



STRUCTURAL REPAIRS ACTION PLAN

V07 – 18 January 2019

OPAL TOWER

Bennelong Parkway, Sydney Olympic Park

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1. REVIEW AND APPROVAL

1.1 Register of Review

Version	Date	Description Of Amendments	Prepared By	Approved By
01	4.1.19	Draft for internal review	PG	
02	5.1.19	General update	PG	
03	5.1.19	General update	PG	JD
04	7.1.19	General update	PG	JD
05	8.1.19	General update	PG	JD
06	9.1.19	WSP feedback incorporated	PG	JD
07	18.1.19	Remedial works impact to residents	JM	JD

Notes:

1. Distribution is centralised and controlled by the Project Manager.
2. Registered copy holders will be automatically issued with any amendments.

2. INTRODUCTION

2.1 Remedial works impact on residents

Icon is committed to minimising the disruption to all residents whilst remedial works are being carried out. The remedial works are isolated to four locations, two on L10 and two on L4.

After receiving feedback from residents and through consultation with the relevant stakeholders, Icon will implement the following measures for the affected areas;

- Works will be limited between 8am – 5pm.
- Our contractors will enter / exit via the Basement only. A cordoned off area in Basement 2 will be utilised to store material for ease of access.
- There will be a designated builder lift to be used by contractors only. Contractors will not be able to use the remaining three residential lifts.

We assure all residents reoccupying their apartments that they will not be impacted in any way by the works being undertaken.

2.2 Plan Scope and Application

The purpose of this *Structural Repairs Action Plan (SRAP, Plan)* is to provide residents, Owners Corporation and other stakeholders (such as the Developer and/or any relevant Authorities) with a detailed description of the investigation / inspection and repair work to be carried out.

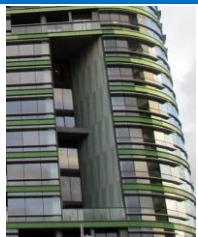

This Plan is not a technical document (i.e. neither a specialist report nor a management plan) and it is being issued for stakeholder information only.






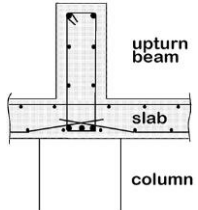
Any revisions to future updates of the Plan will be highlighted by *Tracked Changes* treatment, which strikes through deleted text and underlines added text in the following version.

Revisions of the Plan will be distributed to all registered holders. A version number in the Plan header will identify the Plan edition.

3. GLOSSARY OF TERMS

A number of structural and building technical terms are used throughout this Plan; these terms are described in both words and pictorial form below:

Term	Image	Description
Façade slot		Multiple floor recess in the Opal Tower façade providing natural light to the lift lobbies and corridors. Side slot walls are constructed in load bearing precast concrete panels and rear walls in full height window walls.
Fencing		Modular fencing panels (mesh on steel framing and precast feet). Built to isolate a construction area from a public area or to provide safe storage of plant or materials.

Term	Image	Description
Finishes		Typically those cladding elements covering the structure within habitable spaces: <ul style="list-style-type: none"> □ Carpet over concrete slab. □ Plasterboard wall lining over masonry or concrete walls. □ Plasterboard ceiling lining below concrete slab. □ Tiling over masonry or lining to walls in bathrooms.
Hoarding		Temporary wall built to isolate a construction area from a public area. Typically a lightweight structure and lined in plywood (externally) or plasterboard (internally). Temporary walls can contain emergency egress doors (i.e. unlocked but alarmed doors for emergency use only).
Jersey barrier		Modular concrete element used for traffic control and protection against vehicular damage.
Precast panel		Pre-fabricated reinforced concrete modular wall element. In this case panels are load bearing, i.e. support the weight of the surrounding structure.
Prop, propping		Temporary support system providing additional load paths for structural elements. Necessary to relieve loads from structural elements needing repair.
Upturn Beam		A beam is typically a horizontal structural element transferring loads from slabs to columns or walls. These are normally located below the slab. An upturn beam performs the same function as a normal beam however it is located above the slab.

4. TASK DESCRIPTION

4.1 Overview

The failure of an upturn beam in Level 10 supporting precast panels in the façade ‘slot’ meant that all other similar circumstances (i.e. upturn beam at the bottom of façade slots) required inspection and validation. A total of 12 slots on the tower, representing the same number of connection details to be inspected.

Initial inspections revealed that there was evidence of stress at two areas on Level 4 and an area on Level 10. All other areas have been inspected and deemed to be performing as designed.

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As these areas are covered by internal finishes, some invasive work (i.e. plasterboard removal) is required to facilitate inspection. Given the above, three distinct categories of work have been defined:

- Repair work due to invasive inspection access.
- Stabilisation works.
- Structural repair work.

These are further described below.

4.2 Inspection Access Repair Work

Inspection work requires temporary removal of plasterboard wall lining internally in apartments and of planter boxes in the slots. Following inspection by the structural engineers and assuming no further work is needed, plasterboard wall lining can be reinstated in readiness for occupation.

A programme for these works will also be completed and communicated once all structural engineers have confirmed that no further investigation is required.

4.3 Stabilisation Works

Structural propping is required prior to repair works to maintain load paths while the structural elements are being repaired. Propping from Level 10 down to Level 4 and from Level 4 to Basement Level B3 has therefore been installed. Finishes had to be temporarily removed to enable prop installation.

Propping will remain in place until the repair works are complete. Following propping removal finishes will be reinstated. A programme will be completed and communicated once the repair works details are agreed.

4.4 Structural Repair Work

As noted above, this work is required at the initial, Level 10 location –affecting both above the floor slab at Level 10 and below this same slab, from Level 9. It is also required at Level 4, above the floor slab only.

Propping will remain in place until the repair works are complete. Following completion of repair works affected finishes will be reinstated. A programme will be completed and communicated once the repair works details are agreed.

5. AREAS AFFECTED BY THE WORKS

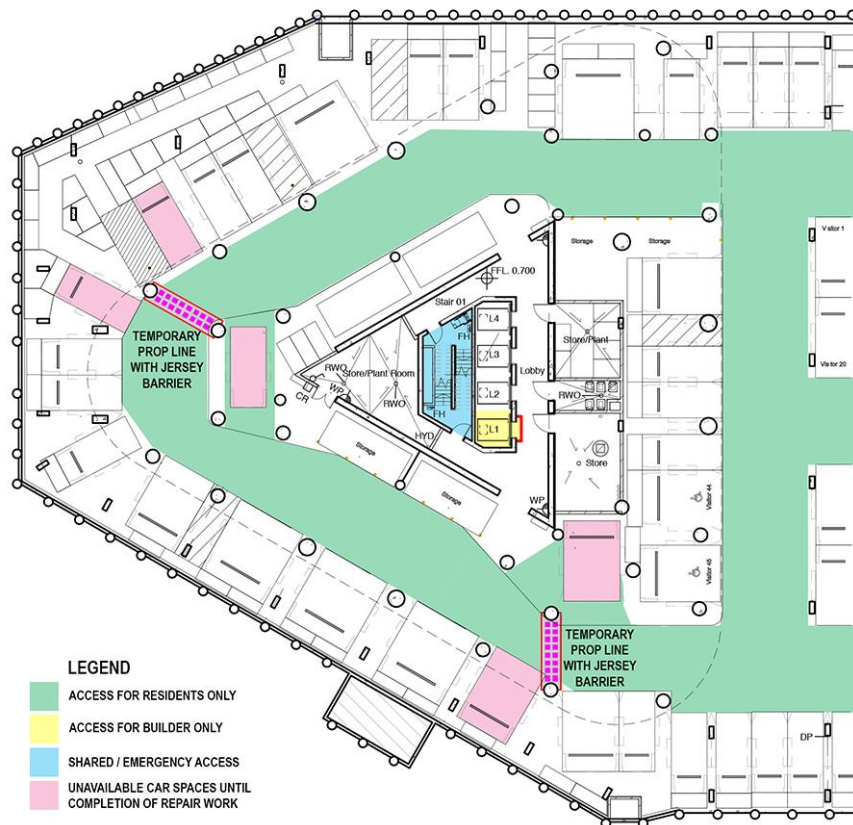
5.1 Common Areas – Ground and Basement

The logistics (materials, personnel amenity etc.) associated with the work described above necessitate that the following areas are set aside during repair work for the use of our personnel and subcontractors. These include:

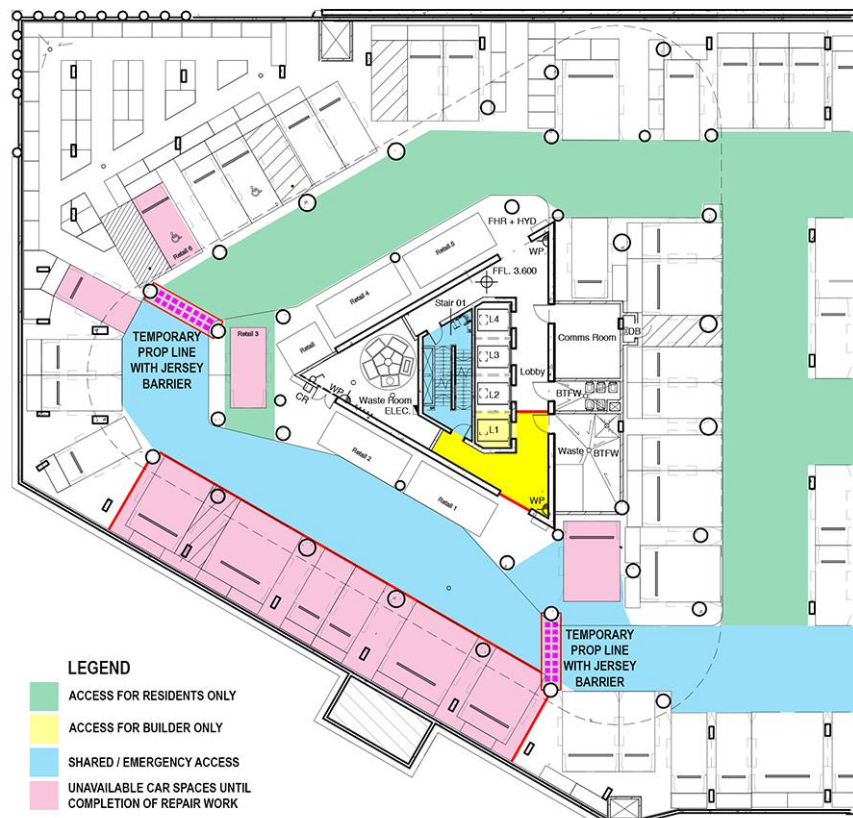
- Basement Level B2 (propping lines and storage).
- The areas on the levels where the works are being undertaken.
- Basement areas where prop lines prevent car access to a number of car spaces.

The plans below illustrate the affected areas as well as the impact to basement carparking.

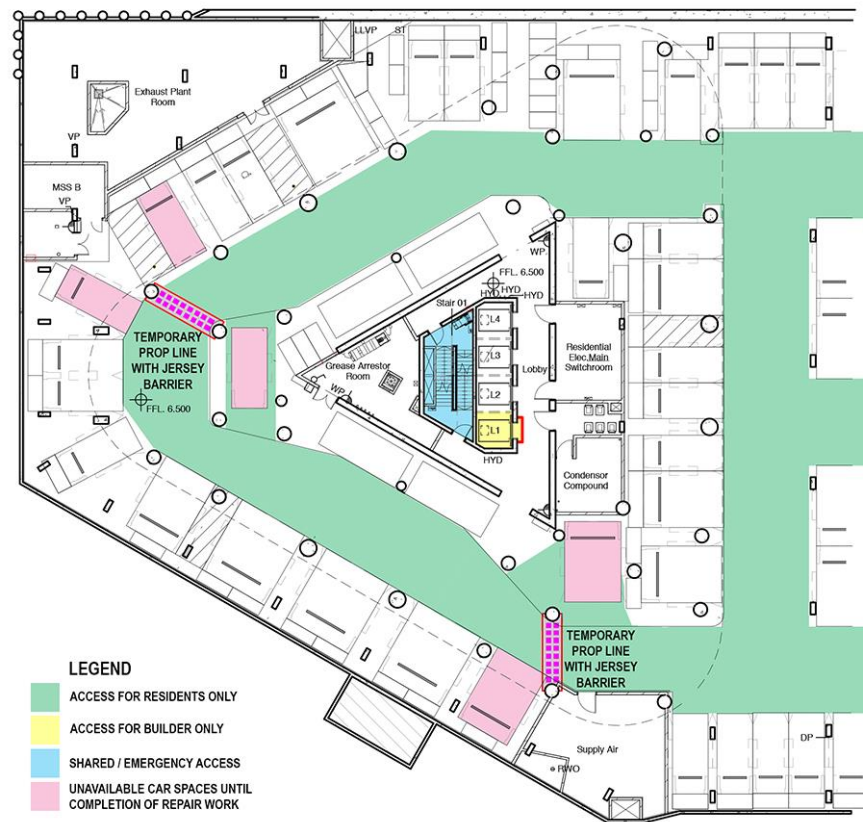
BASEMENT LEVEL B1 – TOWER END PART PLAN



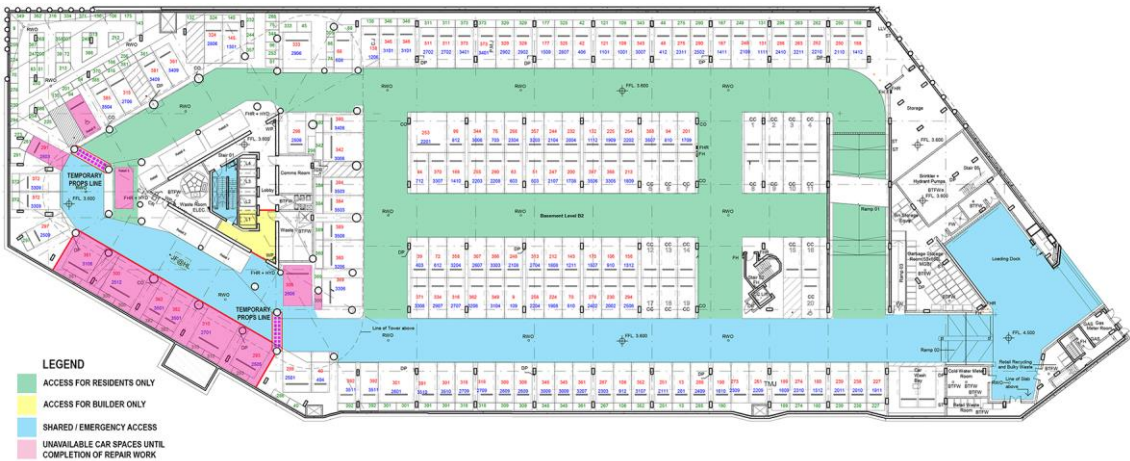
BASEMENT LEVEL B2 – TOWER END PART PLAN



BASEMENT LEVEL B3 – TOWER END PART PLAN



BASEMENT LEVEL B2 FULL PLAN



For a full (A3) size version of this drawing refer to *Appendix A – Site Logistics Plans*.

BASEMENT LEVELS – UNAVAILABLE CAR SPACES

As noted on the previous plans and due to the need for construction storage or alternative driveway path to avoid propping lines, a number of car spaces cannot be returned to the occupants until completion of the structural repairs work. The affected spaces and their corresponding apartment are listed below:

Carpark Level	No. of spaces	Apartments affected
B1	5	1006, 1801, 2001, 2405 and 2908.
B2	10	Retail 3, Retail 6, 2503, 2505, 2512, 2606, 2701, 3106 and 3501 x 2.
B3	5	102, 204, 206, 1104 and 1701.

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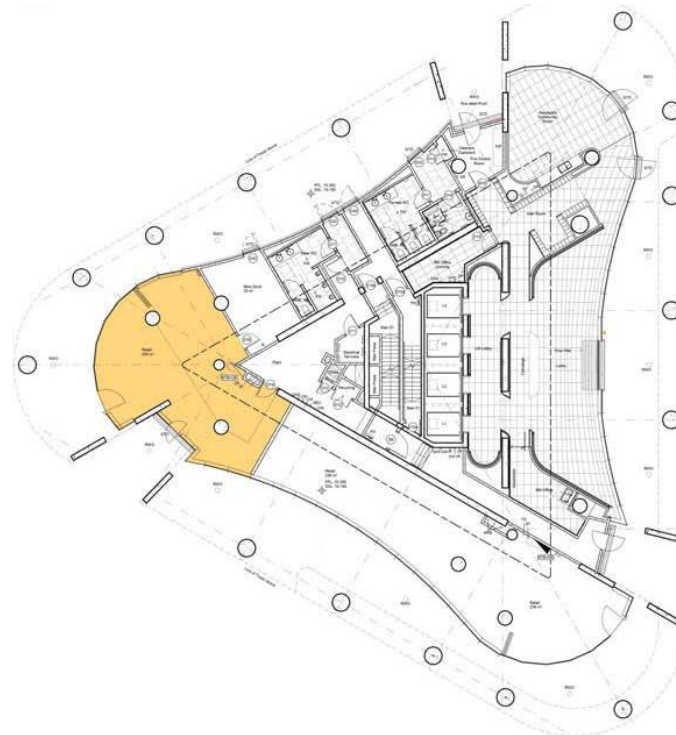
Alternative, temporary spaces will be allocated by Icon and the Owner's Corporation to the occupants of these apartments until completion of the structural repair works.

GROUND FLOOR EXTERNAL AREAS



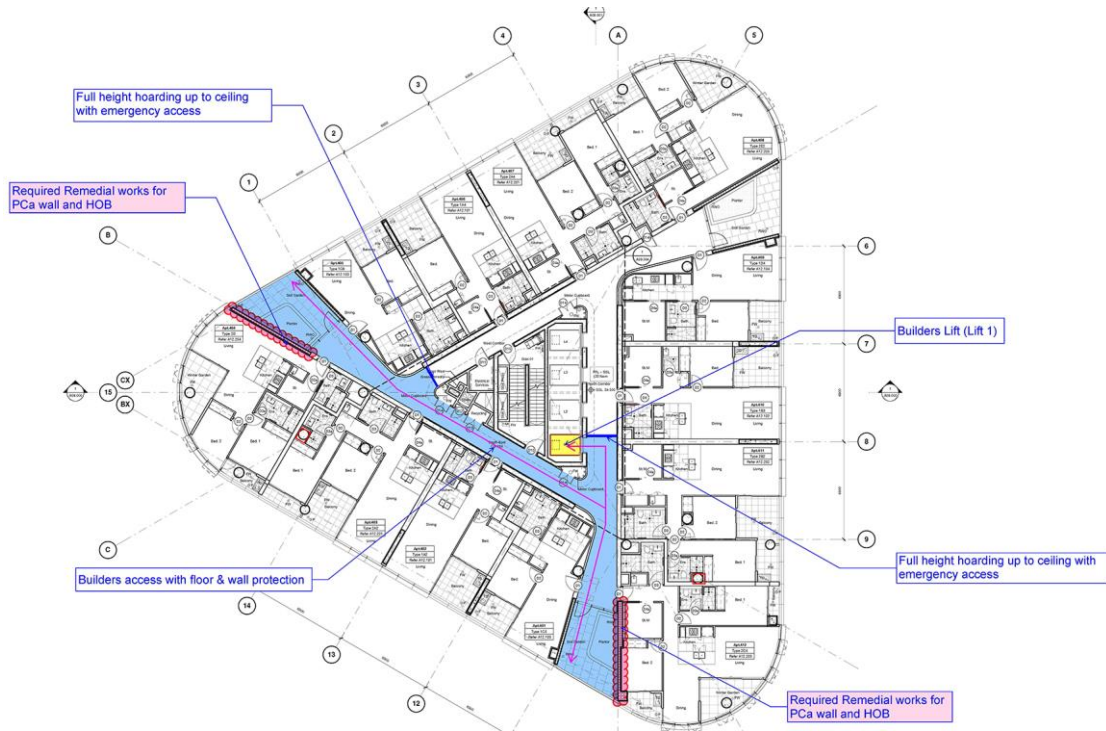
For a full (A3) size version of this drawing refer to *Appendix A – Site Logistics Plans*.

GROUND FLOOR INTERNAL AREAS



Retail space highlighted in ORANGE is affected by Inspection Access Repair Work and/or or backpropping. Occupant can regain access once propping is removed.

TOWER LEVEL 4



For a full (A3) size version of this drawing refer to *Appendix A – Site Logistics Plans*.

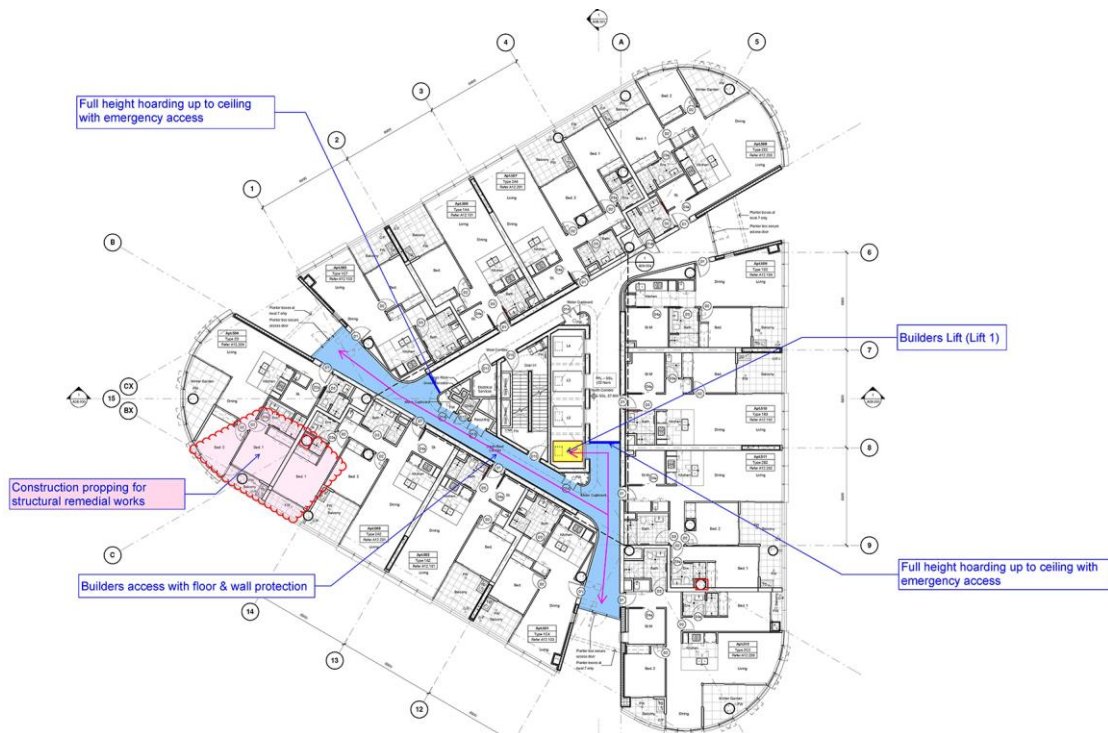
STRUCTURAL REPAIRS ACTION PLAN

V 07

OPAL TOWER, SYDNEY OLYMPIC PARK

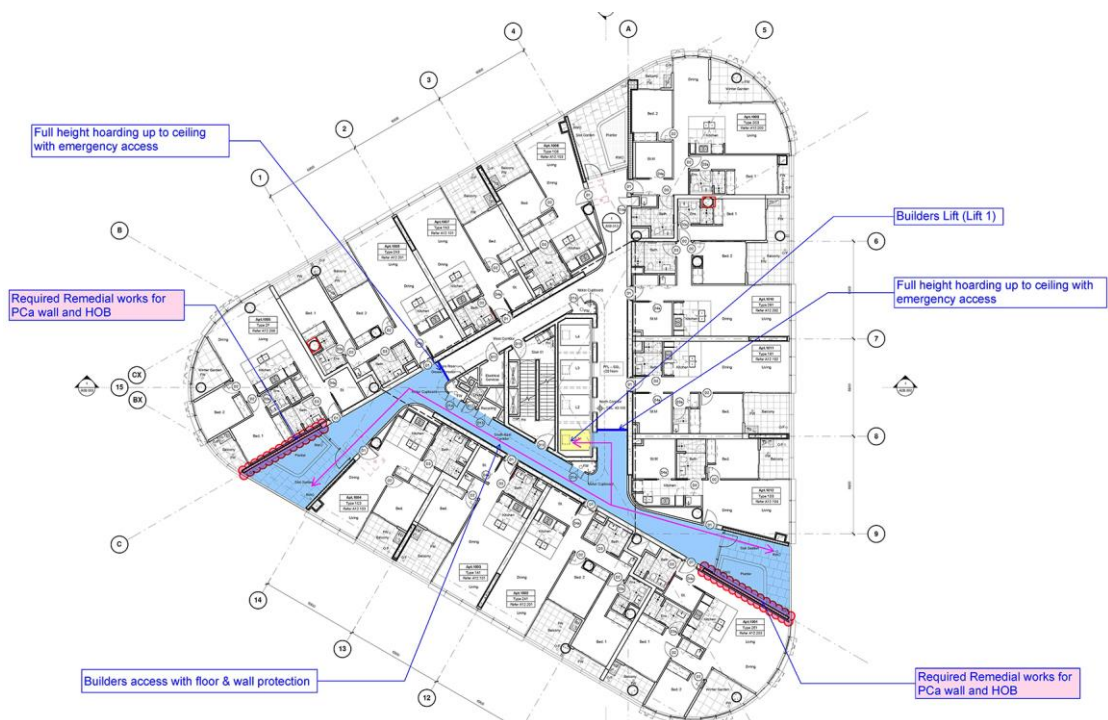
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TOWER LEVEL 9



For a full (A3) size version of this drawing refer to *Appendix A – Site Logistics Plans*.

TOWER LEVEL 10



For a full (A3) size version of this drawing refer to *Appendix A – Site Logistics Plans*.

5.2 Common Areas – Residential Floor Lift Lobbies

Access to the work areas will be via an allocated builder's lift from Level B2. Corridors on the floor where works are being undertaken will be maintained / cleaned daily.

We will also maintain security services (both active and passive) while inspection and repair work is carried out. Occupants, via the Body Corporate will also be informed regularly on anticipated activity / work focus for the following week.

5.3 Apartments

Each individual apartment has been colour coded in the thumbnail floor plans below. The colours have the following meaning:

276

Apartments highlighted in GREEN are not affected by repair works and residents can occupy without constraints effective immediately.

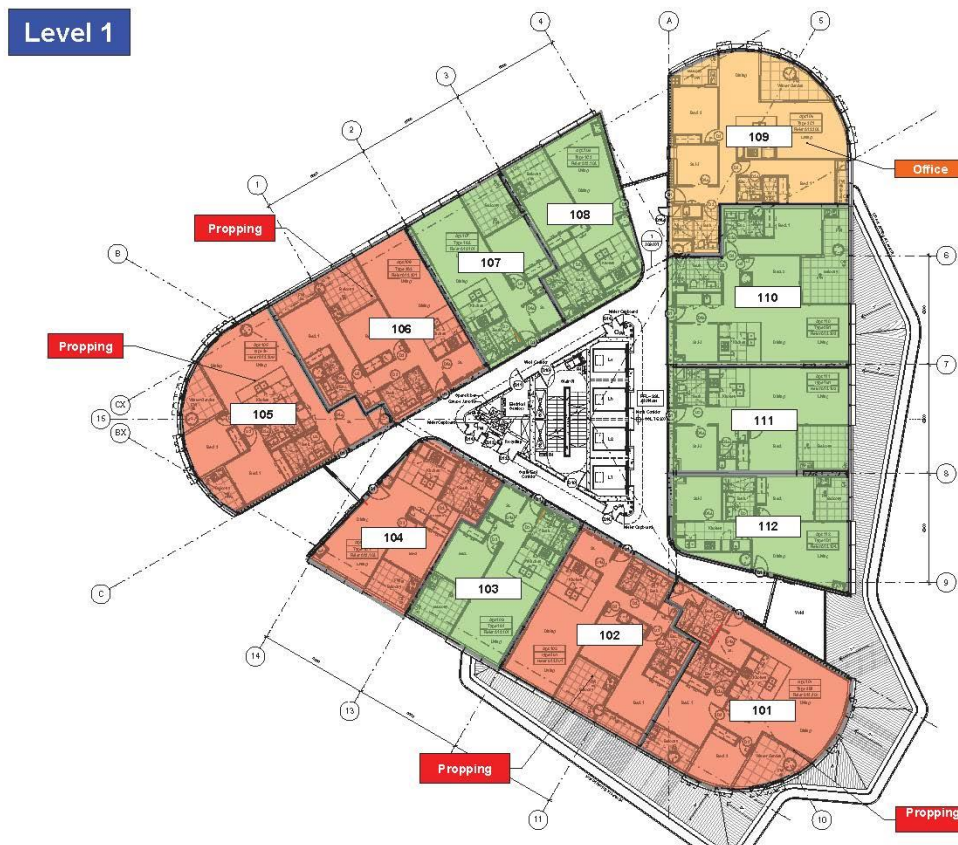
11

Apartments highlighted in ORANGE are affected by Inspection Access Repair Work and/or or backpropping. Residents can occupy without constraints progressively from 18 January 2019.

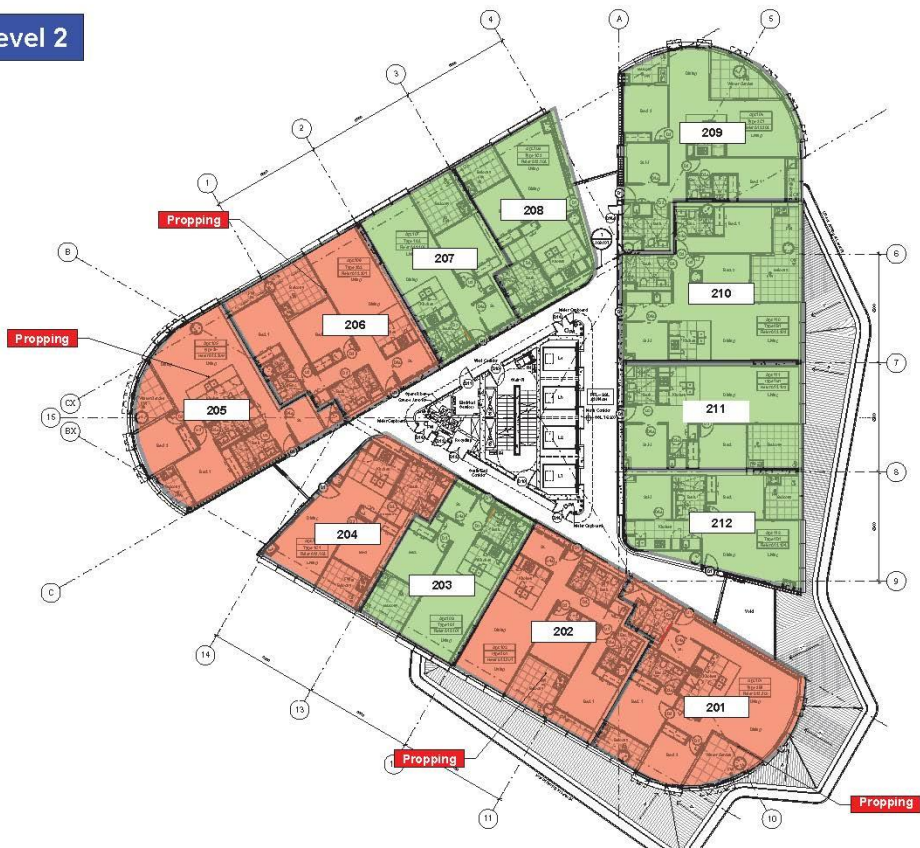
105

Apartments highlighted in RED are affected by Structural Repair Work and residents can occupy without constraints progressively from completion of the remedial works.

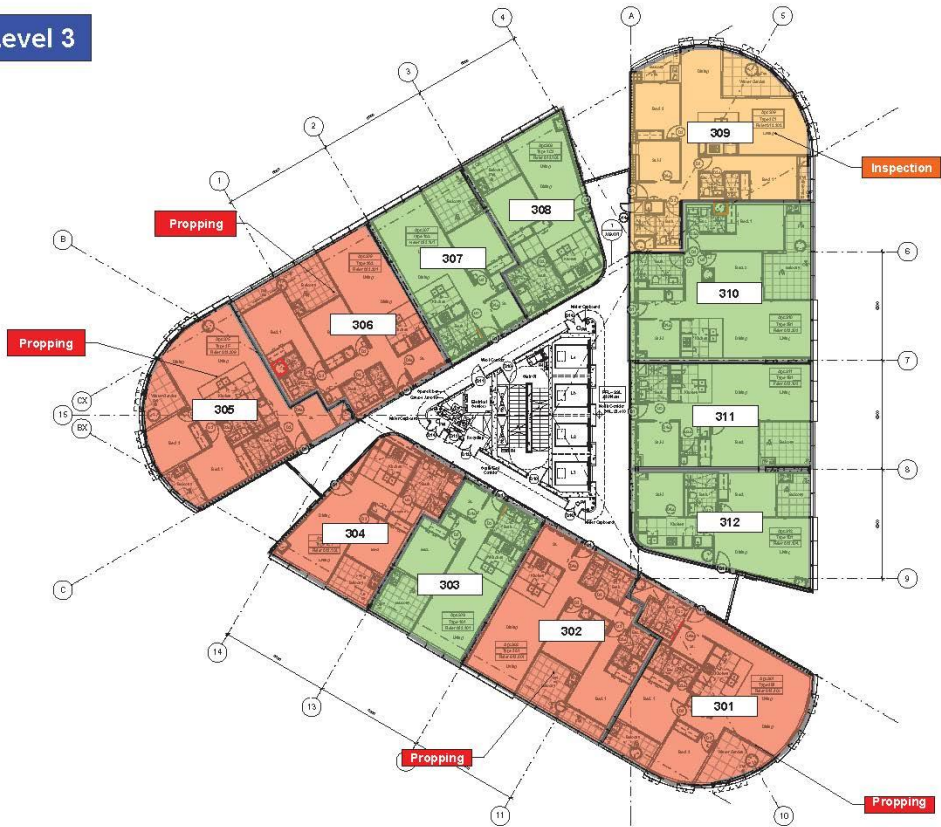
NOTE: A larger (A3) size version of the drawings included below is also available.



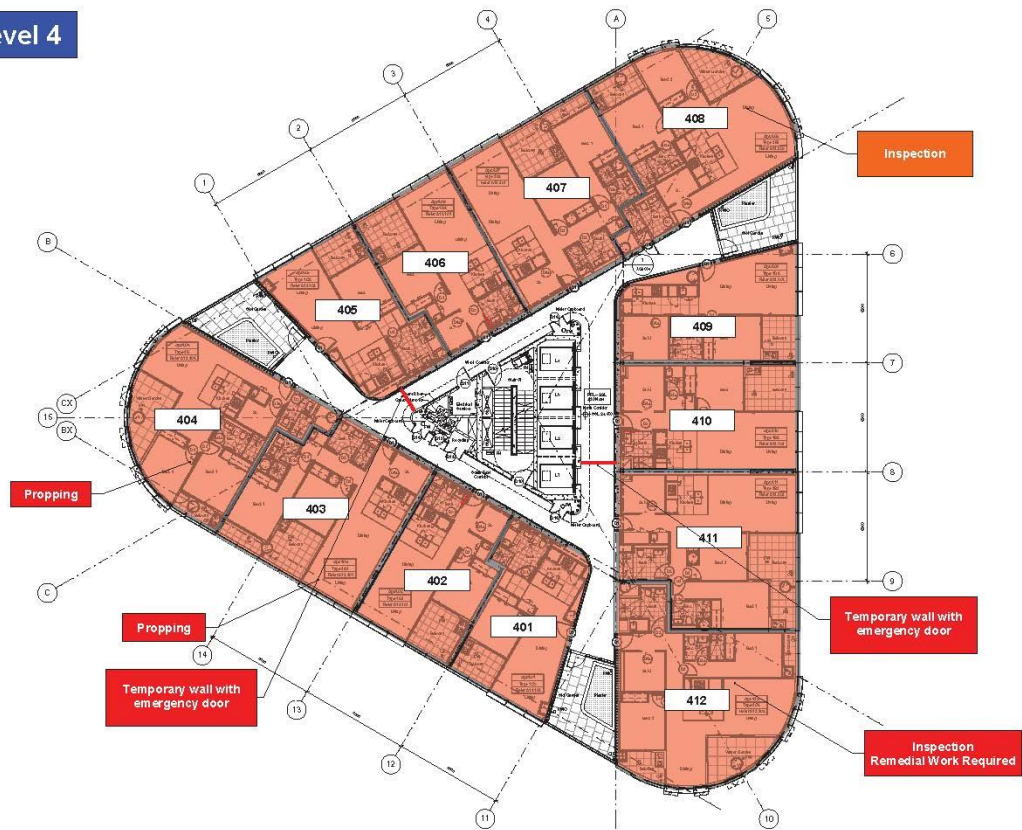
Level 2



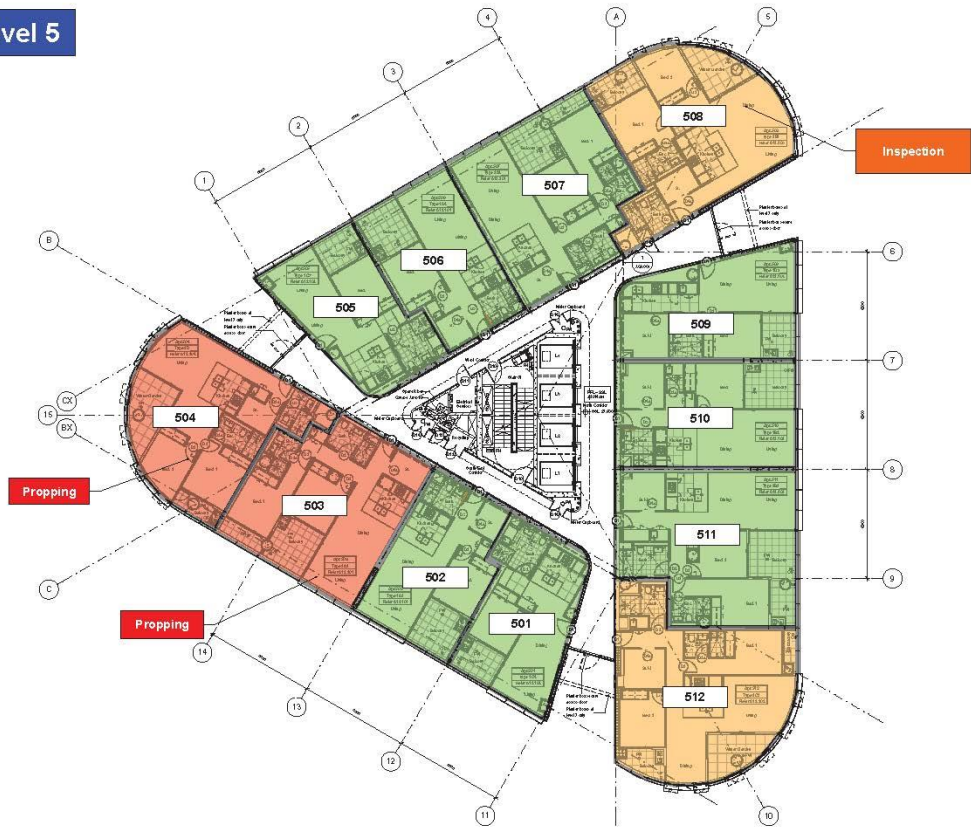
Level 3



Level 4



Level 5



Level 6

608

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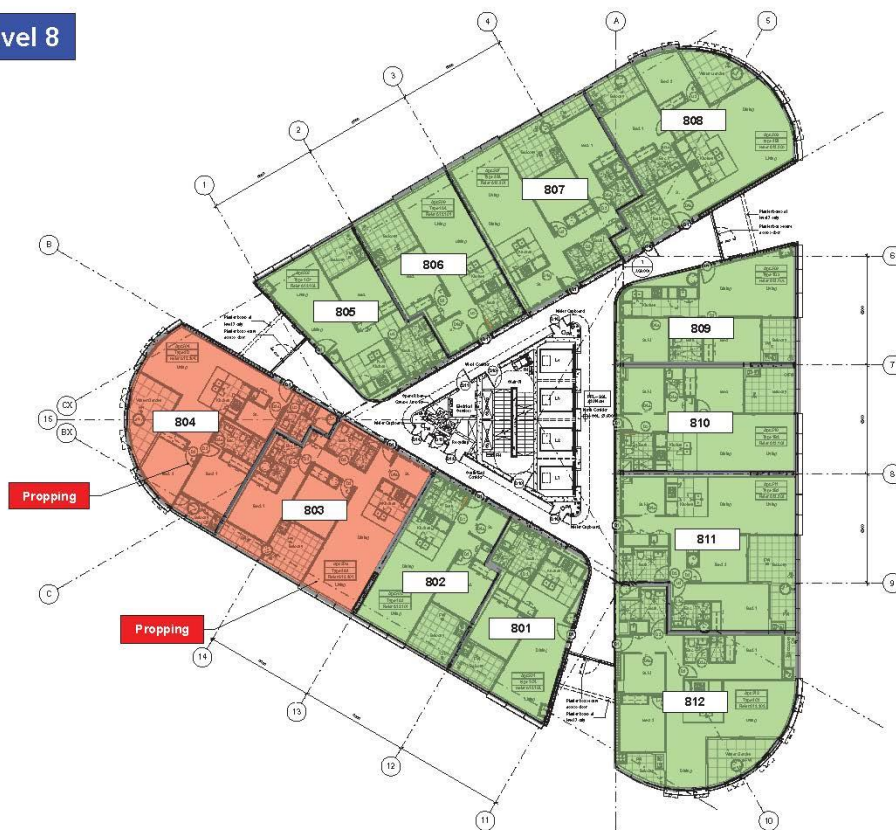
612

Icon Lunch Room

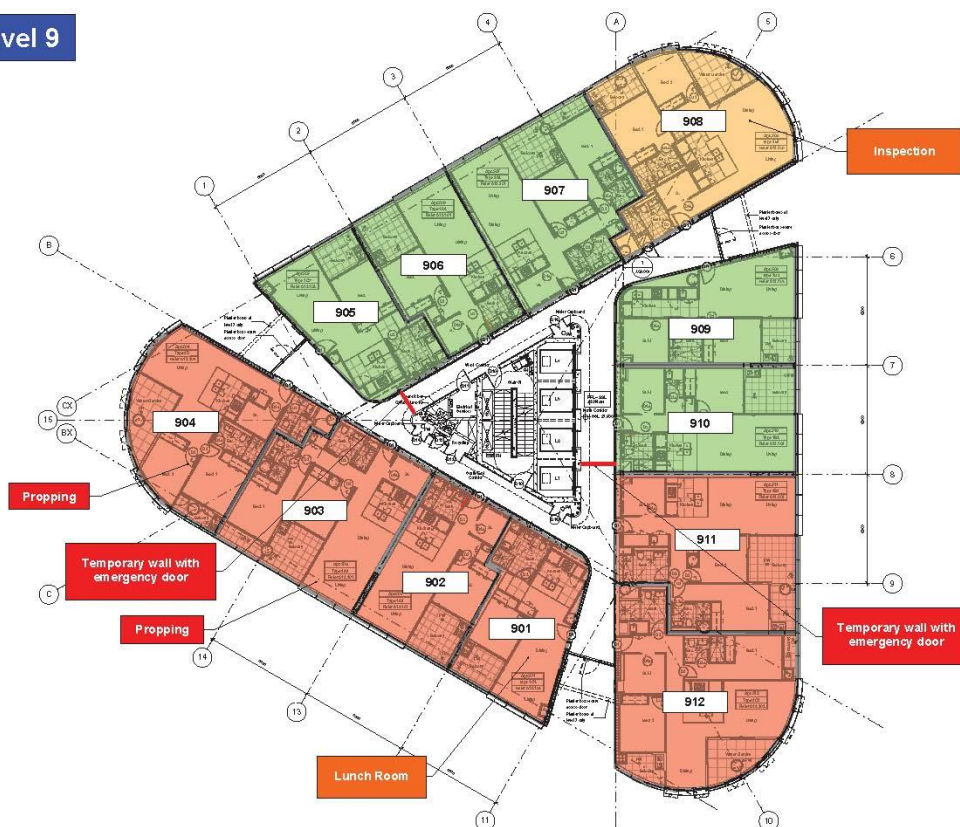
Propping

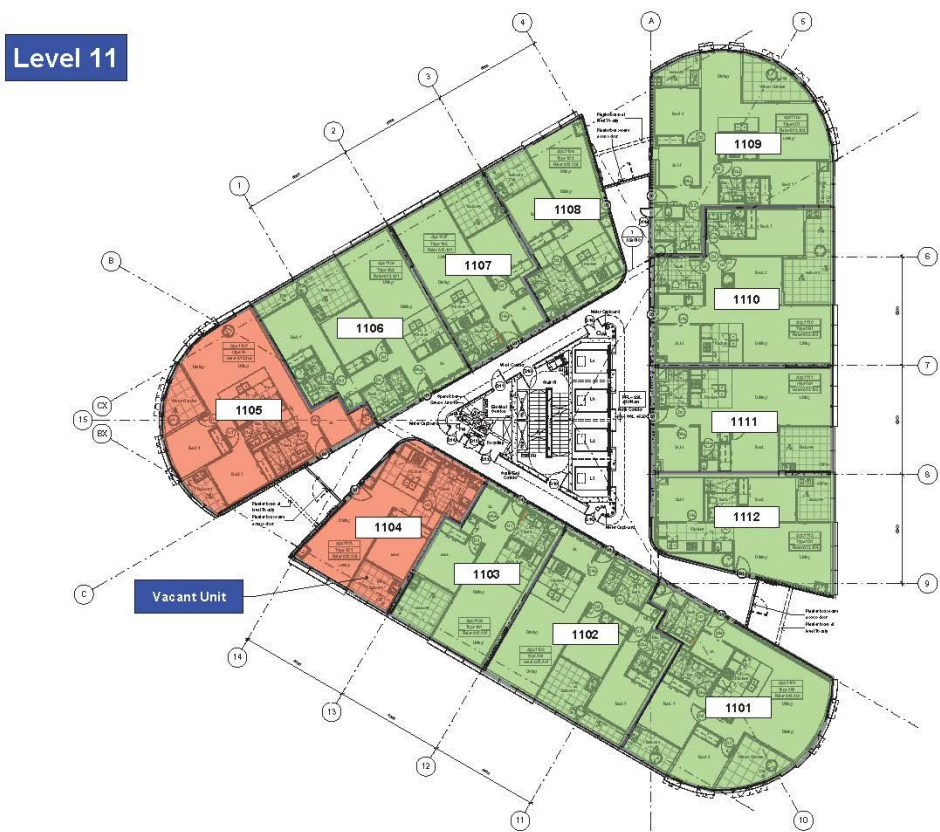
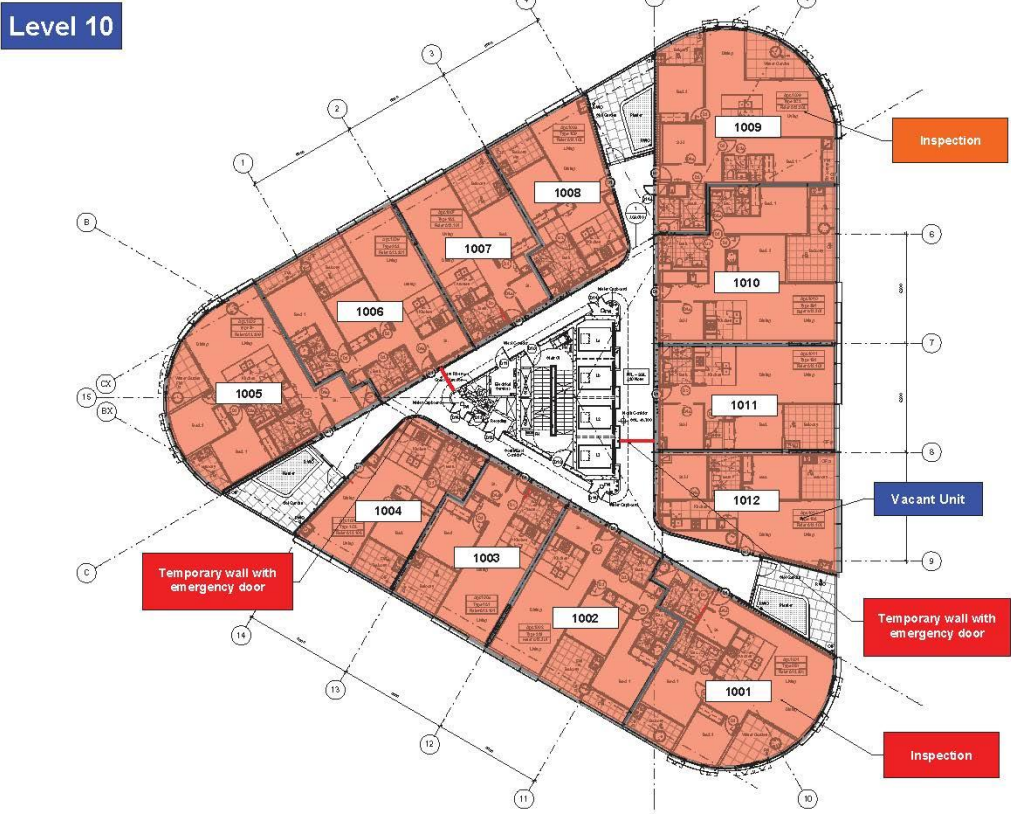
Propping

Level 8



Level 9



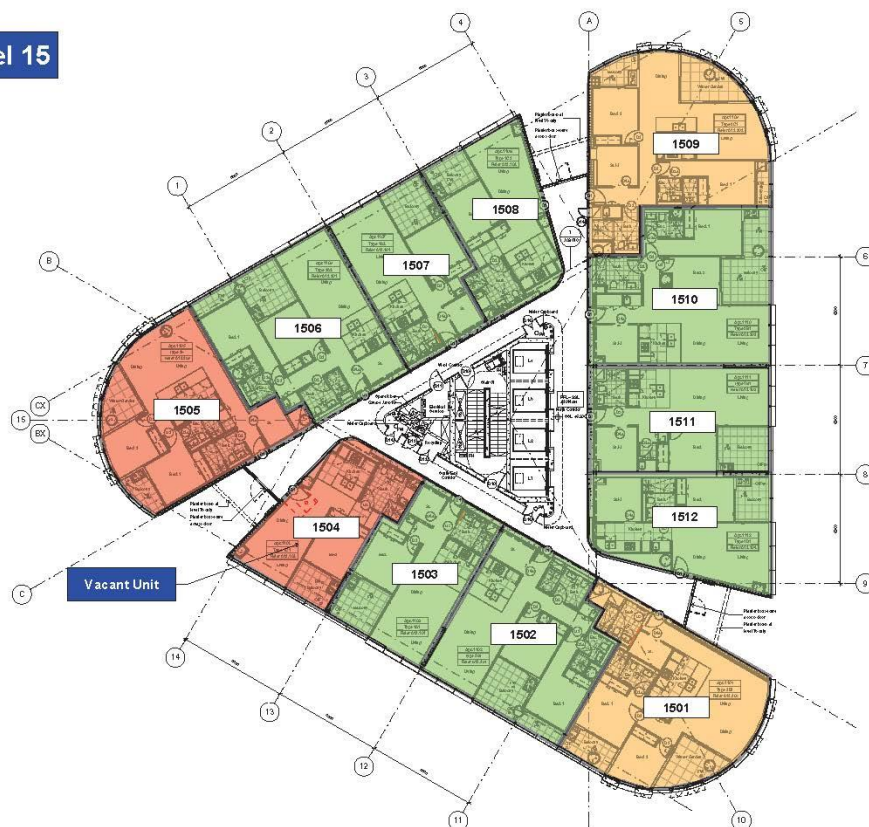


This detailed floor plan of Level 12 shows a complex arrangement of residential units. Units 1201 through 1209, 1210 through 1212, and a central 'Vacant Unit' are outlined in green. Units 1204 and 1205 are highlighted in red. The plan includes room layouts, furniture, and structural elements. A central core contains elevators and stairs. Grid lines 1-15 and A-S are shown.

Level 14



Level 15

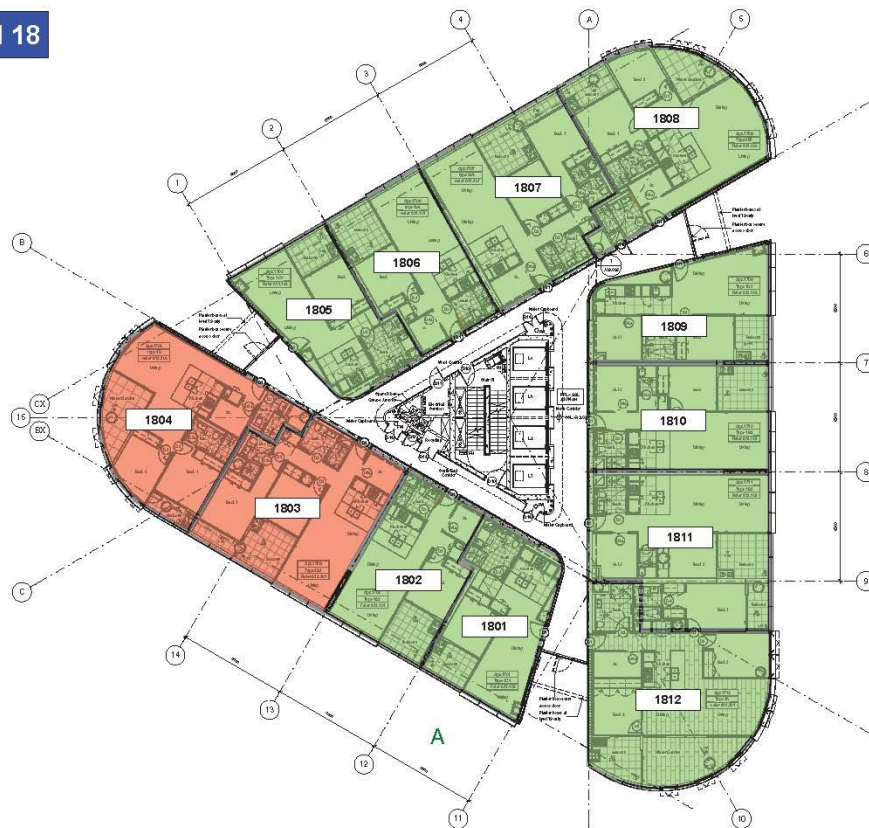


16

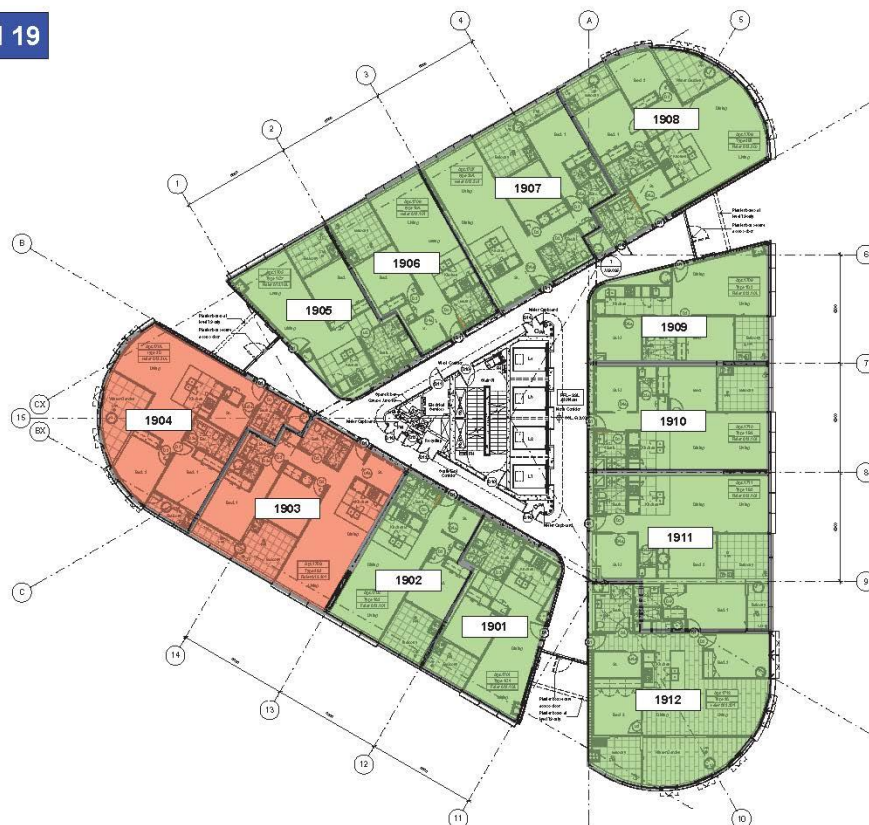
Inspection

17

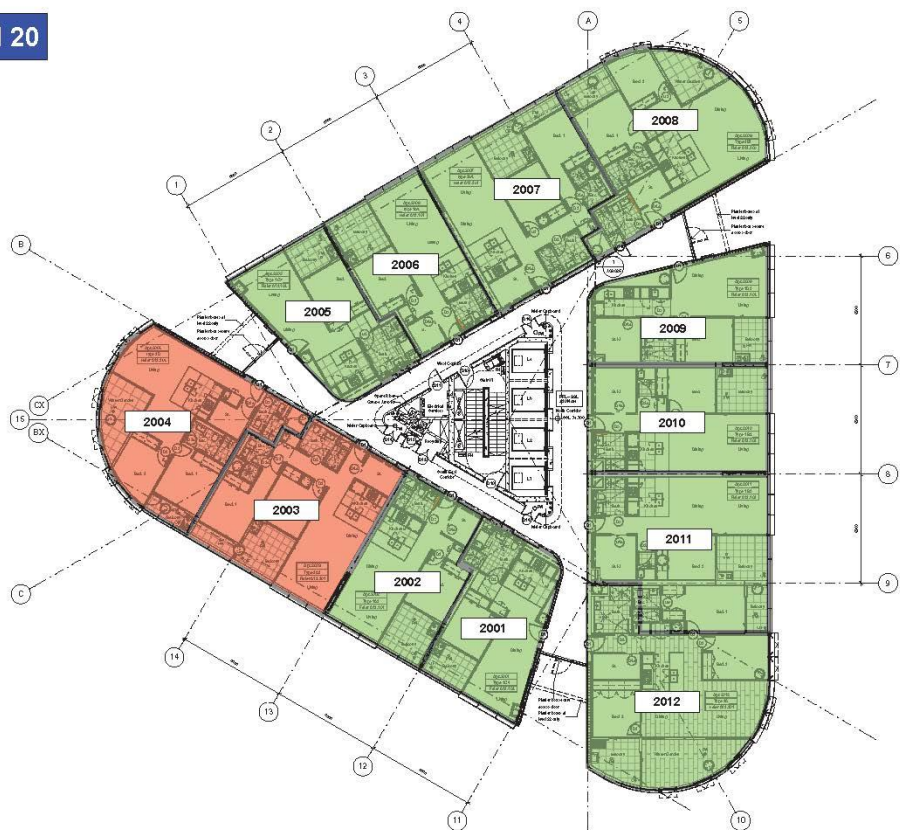
Level 18



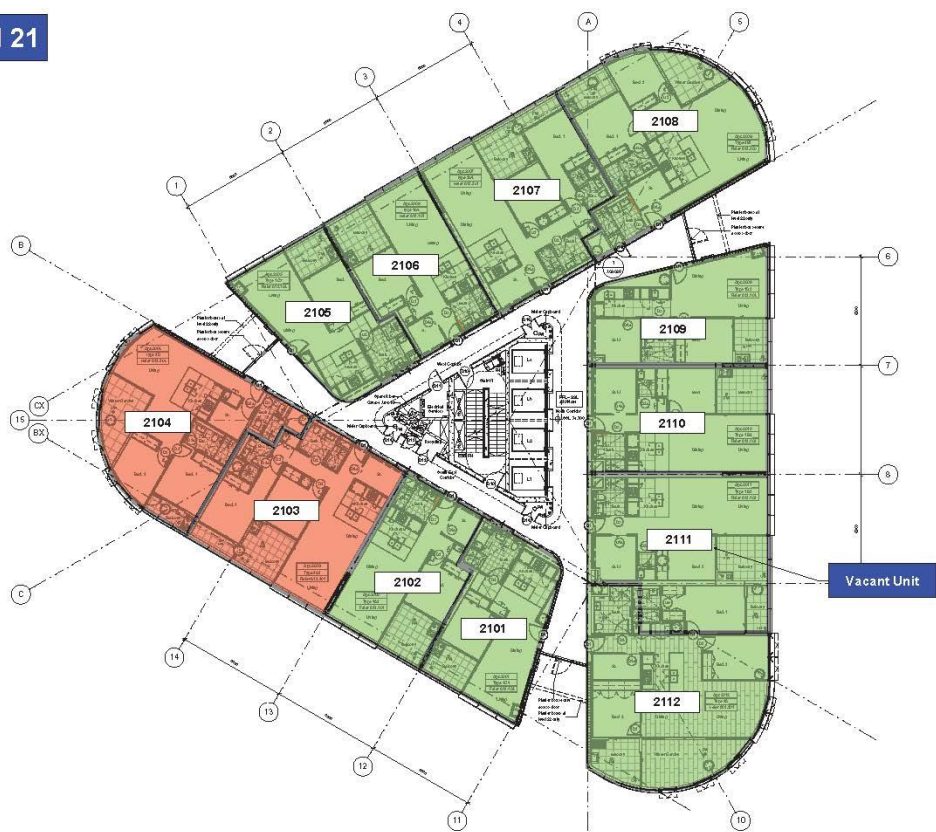
Level 19



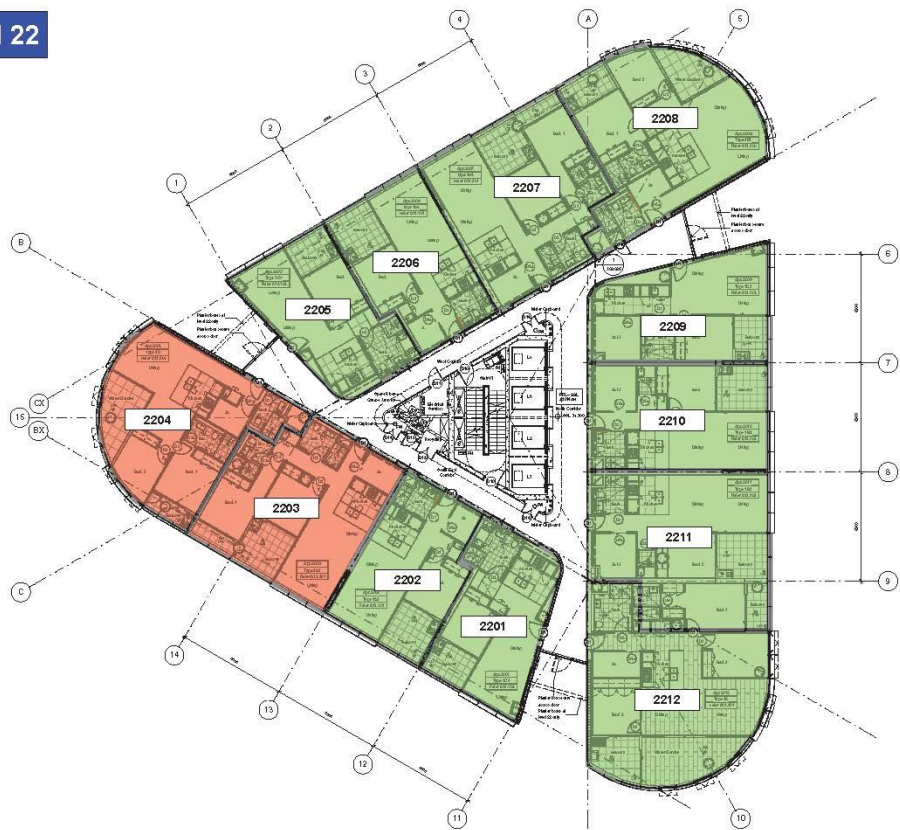
Level 20



Level 21



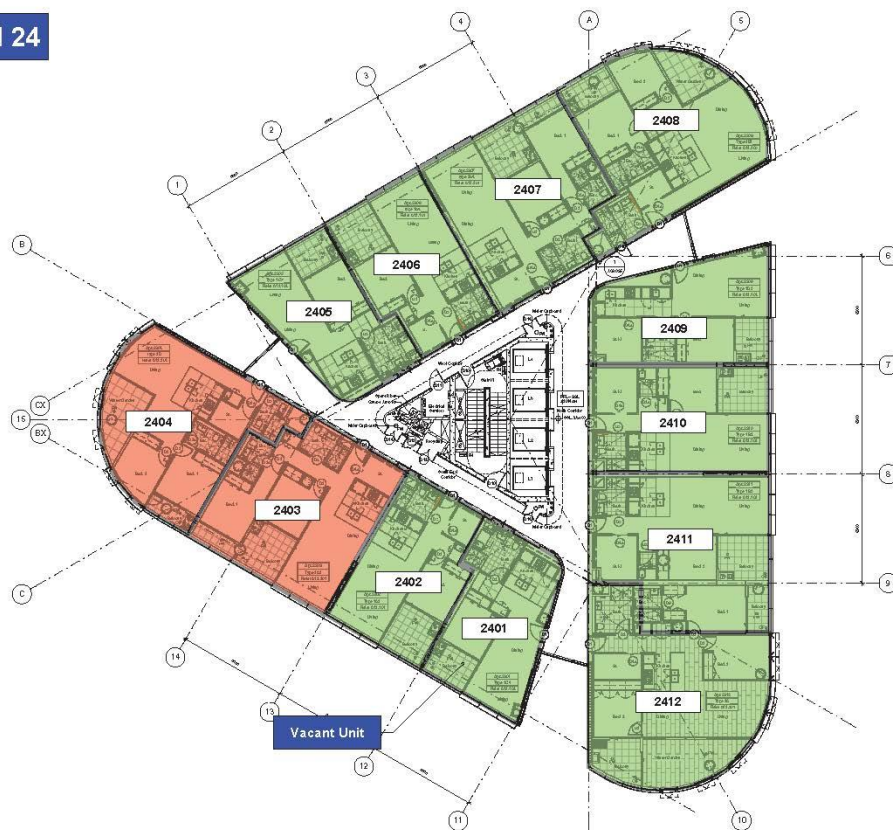
Level 22



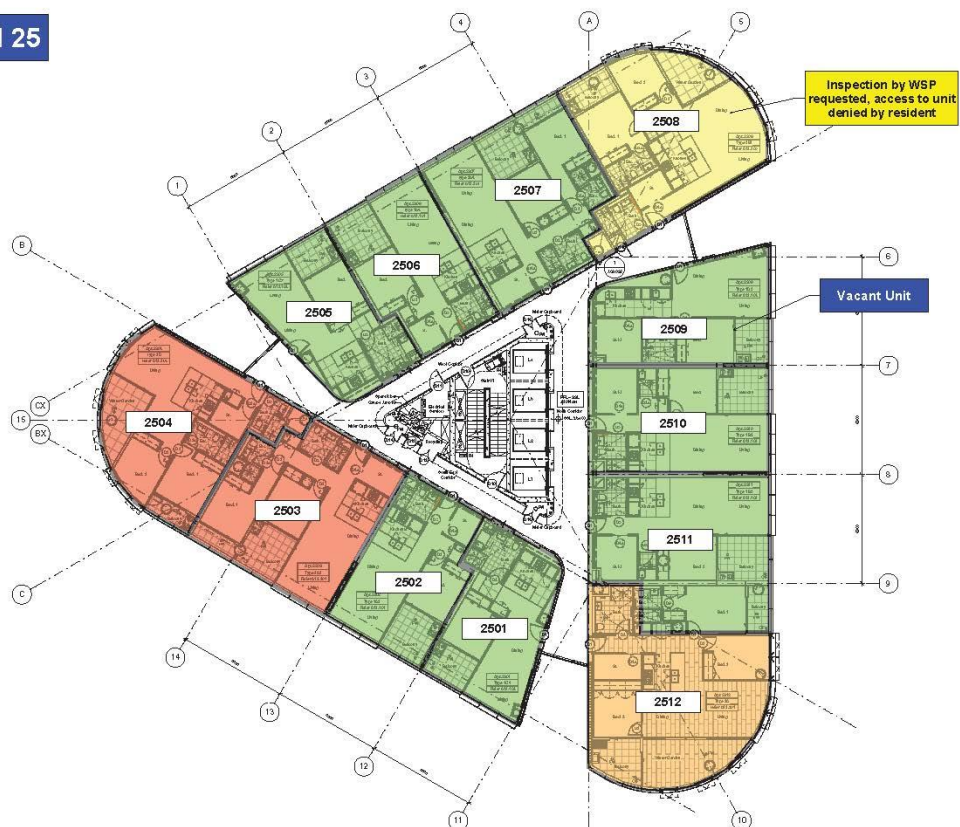
Level 23



Level 24



Level 25



26

Inspection

2607

2606

2605

2604

2603

2602

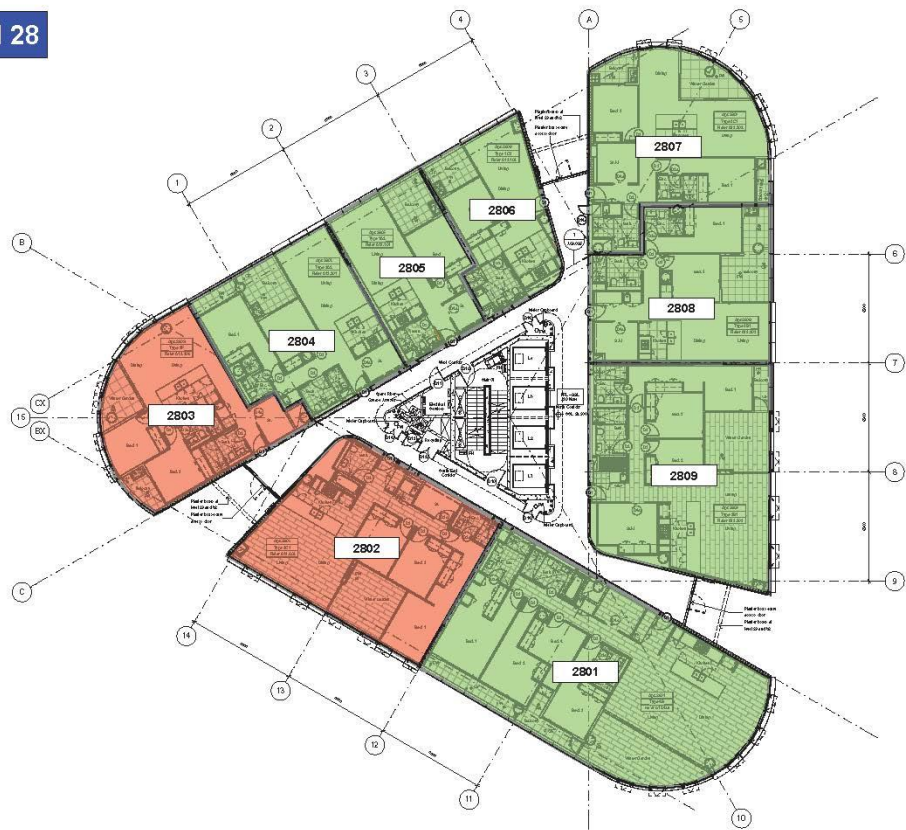
2601

2608

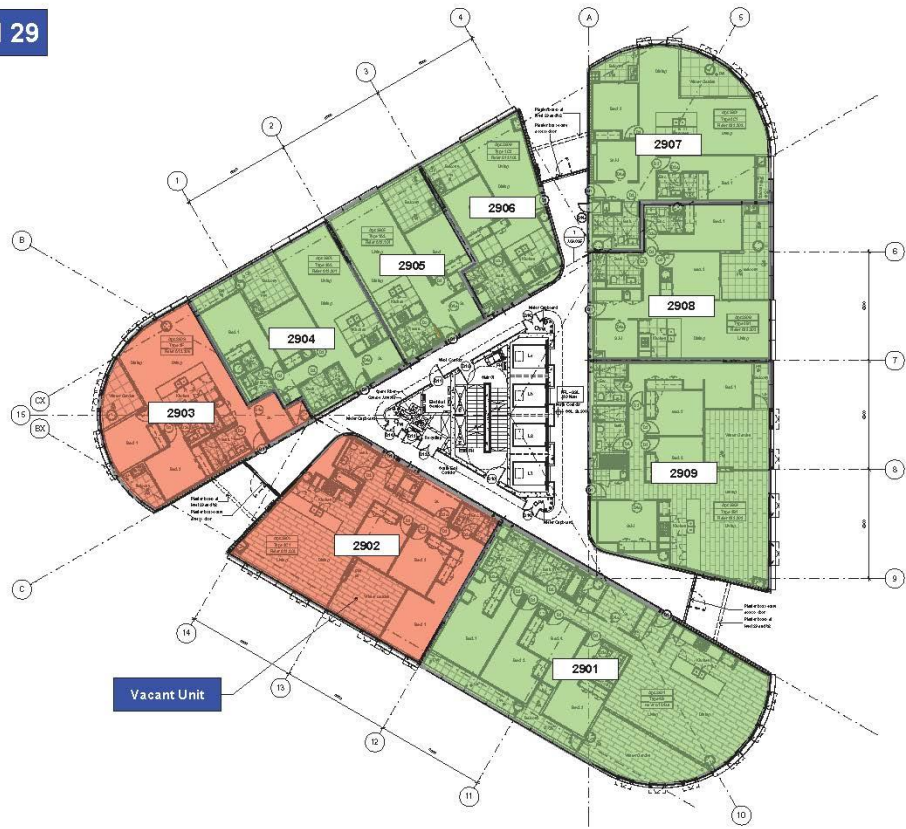
2609

Vacant Unit

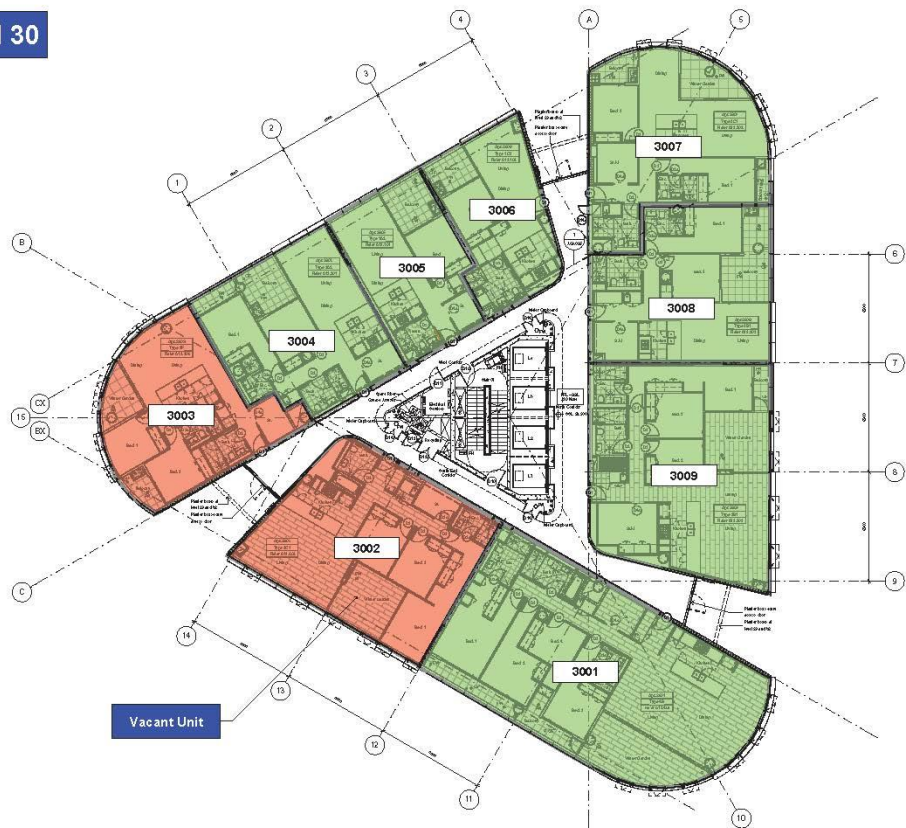
Level 28



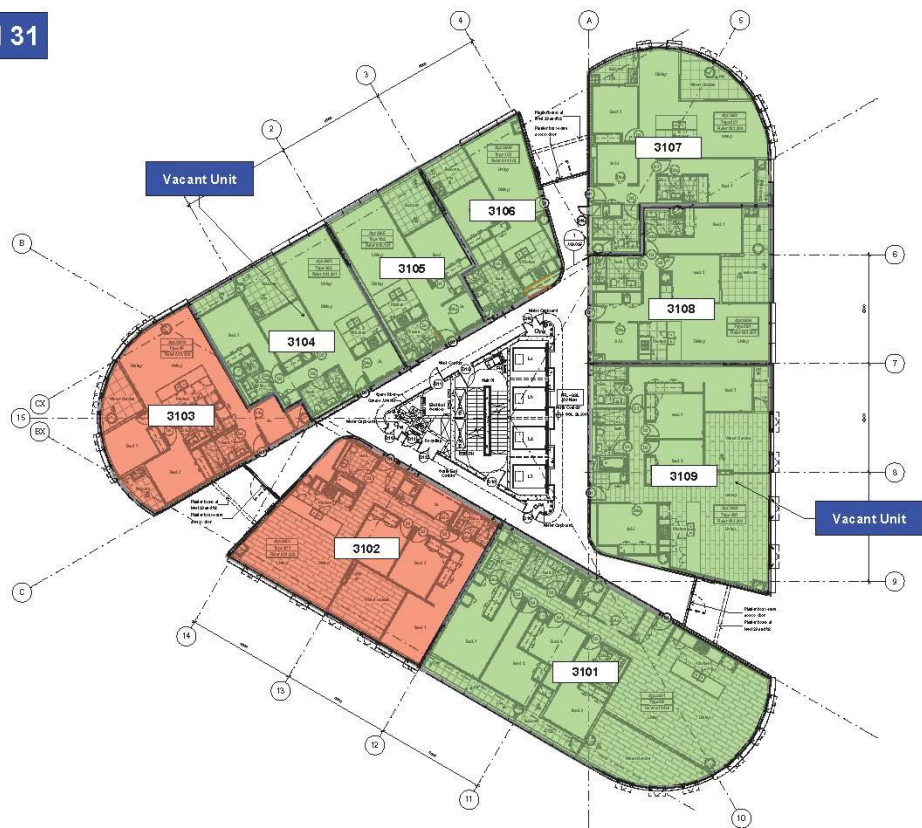
Level 29



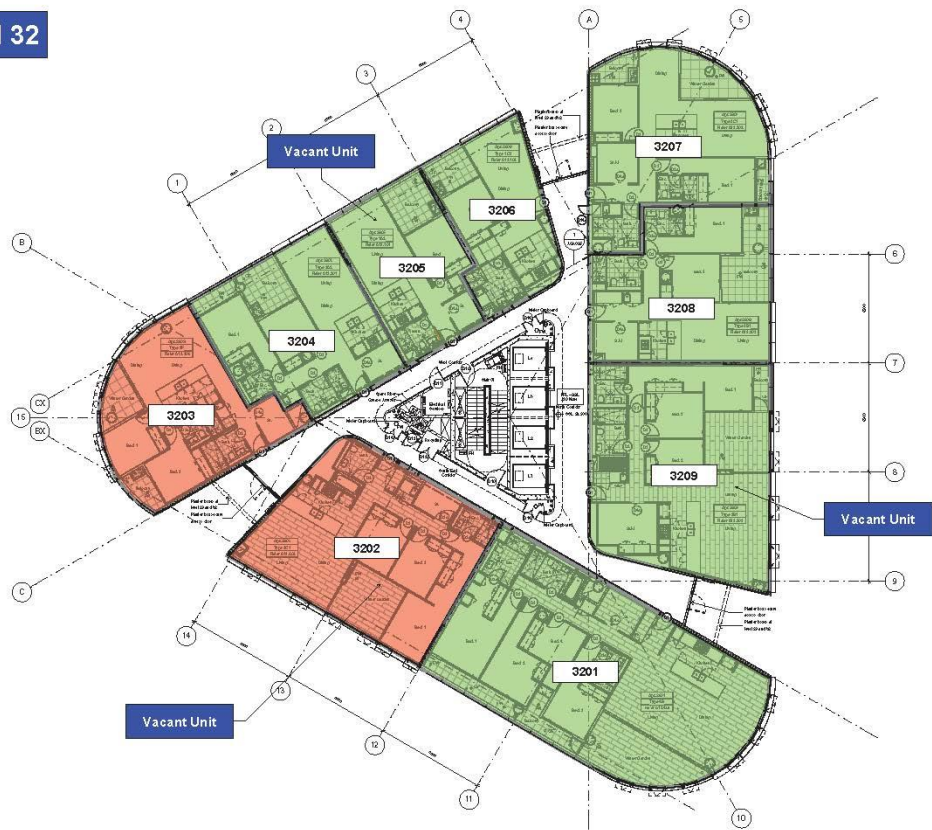
Level 30



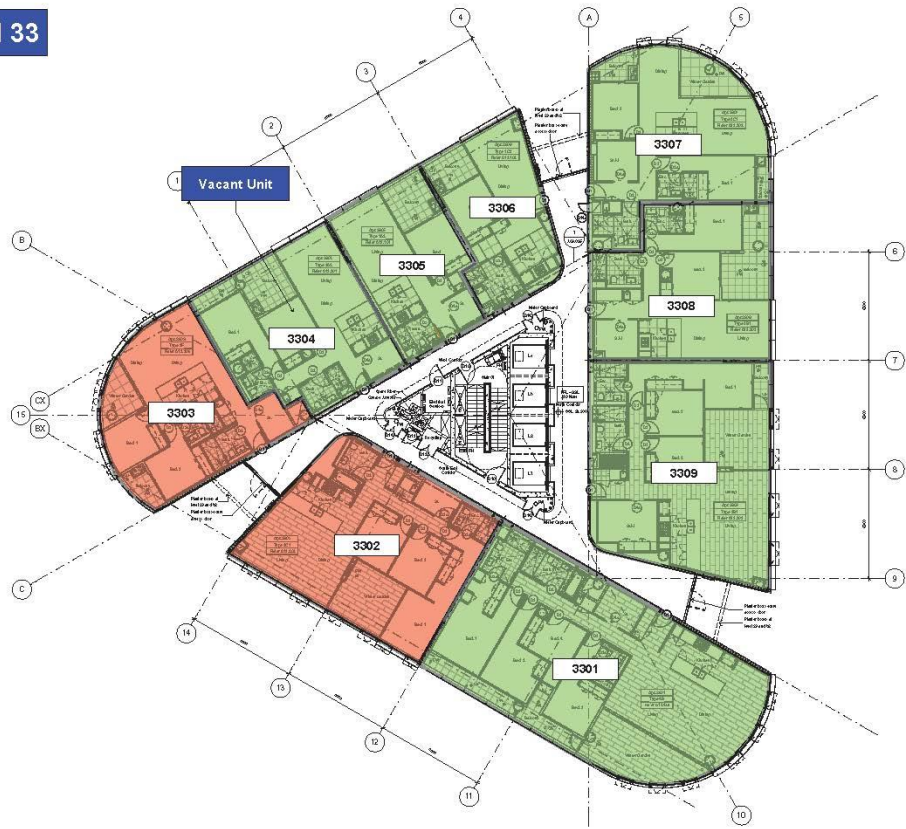
Level 31

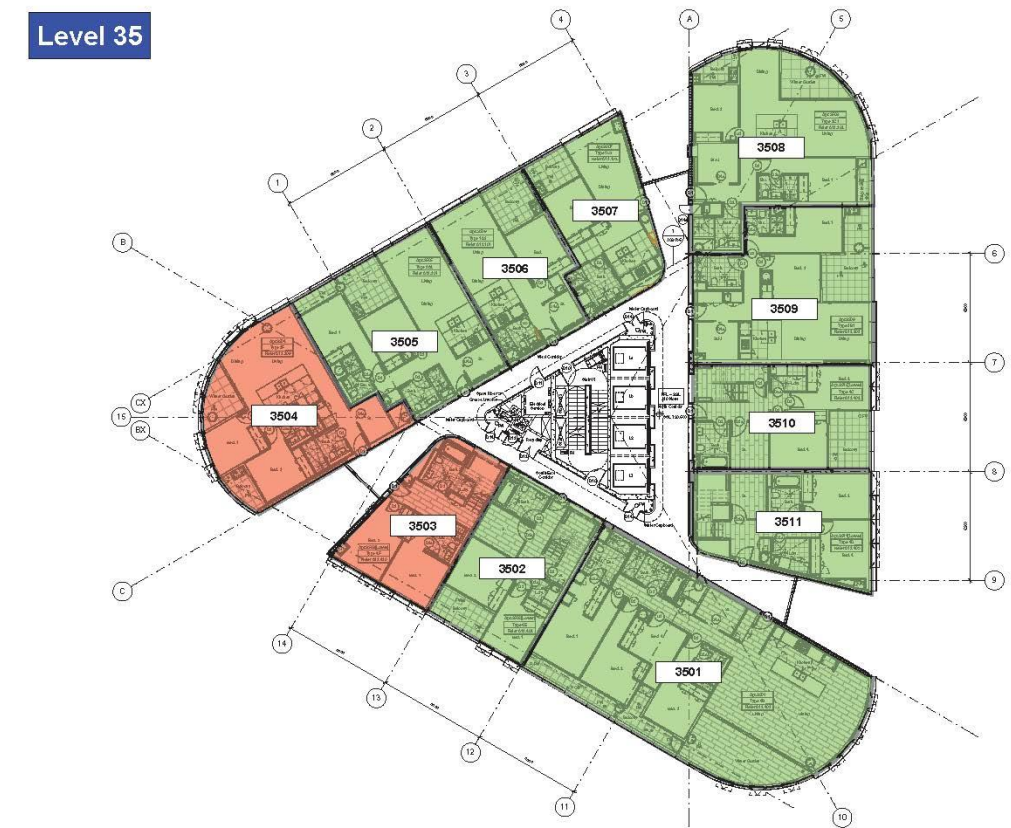
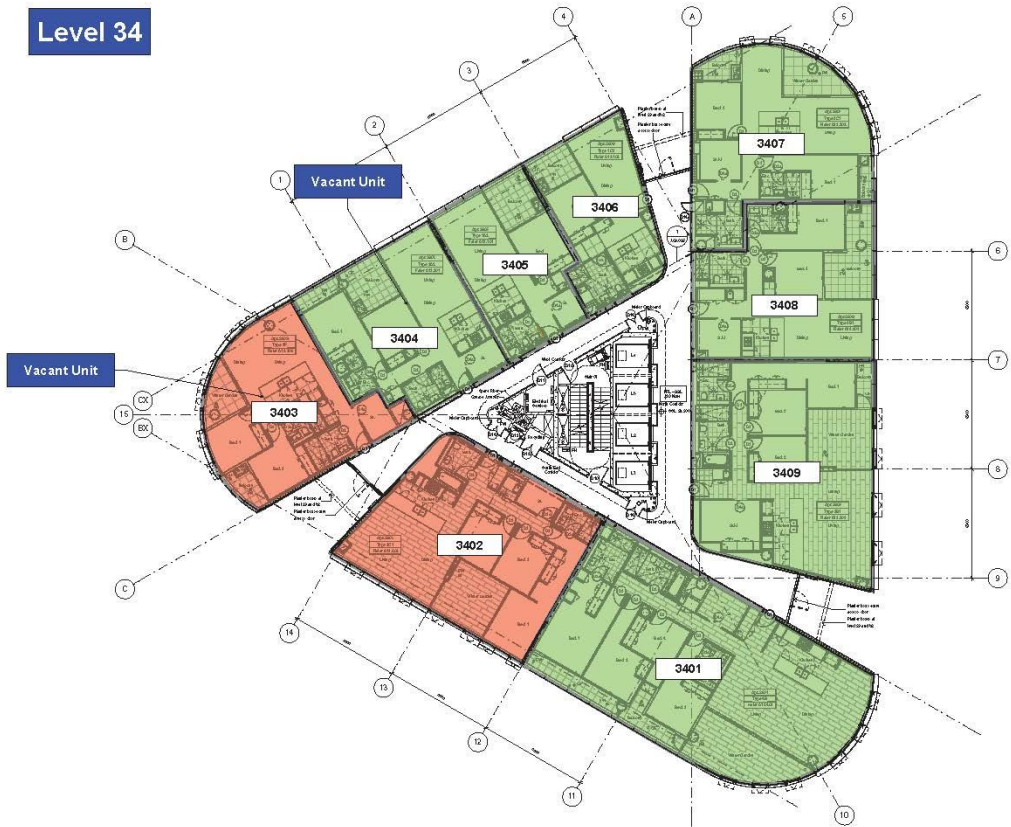


Level 32



Level 33





6. LOGISTICS

6.1 Overview

Construction work in a building partially occupied by residents will need care and diligence from Icon and its Subcontractors, and residents need to observe minimum logistics requirements as outlined below.

6.2 Parking

Construction personnel will not have access to park their personal vehicles in the Opal Tower carpark. Residents will need to refer to the Traffic Management Plan -to be provided by Icon- for the relocation of driving paths throughout the carpark.

6.3 Builder's Lift

Icon will dedicate for construction personnel activity the use of Lift Number 1 throughout the duration of structural repairs work. This lift will not be available to residents until completion of the repairs work. The remaining three lifts will not be used for any construction related works or personnel.

6.4 Cranage

Throughout the repair works there is the possibility that Icon may need to use a mobile crane. If this were to be the case residents will be notified well in advance about its use, and appropriate exclusion zones will be implemented for the safety of all residents and construction personnel.

6.5 Subcontractors

Icon will employ trusted Tier 1 Subcontractors to carry out work at Opal Tower, who hold the best reputation in their respective field of operation.

6.6 Protection

Any apartment where works are to take place all furniture and finishes will be protected to ensure no damage occurs during the works. Protection materials include drop sheets, scrap carpet and underlay etc.

Once works are complete the protection will be removed, and the apartment cleaned.

6.7 Cleaning

All apartments that have been accessed by Icon for inspection access work and/or structural repairs work will be thoroughly cleaned and handed over to the occupants in the same condition it was left by the occupants or better.

6.8 Hoardings & Delineation

Appropriate temporary walls or fencing will be installed throughout the building to isolate construction from residential zones. Residents are requested not to enter any construction areas signposted as such.

Areas within the construction areas that may be needed during an emergency (i.e. fire stairs) will be accessible at all times via unlocked but alarmed (and suitably signposted) doors in the temporary walls.

6.9 Security

Security will continue to monitor construction worker access via sign-in registers for each apartment where inspection access work an/or structural repairs work is being carried out.

6.10 Furniture Removal and Reinstatement

In some cases, given the nature of the structural repair work to be carried out, furniture will be relocated to safe storage by removalist contractors, and reinstated to original location on completion.

Occupants of apartments where this is to occur will be contacted by Icon in advance to discuss the process and list any constraints and give occupants the opportunity to collect any belongings.

7. WORKS PROGRAM

7.1 Programming Criteria

In order to minimise disruption and inconvenience to returned residents and to speed up the earliest possible return of those affected by the structural repair work, Icon proposes to program the work on as many concurrent work fronts as possible.

A programme for all works will be provided.

7.2 Schedule of Anticipated Completion Dates

Residents will be notified one week ahead of completion of their respective apartment, and joint inspections prior to occupation will be scheduled one or two days ahead of anticipated handover.

APPENDIX A – SITE LOGISTICS PLANS
