



Baker Street, Gosford

Transportation Services Concept Report

for
DKO



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1. INTRODUCTION

1.1 Aim of Report

This report examines the design basis of the lift services for the residential development in Stage 1 at Baker Street, Gosford. The main aim of the report is to outline spatial requirements of the proposed configuration as well as confirming compliance with good practice guidelines and the National Construction Code

1.2 Applicable Documents

- + National Construction Code
- + Relevant Australian Standards

1.3 Sources of Information

- + Preliminary drawings from DKO Architecture (Issued 12th October 2020)
- + Briefing Presentation from DKO Architecture (Issued 12th October 2020)

2. BASIS OF DESIGN

2.1 Building Parameters

The project comprises the following building parameters:

| | Stage 1 |
|-----------------|--|
| Levels 21 to 24 | 3 Apartments per level |
| Levels 14 to 20 | 6 Apartments per level |
| Levels 12 & 13 | 7 Apartments per level |
| Levels 4 & 11 | 8 Apartments per level |
| Levels 2 & 3 | 4 Apartments and Car Parking on each level |
| Level 1 | Car Parking |
| Ground | Car Parking / Main Entry Level |

2.2 Design Criteria

The lift design has been based on the following criteria in accordance with our own good practice guidelines as well as other recognised literature such as the CIBSE guide:

| | Luxury | Normal | Low Income |
|------------------------------------|---------------|---------------|---------------|
| Average Waiting Time | 30-50 seconds | 40-60 seconds | 60-80 seconds |
| 5 minute Two Way Handling Capacity | 8% | 6-8% | 5-7% |

2.3 Design Criteria Summary

The following is the recommended performance criteria to satisfy a 2-way peak period movement:

| | Baker Street Stage 1 |
|----------------------|---|
| Handling Capacity | 7 - 8% of the total building population in 5 mins |
| Average Waiting Time | 50 seconds |
| Access Levels | Ground, Levels 1 to 3 |

The total population of the building has been determined based on the following assumptions:

| | |
|---|--|
| Occupancy (1 bed and studio apartments) | 2 people per 1 bedroom or studio apartment |
| Occupancy (2 bed apartments) | 3 people per 2 bedroom apartment |
| Occupancy (3 bed apartments) | 4 people per 3 bedroom apartment |

3. TRAFFIC ANALYSIS

3.1 Summary – Two Way

| | 2 Lift Option | 3 Lift Option |
|---------------------------|----------------------|----------------------|
| Control System | Conventional control | Conventional control |
| Levels Served | G, 1 - 24 | G, 1 - 24 |
| Number of Lifts | 2 | 3 |
| Two Way Handling capacity | 8% in 5 minutes | 8% in 5 minutes |
| Average Waiting Time | 46 seconds | 28 seconds |
| Lift Capacity | 18 Persons | 18 Persons |
| Lift Speed | 2.5 m/s | 1.75 m/s |

3.2 Traffic Analysis Comments

Two options have been considered for this current scheme. The first option was based on minimising the lift core area taken up. The second option was based on reducing the lift speed to minimise pit depth and lift shaft overrun requirements.

With the first option, a 2-lift configuration was used. In order to ensure this configuration could work, a faster lift speed was used. The performance of this configuration satisfied good practice guidelines for normal to luxury quality apartments. While the lift shaft area is minimised by only using 2 lifts, the increased lift speed required to achieve adequate performance, means that the lift over run and pit depth will be larger.

In order to reduce the pit depth and lift over run, the lift speed needed to be reduced. This led to the second option. With this option, with the slower speed, 3 lifts are required to satisfy the performance benchmark.

If the aim is to reduce the overall floor area required by the lift shaft, then the first option of 2 lifts would be the best solution. If the reductions of lift over run and pit depth are more critical drivers than the second option with 3 lifts would be most suitable for the building.

4. GENERAL COMMENTS

Both lift options have been designed to serve all levels of the building (Ground, Levels 1 – 24). The lifts have been sized to allow transportation of people, furniture and stretchers. They have been sized to satisfy the requirements of the National Construction Code and other relevant Australian legislation.

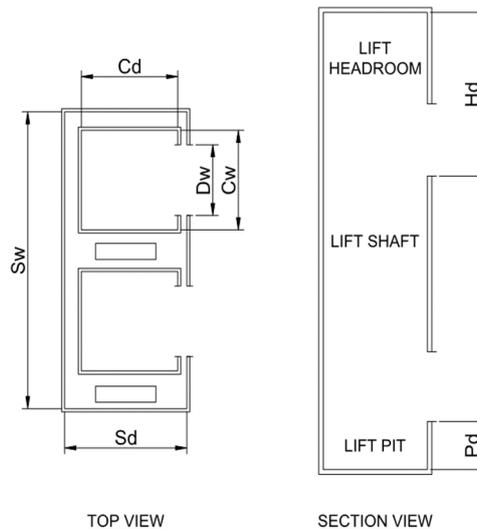
The noise level in the lift shaft will be in the order of 75db(a) which may require acoustic treatment for any apartments with living spaces adjacent to the lift core.

The lobby width will require at a minimum to provide access for furniture potentially up to 2,400mm in length. A stretcher with dimensions 2,000mm long x 600mm wide x 1,400mm high should be able to be moved in and out of the lifts at all levels. Consideration should be given to allowing furniture to be able to moved in and out of lift lobbies as well as in and out of each apartment.

4.1 Lift Type

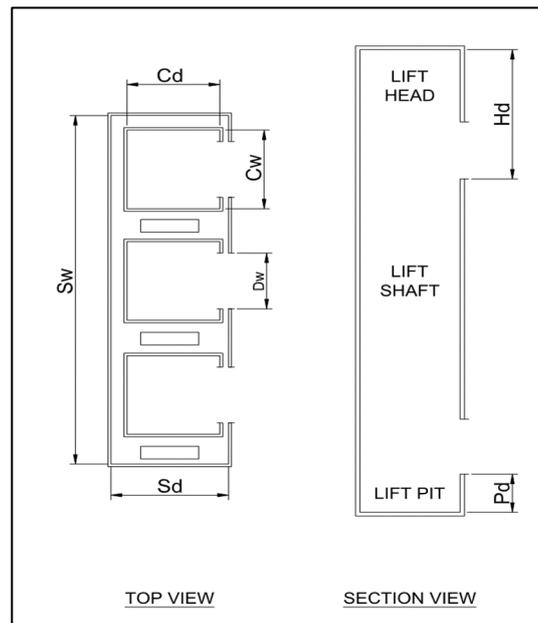
The lifts will be gearless machine room less lifts. There will be no requirement for a machine room as the main control modules and machines are located within the lift shaft at the top. A maintenance control panel for each lift will be required adjacent to the landing doors on the highest level served.

4.2 Lift Layout – 2 Lift Option



| Group | LIFT CAR DIMENSIONS | | | | | INTERNAL SHAFT DIMENSIONS | | | |
|------------|---------------------|-----------------|----------------|----------------|---------------------|---|------------|---------------|----------------|
| | Door Width (Dw) | Car Door Height | Car Width (Cw) | Car Depth (Cd) | Internal Car Height | Width (Sw) | Depth (Sd) | Headroom (Hd) | Pit Depth (Pd) |
| Duplex (2) | 1,000mm/ 1,100mm | 2,300mm | 1,450mm | 2,000mm | 2,500mm | 4,850mm including trimmer beam | 2,450mm | 5,200mm | 2,400mm |

4.3 Lift Layout – 3 Lift Option



| Group | LIFT CAR DIMENSIONS | | | | INTERNAL SHAFT DIMENSIONS | | | | |
|-------------|---------------------|-----------------|----------------|----------------|---------------------------|--------------------------------|------------------|---------------|----------------|
| | Door Width (Dw) | Car Door Height | Car Width (Cw) | Car Depth (Cd) | Internal Car Height | Shaft Width (Sw) | Shaft Depth (Sd) | Headroom (Hd) | Pit Depth (Pd) |
| Triplex (3) | 1,000mm / 1,100mm | 2,300mm | 1,450mm | 2,000mm | 2,500mm | 7,300mm including trimmer beam | 2,450mm | 4,700mm | 1,800mm |

Notes relevant to both options`

- + The dimensions provided above are internal clear plumb, as such construction tolerances and the shaft structure should be considered.
- + It is assumed all pits are to solid earth.

5. LIFT SCHEDULE – BOTH OPTIONS

| Item | Detail | | |
|-------------------|--------------------------------------|--|--------------------------|
| | | 2 Lift Option | 3 Lift Option |
| Duty | Load (kg) | 1,350 kg | 1,350 kg |
| | Pass (No.) | 18 Pass | 18 Pass |
| | Speed (m/s) | 2.50 m/s | 1.75 m/s |
| | Drive Type | Gearless | Gearless |
| | Rating | Passenger | Passenger |
| | Disabled Access | NCC, AS1428.1, AS1735.12 | NCC, AS1428.1, AS1735.12 |
| | Emergency Lifts | Yes | Yes |
| Lift Car Detail | Roof Pocket | No | No |
| | Stretcher | Yes | Yes |
| | Furniture | Yes (Items up to 2400mm in length and 1000mm in width) | |
| Doors | Type | Centre Opening | |
| | Width | One lift should have doors that are 1,100mm wide for goods movement | |
| Lift Shaft Detail | Pit to solid earth | Yes | |
| | Ventilation Openings at top of shaft | Required. Openings will need to be vermin and weather-proof. | |
| | Machine Room | Not required. Lift machine, drive and control panels will be located within shaft. A maintenance access panel will be required for each lift and it will be located adjacent to the lift entrance at the highest level served. | |