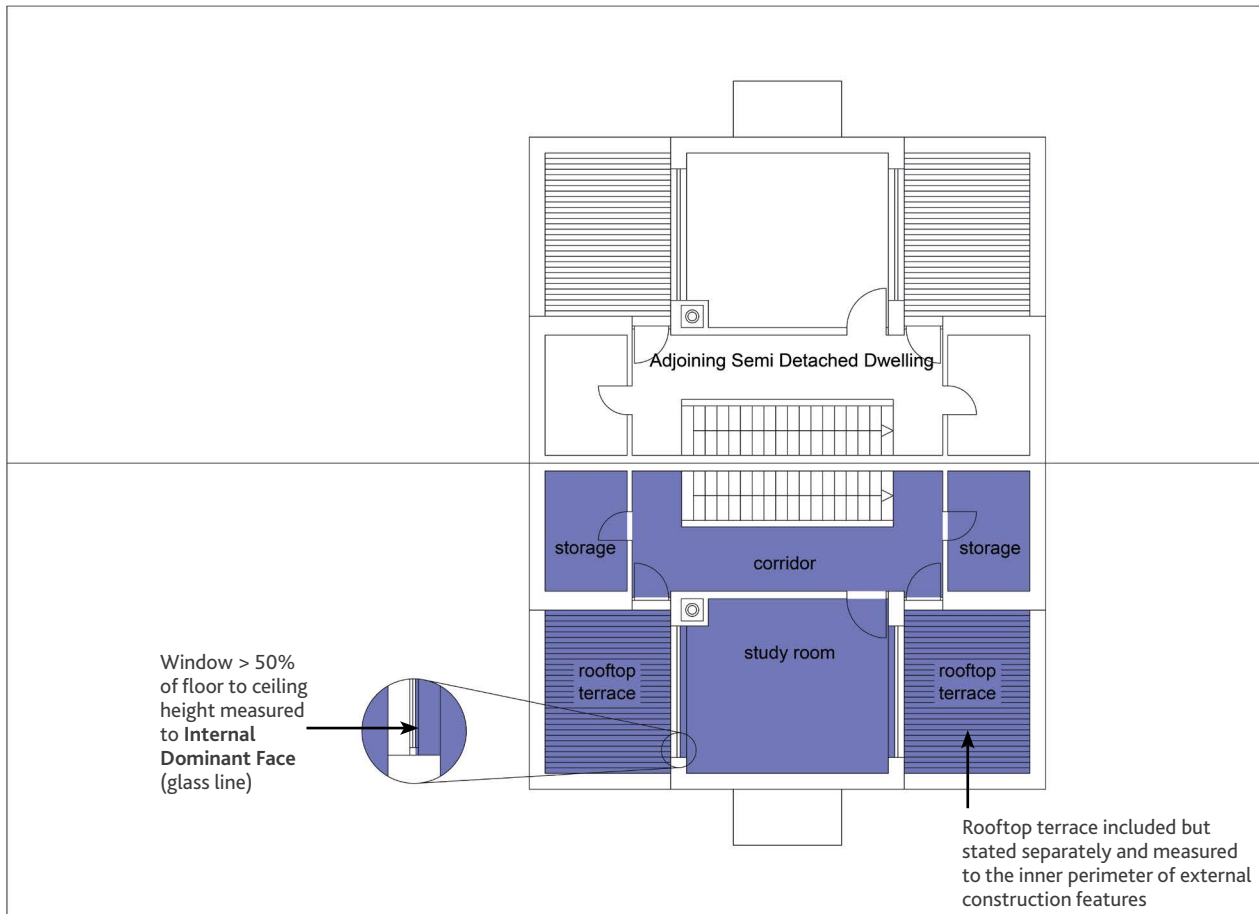
Diagram 24: IPMS 3C – Residential Dwelling First Floor (Level 1)

IPMS 3C – Residential is 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 walls.

For further details see section 3.3.5.

5.3.6 IPMS 3C – Residential Dwelling *continued*



Level 2

Diagram 25: IPMS 3C – Residential Dwelling Second Floor (Level 2)

IPMS 3C – Residential is 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 walls.

For further details see section 3.3.5.

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