

Spatial Hierarchy & Unique Property Reference Numbering (UPRN) Procedures



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|--------------------|------------------------|
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| NAME | ROLE | APPROVED Y/N | DATE |
|----------------|--------------------------|--------------|------|
| Jack Ostrofsky | Head of Quality & Design | | |
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1. Purpose:

- 1.1. To communicate Southern Housing Group's (the Group) Organisational Information Requirements* (OIRs) – **spatial hierarchy naming conventions** – within the Group's Asset Information Requirements* (AIRs), which subsequently specifies the Asset Information Model* (AIM) for projects and asset data systems.
- 1.2. This policy applies to all new build and regeneration projects. Where beneficial and reasonably practicable, they shall be applied retrospectively to the existing portfolio and across all data systems including Keystone and Orchard.

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- 1.3. Terms highlighted with an asterisk (“*”) within this policy are to be read in conjunction with the list of ISO 19650 definitions and BIM 4 Housing Associations ‘Hierarchy of information requirements’ within appendices A and B towards the end of this document.

2. Introduction

- 2.1. The Group uses a 15-digit alphanumeric Unique Property Reference Numbering (UPRN) naming convention for our estates, buildings, cores, floors, and dwellings (flats and houses). Some spaces and components are also included. UPRNs are assigned according to externally recognised spatial hierarchy standards, where larger and higher order physical areas contain the smaller and lower order areas in a structured manner.
- 2.2. The UPRNs are referenced across the Group’s business functions in all asset-related data systems and are essential for managing our assets effectively. Every single financial transaction, forecast, safety inspection or repair relies on the UPRNs.
- 2.3. Assigning UPRNs consistently so that they accurately reflect a building’s hierarchy is essential for the Golden Thread of Building Safety Information which is a regulatory requirement under the Building Safety Bill. If the AIM* does not correlate with the built asset, then our ability to understand our buildings and the steps needed to keep both the buildings and our residents safe will be severely impaired.

3. Background

3.1. Previously within the Group, UPRNs and spatial hierarchies were *administered* at the end of the development process at handover to Asset Management. The Group's Keystone Asset Management system – a software product owned by Civica Ltd.– allows users to define their own naming conventions and spatial hierarchies.

3.2. The Group generally followed a '*parent-child relationship*' between several assets. For example, a Block (External) would be the 'parent' of a Flat (Internal). The multiple options are depicted in the image right.

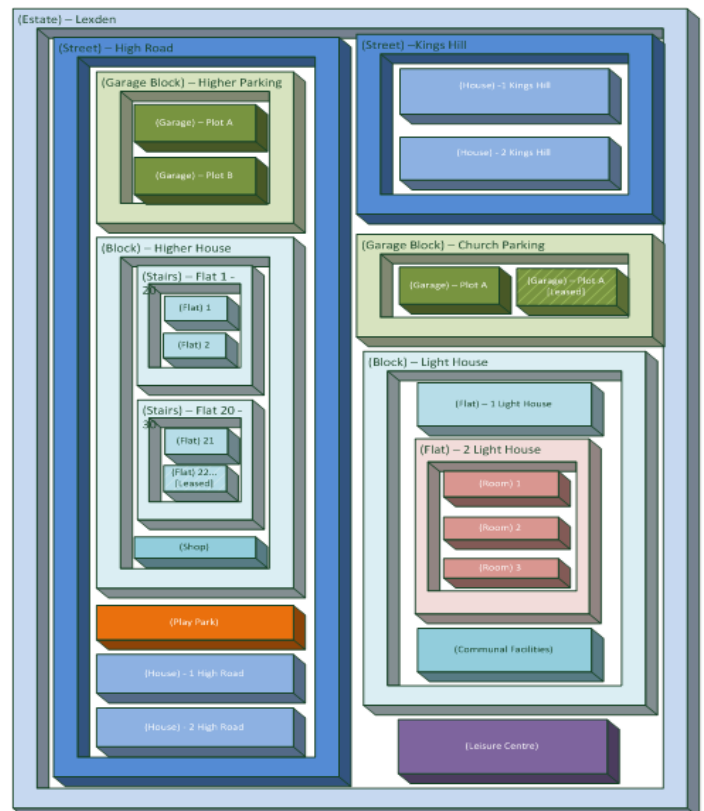
To ensure this is consistently applied so there are no different UPRN logic or spatial hierarchy configurations in any portion of the Group's property portfolio. This will prevent issues and risks relating to strategic budgeting, compliance, and fire risk management activities.

3.3. The Group's Executive Management Team (EMT) have approved the adoption of consistent building information standards to improve efficiency and help ensure building safety compliance.

This includes integrating ISO BS 19650 BIM Maturity Level 2 processes for new developments and adopting the HACT UK Housing Data Standard across the Group's activities.

3.4. UPRNs and the spatial hierarchies provide the most important data links from development Project Information Models* (PIM) to Asset Information Models (AIMs)*. Managing them consistently according to EMT approved BIM processes and EMT approved HACT Data Standards is Group requirement.

3.5. The application of the Group's UPRN naming convention and spatial hierarchy is set out over the following pages with examples.



4. Spatial Hierarchy and UPRN Naming Convention

Southern Housing uses six defined tiers for spatial areas that to any built environment typology within the Groups portfolio.



Figure 2.

A self-referencing character sequence correlates to each spatial tier's within the Group's UPRN naming convention. Therefore, the first three column characters of any UPRN describe the estate, remaining characters sequences for each tier are set out in the below table. Each tier and UPRN sequence is defined and explained for the Project Model and Asset Model in the sections below. Instructions for assigning UPRN's to spaces are provided in *italics* for each tier.

| Spatial Hierarchy & Unique Property Reference Numbering (UPRN) Naming Convention | | | | | | | | | | | | | |
|--|----------|------|------|------------------------------|-----|----------------|---------|-----|--|-----|---|-----|--|
| Hierarchy Tier | TIER 1 | | | TIER 2 | | TIER 3 | TIER 4 | | TIER 5 | | TIER 6 | | TIER 7 |
| DESCRIPTIONS | Estate | | | (Apartment) Building or Zone | | Core | Floor | | Dwelling, Plot, House, Commercial Unit, Community Space, Parking Space | | Space Types (rooms, service riser cupboards, plant rooms, external) | | Critical Components and Asset registered items |
| | text | text | text | no's or text | no. | no. | numbers | no. | no. or text | no. | no. | no. | text |
| Keystone Sequence Columns | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| COBLE Spatial Descriptor | Facility | | | Zone (Grouped Spaces) | | Zone | Floor | | Zone (Grouped Spaces) | | Space | | |
| HACT Spatial Hierarchy Descriptor | Site | | | Property | | Vertical Space | Floor | | Space Grouping | | Space | | |

Table 1.

4.1. Tier 1 (UPRN digits 1,2,3): Estate –

- A physical parcel of land and the buildings and facilities on, under or above that land parcel. Estates are assumed to be continuous and not divided by other parcels of land or features (for example roads) that are not part of the Estate. For UPRN purposes Estate is synonymous with Site, Scheme, Development Scheme.

A three-letter prefix shall be assigned in the PIM by the Group's Asset Management team.*

4.2. Tier 2 (UPRN digits 4,5): Building –

- A physical building or structure. Buildings have a strict relationship to Estates and Floors:
 - A Building can be within one and only one Estate, and wholly contains zero or more Floors.
 - Buildings may share a common border (be contiguous) with adjacent Buildings (whether they belong to the same Estate) or be separated by land or other features.
 - For contiguous/connected Buildings, identification of where the Building's boundaries lie can be determined by considering the following:
 - if building users will have a specific name - for example 'North Tower', then it should be considered a separate Building even if it is physically connected to another Building at lower levels. (Low-level connecting structures are likely to be considered their own, separate Building);
 - a building is a physical description of space that is composed of a number of Floors that - for the most part - are arranged one on top of the other (i.e. each Floor is completely or largely overlapping the Floor below); and
 - buildings also usually allow containment to be determined - someone or something should be either "in" or "out" of the Building. This can be particularly helpful when understanding Buildings that represent outside structures like surface parking, play areas or sports fields.
 - For suburban estates with multiple detached, semi-detached or terrace dwellings, this tier can be used to designate the road - or - a subdivision with the development.
- *For a multi-residential building scenario, two letters shall be assigned in the PIM* by the Architect for each Building. For example, building A = BA, building B = BB, building C = BC, etc. (Refer to Section 6 – Examples 1 to 4, pages 12 to 16)*
- *For suburban estates comprising detached, semi-detached and terrace dwellings scenario, two letters shall be assigned in the PIM* by the Architect to identify dwellings which shall sit within zones or clusters. For example, zone A = ZA, zone B = ZB, zone C = ZC, etc. (refer to Section 6 - Examples 5 and 6, pages 17 and 18).*

- **Building and Core spatial example:**

There are five buildings within a single mixed-use urban estate illustrating how divisions are paradigmed both by user perception and with physical characteristics. The teal coloured commercial space below a podium and four residential apartment blocks. Each has their own entrance(s) and coincidentally one stair core.

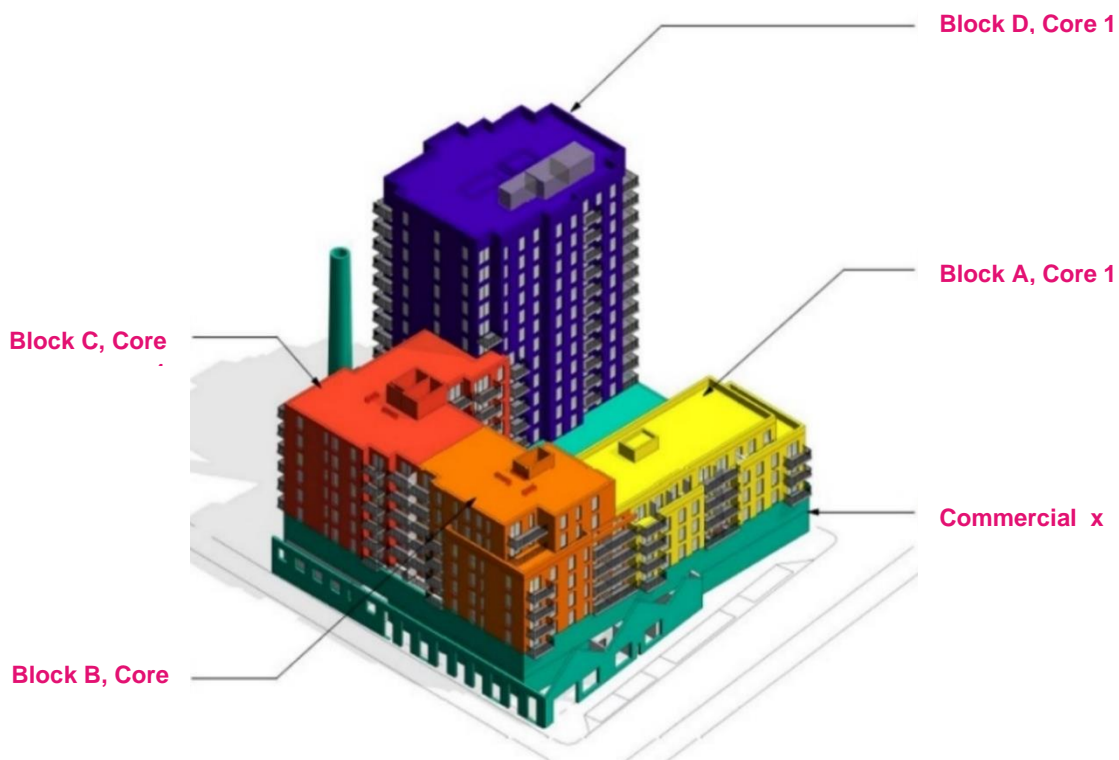


Figure 3

4.3. Tier 3 (UPRN digit 6): Core (Space Grouping) –

- Within the spatial model, communal circulation areas and vertical ancillary spaces inside a building are grouped together. Usually lobby's and landings inside stair cores, this includes lift shafts or open service risers.
- Within the AIM these are important for asset management and compliance purposes, the Group manages its compliance activities and service charges assessments across its portfolio accordingly.
- *A single numerical digit shall be assigned in the PIM* by the Architect for all the Spaces within a particular vertical stair / lift core.*

4.4. Tier 4 (UPRN digits 7,8): Floor –

- A Floor must be entirely contained within one, and only one, Building, and must have essentially a single vertical level. Although small ramps or steps may not signal a separate Floor, mezzanine areas should be identified as distinct Floors in their own right. A Floor may be inside or outside of a physical Building - carpark or podium. A Floor will usually be further subdivided into Space Groupings and Spaces.
- *Two digits shall be assigned in the PIM* by the Architect to all floors and in accordance with ISO 19650 (e.g. 02 = Level 2, M0 – Mezzanine to Level 0, B1 = Basement 1).*

4.5. Tier 5 (UPRN digits 9,10,11): Plot, Dwelling (Space Grouping) –

- Best described in the PIM spatial model as logical collections of areas sharing common attributes.
 - Within spatial and PIM these should replace plot numbers.
 - Typically comprised of several Spaces on one floor, but it could be one space and may be on more than one floor. When across floors, it should be assigned to the floor where the main entrance is or the lowest floor.
 - They should be used to inform the addresses when they are assigned, along with block and floor number from Tier's 3 and 4. Therefore flat number 3 on the seventh floor of block b should be B703.
- From an Asset Management perspective and within the Groups AIM, these are either single lettable area or single area that requires specific management activities.
 - The most frequent use is for a single dwelling such as a flat or any type of house; terrace, semi-detached or detached. This also would apply to a commercial unit, a community centre, an estate office, a parking space, or a playground.
- *For flats within a multi-residential block, the Architect shall assign in the PIM* three numerical digits referencing the flat number sequentially on each floor, starting with 01 being the first flat entrance located immediately to the left when exiting from the lift, and counting in a clockwise direction (Refer to Example 3 on pages 15 and 16).*
- *For houses, the Architect shall assign in the PIM* three numerical digits assigned to the zone or cluster that the detached, semi-detached or terraced house falls within, starting from a logical point and counting in a clockwise direction (Refer to Example 6 on page 19).*

4.6. Tier 6 (UPRN digits 12, 13): Space – Tier 5 (UPRN digits 9,10,11): Plot, Dwelling (Space Grouping) –

- This describes a single area that is entirely contained only within and on one Floor. Within the spatial model, it is a 3D dimensional volume. It would usually be described in the architectural model using a bounding line (often called a 'polyline').
- Spaces are often defined as having a single expected use. Examples include riser cupboards, rooms within a Dwelling, corridors, communal areas, and stairways. They may provide a simple way of expressing the allocation of the responsibility for the Space for maintenance or service charges according to a particular party or contractual agreement.
- *Although the Group does not currently record this UPRN tier in its AIM and Keystone Software, all spaces must be defined in the PIM*. No spatial voids may exist because of potential negative impacts on critical asset management data export from the PIM.*
- *These areas should be described within the PIM* using two numbers accordance with the Space Naming Table below for consistency across development schemes.*
- *The table still allows flexibility for varying configurations across a multitude of development typologies.*

| Space Naming Table | |
|--|----------------------------|
| Tier 6: Space | Tier 6: Space Number Range |
| Communal Circulation / Corridor | 00 |
| Dwelling Bedrooms | 01-09 |
| Dwelling Living / Dining / Kitchens | 10-19 |
| Dwelling Bathrooms / Ensuites | 20-29 |
| Dwelling Circulation / Corridor | 30-39 |
| Retail / Commercial / Community | 40-49 |
| Dwelling Utility / Storage | 50 |
| Storage Ancillary (e.g. Bike store, bin store, etc.) | 51-59 |
| Dwelling Terrace / Balcony | 60-69 |
| Lift Core / Stair Core / Service Riser | 70-79 |
| M&E Plant | 80-89 |
| Common External Space | 90-99 |

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- *On graphical information such as drawings/plans , graphics or schedules within the PIM* designers may, for visual clarity purposes, insert hyphens as separators between to separate tiers for clarity purposes, e.g. GLEN-OCC-1-07-03. Annotations on plans may be abbreviated, e.g. flat C1-07-03*
- *The full UPRN without hyphens is however required for The Group's AIM*. Any COBie or other data information exchange must reference the full number. Any Hyphens added between tiers within the PIM* for clarity must be removed for data transfer via COBie to the AIM*.*

- Hyphens must be removed to transmittals to the client, via COBie, and other Group spreadsheets, and all Group systems (e.g. Orchard and Keystone).
- A MS Excel 'substitute formula' can be used to remove hyphens/separators =SUBSTITUTE (CELL,"-", " ") so that e.g. GLN-0C-1-07-03 becomes GLN0C10703.
- In order to reduce workload, it is strongly recommended to avoid abbreviating or using hyphens for the UPRN and integrating it across and within PIM* on all graphical information including drawings, schematics, schedules, etc.
- The below image provides a graphical representation of the tiers across a multi-residential/mixed-use scenario.

4.7. Tier 7 Assigning Components within the PIM* / Unique Component Reference Numbers – UCRN

- The UCRN is an extension to self-referencing UPRN spatial reference by adding two digits at sequence column 14 and 15.
- The Group does not currently record components in the UPRNs on Keystone. Some of this information will be required for Building Safety Case and Golden Thread purposes and will be added to the Groups AIM in due course.
- Currently, contractors are required to provide photographic evidence of each instance of fire stopping installed. To structure this information each photograph must be scheduled using the following UCRN naming convention and procedures.
- This should apply to other key components and their associated schedules, e.g. fire doors windows, external doors.
- The below outlines how to assign UCRNs for fire stopping, door and window:
 - Fire Stopping –
 - Items for maintaining the fire resistance of walls or ceilings where conduits do or may pass through are essential items for information management. This includes but isn't limited to fire batts for multiple penetration seals or single seals such as collars around conduits.
 - Each penetration shall be denoted by using 2-digit alphanumeric field. UPRN followed by a according to this naming convention:
 - F1, F2, F3, etc. – numbered sequentially in the order that they are encountered when entering the apartment and turning left going clockwise.
 - They should 'belong' to the space by the floor, therefore in a flat, and SVP fire collar on the floor would be assigned to that flat, the collar to the SVP in the ceiling belongs to the flat above.
 - Doors –

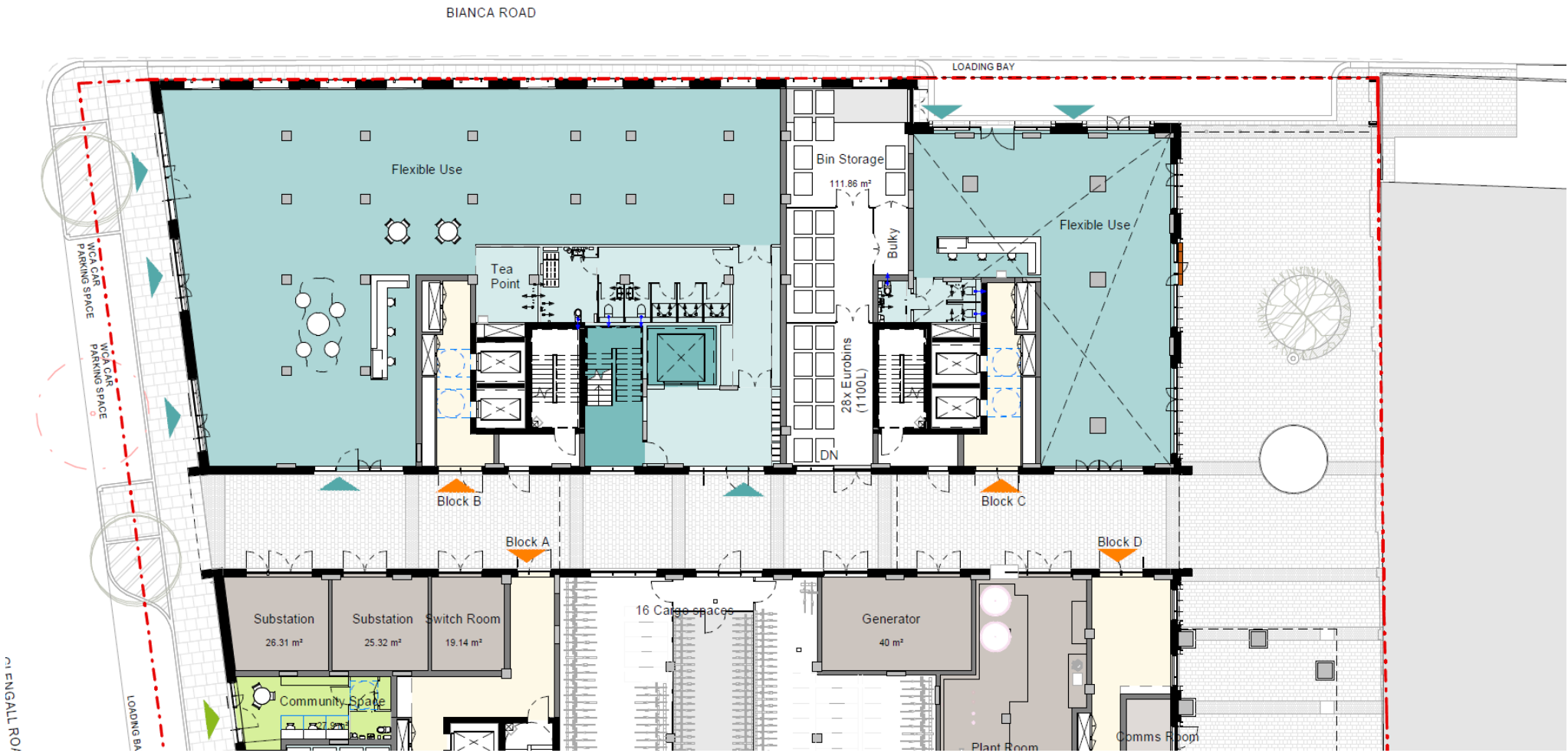
- Each door shall be denoted by an UPRN followed by a 2 digit alphanumeric field according to their unique door ID; D1, D2, D3 etc. – numbered sequentially in the order that they are encountered when entering the apartment and turning left going clockwise.
- Windows –
 - Each window shall be denoted by an apartment UPRN followed by a 2 digit alphanumeric field according to their unique window ID; W1, W2, W3, etc. – numbered sequentially in the order that they are encountered when entering the apartment and turning left going clockwise.

5. Examples

- 5.1. The equivalency table on the following pages outlines the similarities between the Group's', COBie and HACT data standards spatial hierarchies. Examples are provided on the following pages with supplementary images outlining the multi-residential and suburban estate scenarios and on how the UPRN's shall be allocated by the architect.
- 5.2. The architect shall populate and return to SHG the completed information within the 'UPRN' and 'P3 details' tabs within the P03 spreadsheet as soon as yields are locked in and in accordance with the naming conventions outlined in these procedures.
- 5.3. Any exceptions, anomalies or clarifications to these rules shall be raised with the Group's' Design & Quality Team.

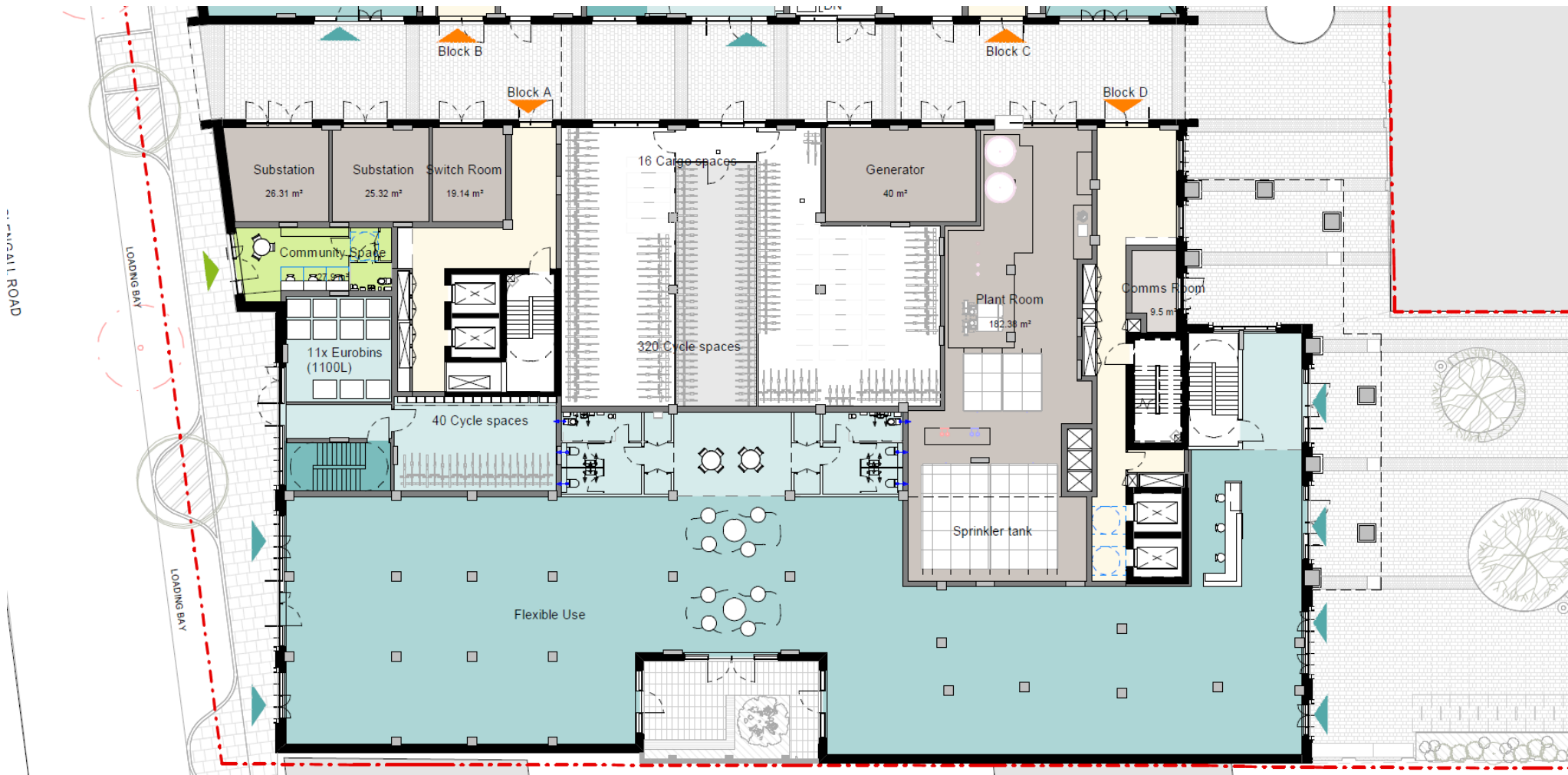
Example 1: Multi-residential/mixed-use building, ground floor (north)

| Spatial Hierarchy & Unique Property Reference Numbering (UPRN) Naming Convention | | | | | | | | | | | | | |
|--|---------------|------|------|------------------------------|---|-------------------------|--------------|---|--|----|---|-----|--|
| Hierarchy Tier | TIER 1 | | | TIER 2 | | TIER 3 | TIER 4 | | TIER 5 | | TIER 6 | | TIER 7 |
| DESCRIPTIONS | Estate | | | (Apartment) Building or Zone | | Core | Floor | | Dwelling, Plot, House, Commercial Unit, Community Space, Parking Space | | Space Types (rooms, service riser cupboards, plant rooms, external) | | Critical Components and Asset registered items |
| | text | text | text | no's or text | | no. | numbers | | no. or text | | no. | no. | text |
| Keystone Sequence Columns | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| COBie Spatial Descriptor | Facility | | | Zone (Grouped Spaces) | | Zone | Floor | | Zone (Grouped Spaces) | | Space | | |
| HACT Spatial Hierarchy Descriptor | Site | | | Property | | Verticle Space Grouping | Floor | | Space Grouping | | Space | | |
| Glengall Road, Ground Floor | Glengall Road | | | building X | | 4 cores | ground floor | | communal and ancillary | | various | | |
| Flexible Use / Commercial Tenancy 1 | G | L | E | B | X | 0 | 0 | 0 | 0 | 0 | 1 | | |
| Building B Residential Entrance | G | L | E | B | B | 1 | 0 | 0 | 0 | 0 | 0 | | |
| Building B Residential Lifts | G | L | E | B | B | 1 | 0 | 0 | 0 | 7 | 0 | | |
| Building B Residential Stairs | G | L | E | B | B | 1 | 0 | 0 | 0 | 7 | 1 | | |
| Bin Storage | G | L | E | B | X | 0 | 0 | 0 | 0 | 5 | 0 | | |
| Flexible Use / Commercial Tenancy 2 | G | L | E | B | X | 0 | 0 | 0 | 0 | 0 | 2 | | |
| Building C Residential Entrance | G | L | E | B | C | 1 | 0 | 0 | 0 | 0 | 0 | | |
| Building C Residential Lifts | G | L | E | B | C | 1 | 0 | 0 | 0 | 7 | 0 | | |
| Building C Residential Stairs | G | L | E | B | C | 1 | 0 | 0 | 0 | 7 | 1 | | |
| Glengall Road, Ground Floor External 1 | G | L | E | B | X | 1 | 0 | 0 | 0 | 9 | 0 | | |
| Bianca Road, Loading Bay | G | L | E | 0 | 0 | 0 | 0 | 0 | L | B | 1 | | |
| Glengall Road, Parking Space 1 | G | L | E | 0 | 0 | 0 | 0 | 0 | P | S | 1 | | |
| Glengall Road, Parking Space 2 | G | L | E | 0 | 0 | 0 | 0 | 0 | P | S | 2 | | |



Example 2: Multi-residential/mixed-use building, ground floor (south)

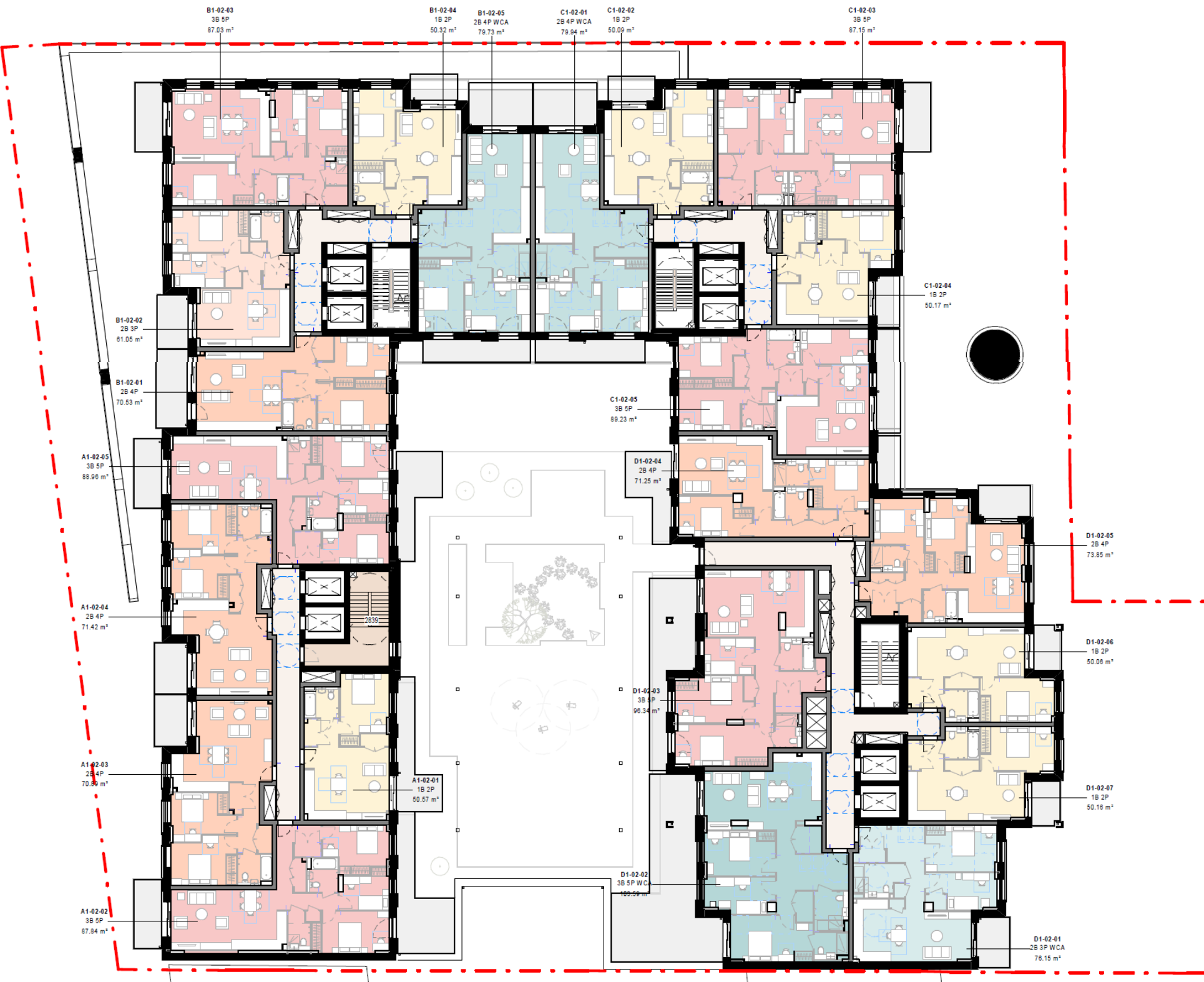
| Spatial Hierarchy & Unique Property Reference Numbering (UPRN) Naming Convention | | | | | | | | | | | | | | | |
|--|---------------|------|------|------------------------------|---|-------------------------|--------------|---|--|----|-----|---|-----|--|--------|
| Hierarchy Tier | TIER 1 | | | TIER 2 | | TIER 3 | TIER 4 | | TIER 5 | | | TIER 6 | | TIER 7 | |
| DESCRIPTIONS | Estate | | | (Apartment) Building or Zone | | Core | Floor | | Dwelling, Plot, House, Commercial Unit, Community Space, Parking Space | | | Space Types (rooms, service riser cupboards, plant rooms, external) | | Critical Components and Asset registered items | |
| | text | text | text | no's or text | | no. | numbers | | no. or text | | no. | no. | no. | text | number |
| Keystone Sequence Columns | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| COBie Spatial Descriptor | Facility | | | Zone (Grouped Spaces) | | Zone | Floor | | Zone (Grouped Spaces) | | | Space | | | |
| HACT Spatial Hierarchy Descriptor | Site | | | Property | | Verticle Space Grouping | Floor | | Space Grouping | | | Space | | | |
| Glengall Road, Ground Floor | Glengall Road | | | building X | | 4 cores | ground floor | | communal and ancillary | | | various | | | |
| Substation 1 | G | L | E | B | X | 0 | 0 | 0 | 0 | 8 | 0 | | | | |
| Substation 2 | G | L | E | B | X | 0 | 0 | 0 | 0 | 8 | 1 | | | | |
| Switch Room | G | L | E | B | X | 0 | 0 | 0 | 0 | 8 | 2 | | | | |
| Community Space | G | L | E | B | X | 0 | 0 | 0 | 0 | 4 | 0 | | | | |
| Building A Residential Entrance | G | L | E | B | B | 1 | 0 | 0 | 0 | 0 | 0 | | | | |
| Building A Residential Lifts | G | L | E | B | A | 1 | 0 | 0 | 0 | 7 | 0 | | | | |
| Building A Residential Stairs | G | L | E | B | A | 1 | 0 | 0 | 0 | 7 | 1 | | | | |
| Cycle Store | G | L | E | B | X | 0 | 0 | 0 | 0 | 5 | 0 | | | | |
| Generator | G | L | E | B | X | 0 | 0 | 0 | 0 | 8 | 3 | | | | |
| Plant Room and Sprinkler Tank | G | L | E | B | X | 0 | 0 | 0 | 0 | 8 | 4 | | | | |
| Building D Residential Entrance | G | L | E | B | D | 1 | 0 | 0 | 0 | 0 | 0 | | | | |
| Building D Residential Lifts | G | L | E | B | D | 1 | 0 | 0 | 0 | 7 | 0 | | | | |
| Building D Residential Stairs | G | L | E | B | D | 1 | 0 | 0 | 0 | 7 | 1 | | | | |
| Comms Room | G | L | E | B | X | 0 | 0 | 0 | 0 | 8 | 5 | | | | |
| Flexible Use / Commercial Tenancy 3 | G | L | E | B | X | 0 | 0 | 0 | 0 | 0 | 3 | | | | |
| Glengall Road, Ground Floor External 2 (Lightwell) | G | L | E | B | X | 0 | 0 | 0 | 0 | 9 | 1 | | | | |
| Glengall Road, Loading Bay 2 | G | L | E | 0 | 0 | 0 | 0 | 0 | L | B | 2 | | | | |
| Glengall Road, Loading Bay 3 | G | L | E | 0 | 0 | 0 | 0 | 0 | L | B | 3 | | | | |



Example 3: Multi-residential/mixed-use building, level 2 (typical) residential

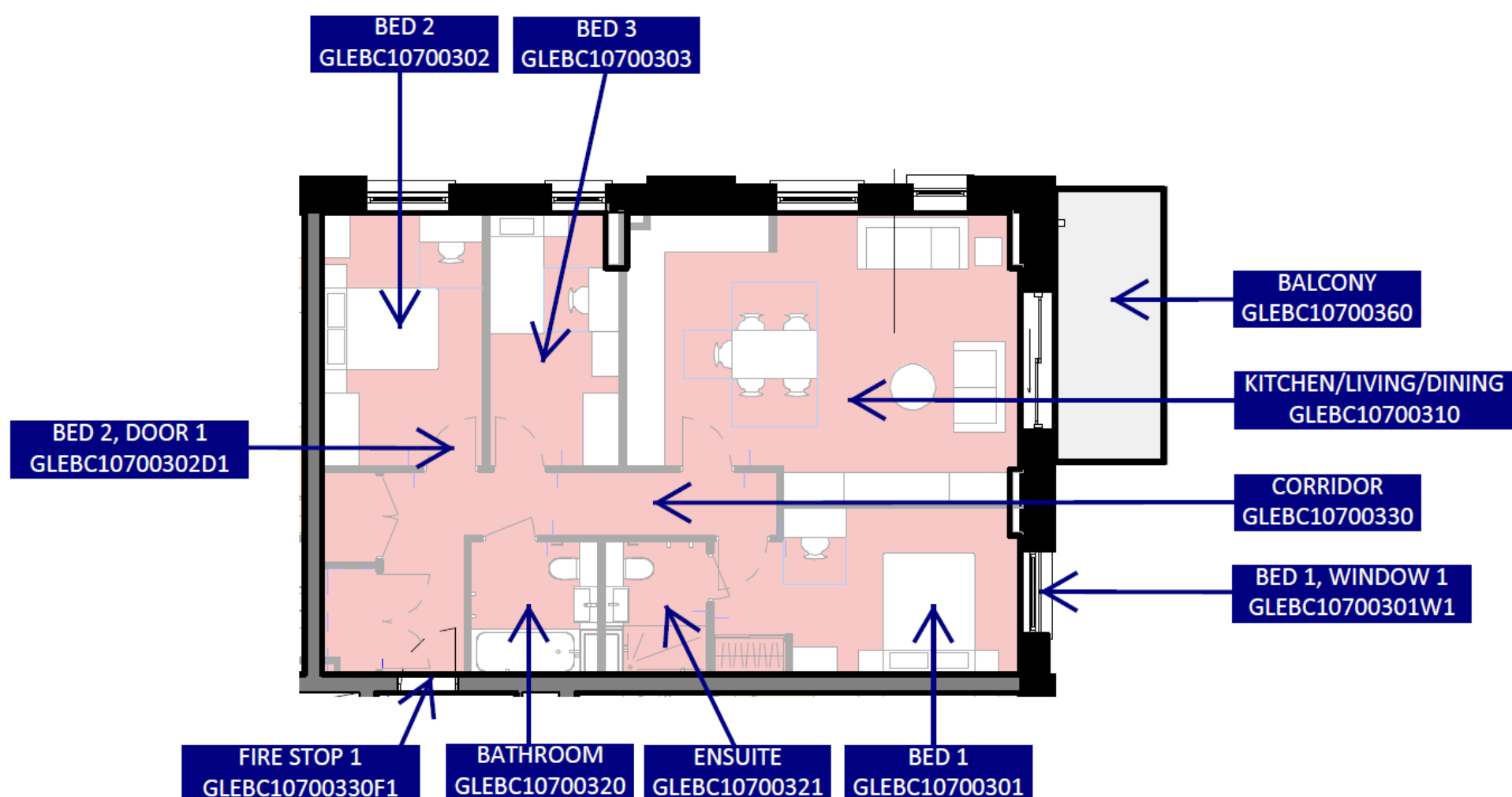
| Spatial Hierarchy & Unique Property Reference Numbering (UPRN) Naming Convention | | | | | | | | | | | | | | |
|--|---------------|------|------|------------------------------|---|-------------------------|-----------|---|--|----|----|---|-----|--|
| Hierarchy Tier | TIER 1 | | | TIER 2 | | TIER 3 | TIER 4 | | TIER 5 | | | TIER 6 | | TIER 7 |
| DESCRIPTIONS | Estate | | | (Apartment) Building or Zone | | Core | Floor | | Dwelling, Plot, House, Commercial Unit, Community Space, Parking Space | | | Space Types (rooms, service riser cupboards, plant rooms, external) | | Critical Components and Asset registered items |
| | text | text | text | no's or text | | no. | numbers | | no. or text | | | no. | no. | text |
| Keystone Sequence Columns | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| COBie Spatial Descriptor | Facility | | | Zone (Grouped Spaces) | | Zone | Floor | | Zone (Grouped Spaces) | | | Space | | |
| HACT Spatial Hierarchy Descriptor | Site | | | Property | | Vertical Space Grouping | Floor | | Space Grouping | | | Space | | |
| Glengall Road, Level 2 (Typical) Residential | Glengall Road | | | four buildings | | core | 14 floors | | 170 dwellings | | | various | | |
| A1-02-01 | G | L | E | B | A | 1 | 0 | 2 | 0 | 0 | 1 | | | |
| A1-02-02 | G | L | E | B | A | 1 | 0 | 2 | 0 | 0 | 2 | | | |
| A1-02-03 | G | L | E | B | A | 1 | 0 | 2 | 0 | 0 | 3 | | | |
| A1-02-04 | G | L | E | B | A | 1 | 0 | 2 | 0 | 0 | 4 | | | |
| A1-02-05 | G | L | E | B | A | 1 | 0 | 2 | 0 | 0 | 5 | | | |
| B1-02-01 | G | L | E | B | B | 1 | 0 | 2 | 0 | 0 | 1 | | | |
| B1-02-02 | G | L | E | B | B | 1 | 0 | 2 | 0 | 0 | 2 | | | |
| B1-02-03 | G | L | E | B | B | 1 | 0 | 2 | 0 | 0 | 3 | | | |
| B1-02-04 | G | L | E | B | B | 1 | 0 | 2 | 0 | 0 | 4 | | | |
| B1-02-05 | G | L | E | B | B | 1 | 0 | 2 | 0 | 0 | 5 | | | |
| C1-02-01 | G | L | E | B | C | 1 | 0 | 2 | 0 | 0 | 1 | | | |
| C1-02-02 | G | L | E | B | C | 1 | 0 | 2 | 0 | 0 | 2 | | | |
| C1-02-03 | G | L | E | B | C | 1 | 0 | 2 | 0 | 0 | 3 | | | |
| C1-02-04 | G | L | E | B | C | 1 | 0 | 2 | 0 | 0 | 4 | | | |
| C1-02-05 | G | L | E | B | C | 1 | 0 | 2 | 0 | 0 | 5 | | | |
| D1-02-01 | G | L | E | B | D | 1 | 0 | 2 | 0 | 0 | 1 | | | |
| D1-02-02 | G | L | E | B | D | 1 | 0 | 2 | 0 | 0 | 2 | | | |
| D1-02-03 | G | L | E | B | D | 1 | 0 | 2 | 0 | 0 | 3 | | | |
| D1-02-04 | G | L | E | B | D | 1 | 0 | 2 | 0 | 0 | 4 | | | |
| D1-02-05 | G | L | E | B | D | 1 | 0 | 2 | 0 | 0 | 5 | | | |
| D1-02-06 | G | L | E | B | D | 1 | 0 | 2 | 0 | 0 | 6 | | | |
| D1-02-07 | G | L | E | B | D | 1 | 0 | 2 | 0 | 0 | 7 | | | |
| Building D, Level 2, External Space 1 | G | L | E | B | D | 1 | 0 | 2 | 0 | 9 | 0 | | | |

Example 3: Multi-residential/mixed-use building, level 2 (typical) residential continued.

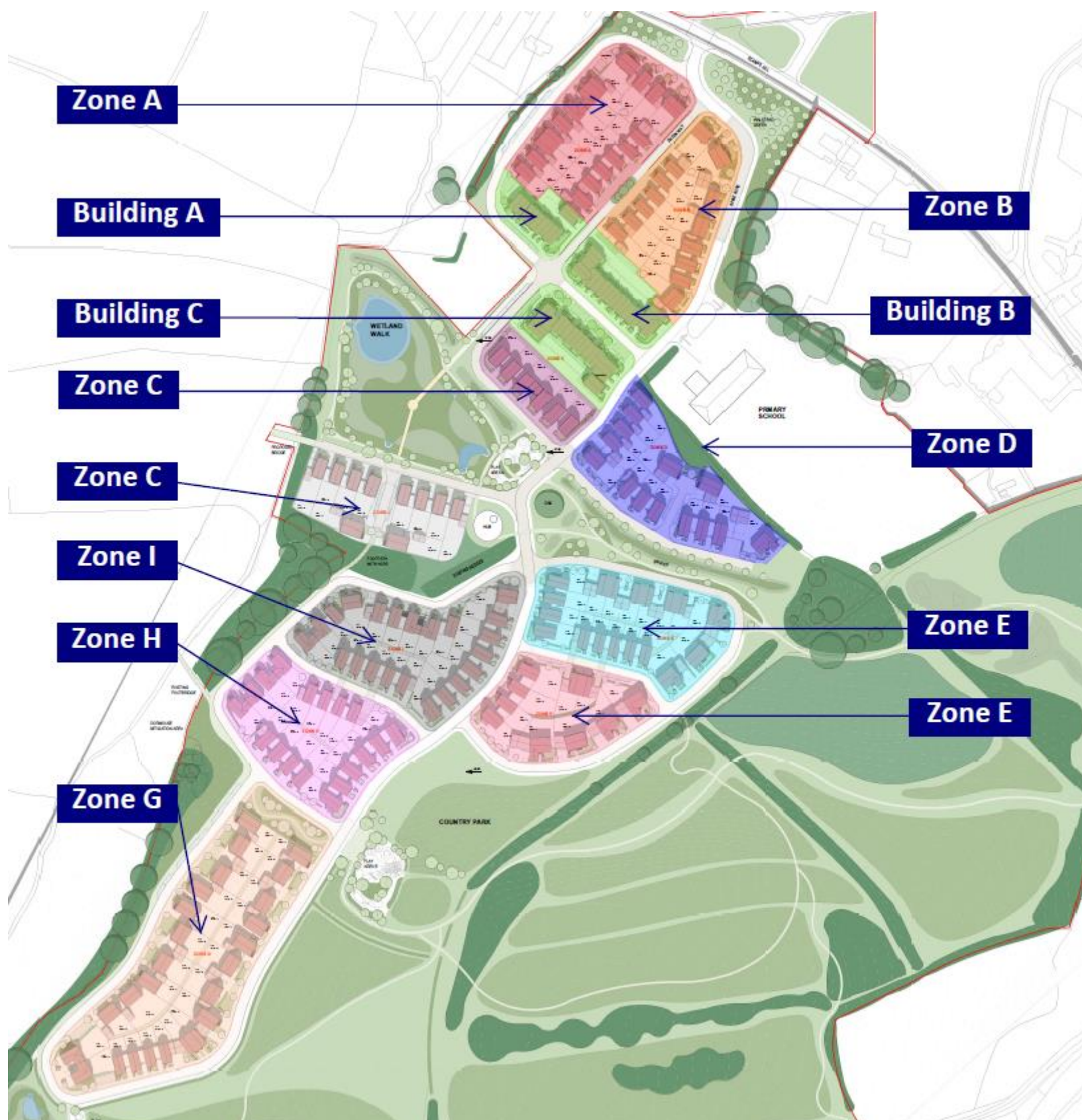


Example 4: Multi-residential/mixed-use building, building C, level 7, flat 3 (C1-07-03)

| Spatial Hierarchy & Unique Property Reference Numbering (UPRN) Naming Convention | | | | | | | | | | | | | | | |
|--|----------|------|------|------------------------------|---|-------------------------|---------|---|--|----|-----|---|-----|--|--------|
| Hierarchy Tier | TIER 1 | | | TIER 2 | | TIER 3 | TIER 4 | | TIER 5 | | | TIER 6 | | TIER 7 | |
| DESCRIPTIONS | Estate | | | (Apartment) Building or Zone | | Core | Floor | | Dwelling, Plot, House, Commercial Unit, Community Space, Parking Space | | | Space Types (rooms, service riser cupboards, plant rooms, external) | | Critical Components and Asset registered items | |
| | text | text | text | no's or text | | no. | numbers | | no. or text | | no. | no. | no. | text | number |
| Keystone Sequence Columns | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| COBie Spatial Descriptor | Facility | | | Zone (Grouped Spaces) | | Zone | Floor | | Zone (Grouped Spaces) | | | Space | | | |
| HACT Spatial Hierarchy Descriptor | Site | | | Property | | Verticle Space Grouping | Floor | | Space Grouping | | | Space | | | |
| Glengall Road, Building C, Floor 7, Flat 3 | | | | | | | | | | | | | | | |
| Flat C1-07-03 | G | L | E | B | C | 1 | 0 | 7 | 0 | 0 | 3 | | | | |
| Bedroom 2 | G | L | E | B | C | 1 | 0 | 7 | 0 | 0 | 3 | 0 | 2 | | |
| Bedroom 3 | G | L | E | B | C | 1 | 0 | 7 | 0 | 0 | 3 | 0 | 3 | | |
| Balcony | G | L | E | B | C | 1 | 0 | 7 | 0 | 0 | 3 | 6 | 0 | | |
| Kitchen/Living/Dining Room | G | L | E | B | C | 1 | 0 | 7 | 0 | 0 | 3 | 1 | 0 | | |
| Corridor | G | L | E | B | C | 1 | 0 | 7 | 0 | 0 | 3 | 3 | 0 | | |
| Bedroom 1, Window 1 | G | L | E | B | C | 1 | 0 | 7 | 0 | 0 | 3 | 0 | 1 | W | 1 |
| Bedroom 1 | G | L | E | B | C | 1 | 0 | 7 | 0 | 0 | 3 | 0 | 1 | | |
| Ensuite | G | L | E | B | C | 1 | 0 | 7 | 0 | 0 | 3 | 2 | 1 | | |
| Bathroom | G | L | E | B | C | 1 | 0 | 7 | 0 | 0 | 3 | 2 | 0 | | |
| Corridor, Fire Stopping 1 | G | L | E | B | C | 1 | 0 | 7 | 0 | 0 | 3 | 3 | 0 | F | 1 |
| Bedroom 2, Door 1 | G | L | E | B | C | 1 | 0 | 7 | 0 | 0 | 3 | 0 | 2 | D | 1 |



Example 5: Suburban estate split into zones and comprising detached, semi-detached and terrace dwellings



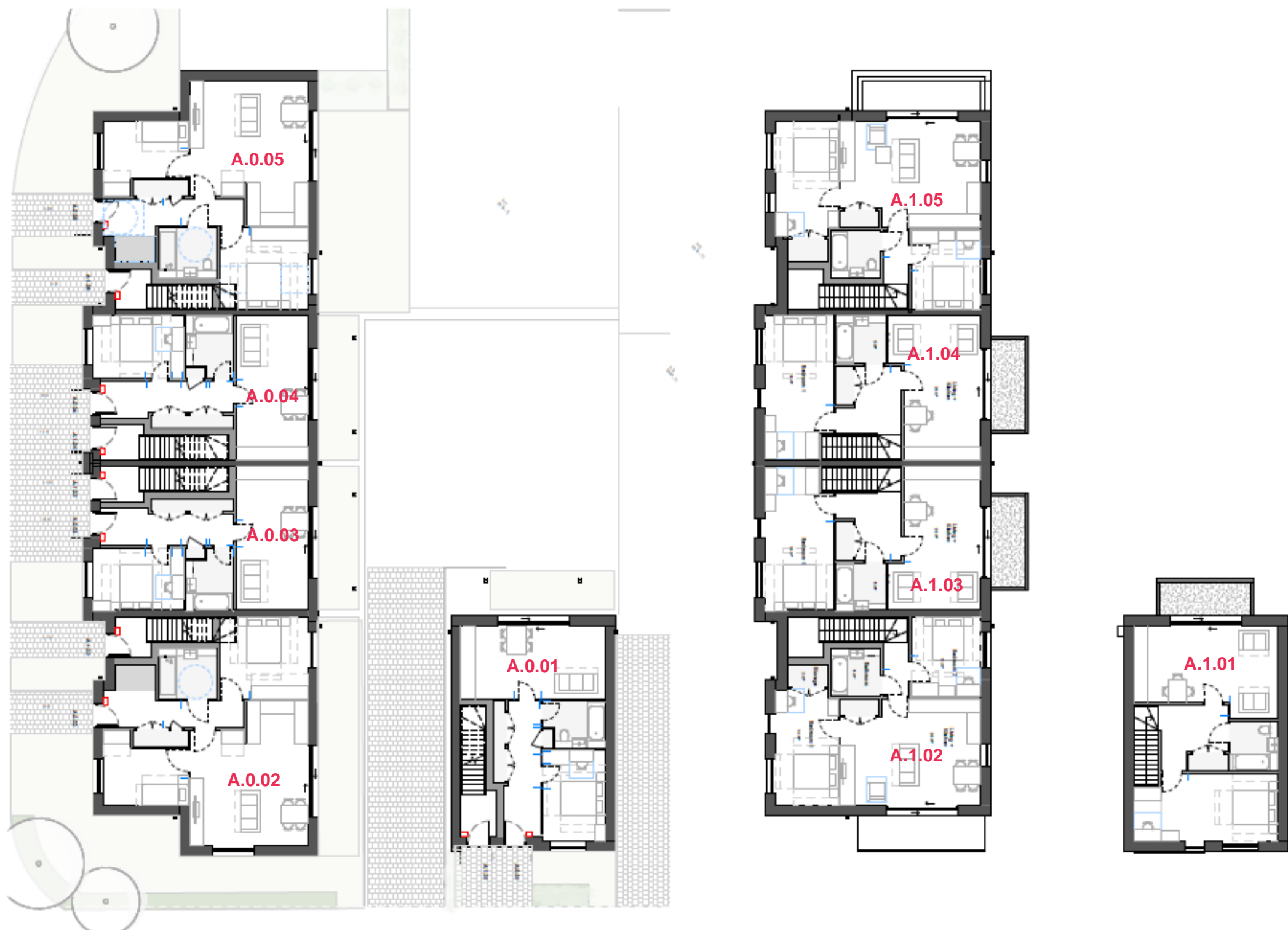
Example 6: Zone H, dwellings H.01 to H.18

| Spatial Hierarchy & Unique Property Reference Numbering (UPRN) Naming Convention | | | | | | | | | | | | | | | |
|--|---------------|------|------|------------------------------|---|-------------------------|--------------|---|--|----|-----|---|-----|---|--------|
| Hierarchy Tier | TIER 1 | | | TIER 2 | | TIER 3 | TIER 4 | | TIER 5 | | | TIER 6 | | TIER 7 | |
| DESCRIPTIONS | Estate | | | (Apartment) Building or Zone | | Core | Floor | | Dwelling, Plot, House, Commercial Unit, Community Space, Parking Space | | | Space Types (rooms, service riser cupboards, plant rooms, external) | | Critical Component and Asset registered items | |
| | text | text | text | no's or text | | no. | numbers | | no. or text | | no. | no. | no. | text | number |
| Keystone Sequence Columns | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| COBie Spatial Descriptor | Facility | | | Zone (Grouped Spaces) | | Zone | Floor | | Zone (Grouped Spaces) | | | Space | | | |
| HACT Spatial Hierarchy Descriptor | Site | | | Property | | Vertical Space Grouping | Floor | | Space Grouping | | | Space | | | |
| Walstead Park, Zone H, Dwellings H.01 to H.18 | Walstead Park | | | zone H | | core | ground floor | | 18 dwellings | | | various | | | |
| H.01 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 1 | | | | |
| H.02 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 2 | | | | |
| H.03 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 3 | | | | |
| H.04 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 4 | | | | |
| H.05 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 5 | | | | |
| H.06 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 6 | | | | |
| H.07 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 7 | | | | |
| H.08 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 8 | | | | |
| H.09 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 9 | | | | |
| H.10 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 10 | | | | |
| H.11 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 11 | | | | |
| H.12 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 12 | | | | |
| H.13 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 13 | | | | |
| H.14 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 14 | | | | |
| H.15 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 15 | | | | |
| H.16 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 16 | | | | |
| H.17 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 17 | | | | |
| H.18 | W | L | T | Z | H | 0 | 0 | 0 | 0 | 0 | 18 | | | | |



Example 7: Building A, dwellings A.0.01 to A.0.05 and A.1.01 to A.1.05

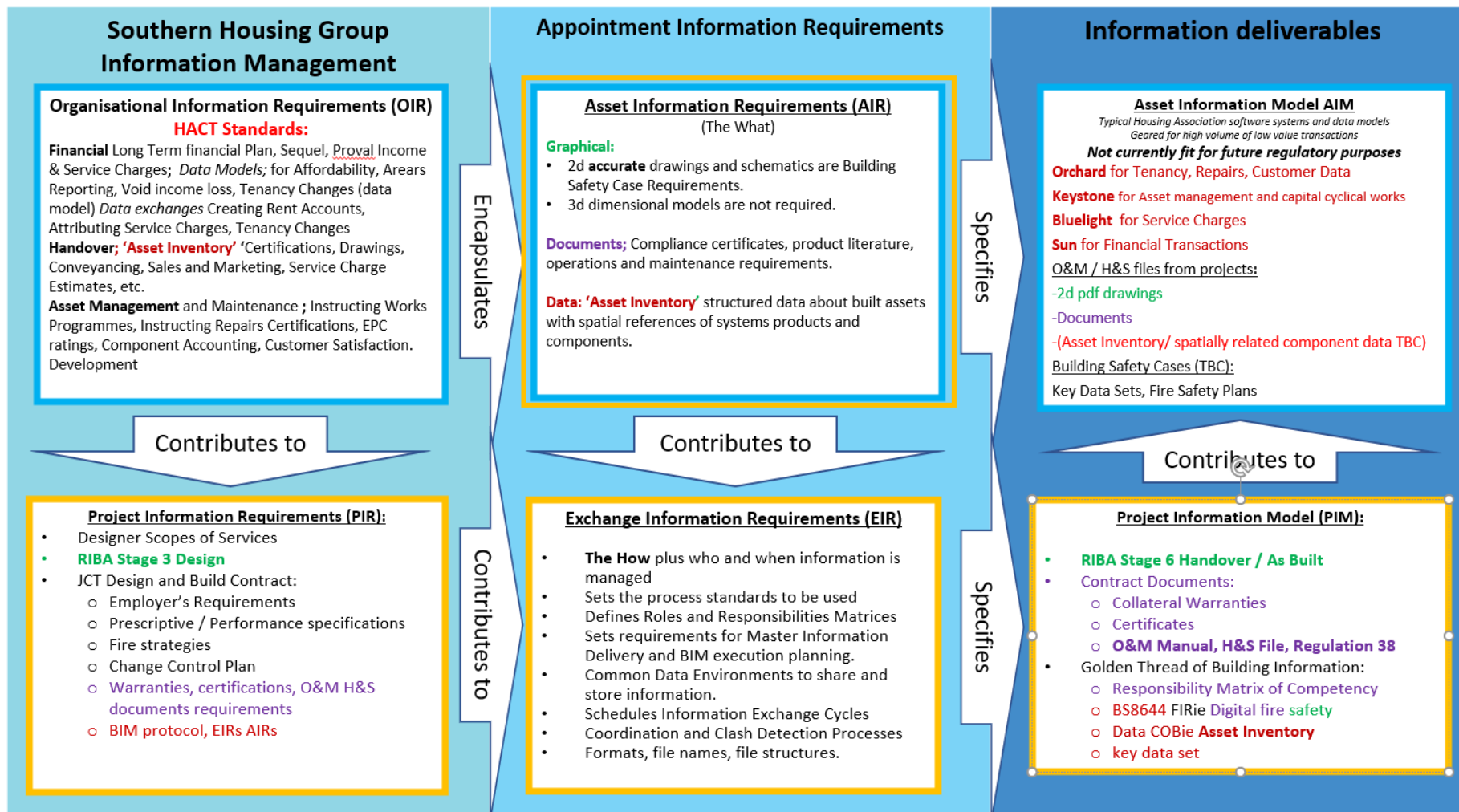
| Spatial Hierarchy & Unique Property Reference Numbering (UPRN) Naming Convention | | | | | | | | | | | | | | | |
|--|---------------|------|------|------------------------------|---|-------------------------|--------------|---|--|----|-----|---|-----|---|----|
| Hierarchy Tier | TIER 1 | | | TIER 2 | | TIER 3 | TIER 4 | | TIER 5 | | | TIER 6 | | TIER 7 | |
| DESCRIPTIONS | Estate | | | (Apartment) Building or Zone | | Core | Floor | | Dwelling, Plot, House, Commercial Unit, Community Space, Parking Space | | | Space Types (rooms, service riser cupboards, plant rooms, external) | | Critical Component and Asset registered items | |
| | text | text | text | no's or text | | no. | numbers | | no. or text | | no. | no. | no. | no. | |
| Keystone Sequence Columns | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| COBie Spatial Descriptor | Facility | | | Zone (Grouped Spaces) | | Zone | Floor | | Zone (Grouped Spaces) | | | Space | | | |
| HACT Spatial Hierarchy Descriptor | Site | | | Property | | Vehicle Space Groupings | Floor | | Space Grouping | | | Space | | | |
| Walstead Park, Apartment Building A, Ground Floor | Walstead Park | | | building A | | no core | ground floor | | 5 flats | | | various | | | |
| A.0.01 | W | L | T | B | A | 0 | 0 | 0 | 0 | 0 | 1 | | | | |
| A.0.02 | W | L | T | B | A | 0 | 0 | 0 | 0 | 0 | 2 | | | | |
| A.0.03 | W | L | T | B | A | 0 | 0 | 0 | 0 | 0 | 3 | | | | |
| A.0.04 | W | L | T | B | A | 0 | 0 | 0 | 0 | 0 | 4 | | | | |
| A.0.05 | W | L | T | B | A | 0 | 0 | 0 | 0 | 0 | 5 | | | | |
| Walstead Park, Apartment Building A, First Floor | Walstead Park | | | building A | | no core | first floor | | 5 flats | | | various | | | |
| A.1.01 | W | L | T | B | A | 0 | 0 | 1 | 0 | 0 | 1 | | | | |
| A.1.02 | W | L | T | B | A | 0 | 0 | 1 | 0 | 0 | 2 | | | | |
| A.1.03 | W | L | T | B | A | 0 | 0 | 1 | 0 | 0 | 3 | | | | |
| A.1.04 | W | L | T | B | A | 0 | 0 | 1 | 0 | 0 | 4 | | | | |
| A.1.05 | W | L | T | B | A | 0 | 0 | 1 | 0 | 0 | 5 | | | | |



6. Appendix A – ISO 19650 Definitions

- 7.1 **Organisational Information Requirements (OIRs)** explain the information needed to answer or inform high-level strategic objectives within the appointing party (the Group). These requirements can arise for a variety of reasons, including strategic business operation, strategic asset management, portfolio planning, regulatory duties, or policy-making. OIRs can exist for reasons other than asset management, for example in relation to submitting annual financial accounts.
- 7.2 **Asset Information Requirements (AIRs)** set out managerial, commercial and technical aspects of producing asset information. The managerial and commercial aspects should include the information standard and the production methods and procedures to be implemented by the delivery team.
- 7.3 **Asset Information Model (AIM)** supports the strategic and day-to-day asset management processes established by the appointing party (the Group). It can also provide information at the start of the project delivery process. For example, the AIM can contain equipment registers, cumulative maintenance costs, records of installation and maintenance dates, property ownership details and other details that the appointing party regards as valuable and wishes to manage in a systematic way.
- 7.4 **Project Information Model (PIM)** supports the delivery of the project and contributes to the AIM to support asset management activities. The PIM should also be stored to provide a long-term archive of the project and for auditing purposes. For example, the PIM can contain details of project geometry, location of equipment, performance requirements during project design, method of construction, scheduling, costing and details of installed systems, components, and equipment, including maintenance requirements, during project construction.

Appendix B – BIM 4 Housing Associations ‘Hierarchy of information requirements’ (June 2021)



Key: Blue Boxes – Southern Housing Group's Existing and Corporate Information. Orange Boxes Development Project Information. Green Graphical Items, Purple Documents, Red Data.