



Consultant Advice

From: **Ian Hanna** Date: **24 Apr. 13** File No: S29685\001\L-105\ca130423s0027 Pages: 3
Project: **Site 3 – Australia Towers II – Sydney Olympic Park – Tower D** No: **L-002[1.0]**

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Lift Services Performance

1.0 LIFT SERVICES DESIGN

Further to our Lift Services schematic design report dated 14/02/2011, we have been commissioned to review lift performance on the basis of a revised apartment mix and rated speed of the lifts.

The total building population applied for the purpose of this review is 1017 persons, based on 1.8 persons per bedroom as per Bates Smart apartment mix schedule dated 22/03/2013.

Rated speed of the lifts is as per Bates Smart advice of the proposal to provide a 3 car group of lifts as follows:

- Lift Nos. 6 & 7 at rated speed of 4.0 m/s - Overhead Machine Room Lifts, serving levels B04 to 29 inclusive
- Lift No. 5 at rated speed of 2.5 m/s - Machine Roomless Lift, serving levels B04 to 30 inclusive (reduced rated speed is to accommodate the machine roomless type lift to enable a limited service to the level 30 communal area)

* the 2 level penthouses on levels 29/30 have an internal stairway & lift access is via level 29, hence this review considers the impact of the reduced lift speed, and does not consider travel to and from the communal area on level 30.

1.1 Recommended Performance Criteria

We reiterate below our previous advice in relation to recommended lift services performance standards for residential developments & the 'Grade of Service' recommended for this development:

RESIDENTIAL BUILDINGS – TWO-WAY LOBBY DEMAND – 5 Minute Interval

Criteria	Excellent Service	Good Service	Fair Service
Waiting Interval	50 – 55 seconds	60 – 65 seconds	70 – 75 seconds
Handling Capacity	7%	6%	5%

*Population density based on 1.75 - 2.0 persons/bedroom

For this project, we recommend the lifts be designed to provide a standard of service within the "Good" range; "Fair Service" is not recommended for a high quality residential development.



2.0 LIFT EQUIPMENT AND PERFORMANCE DETAILS

2.1 Tower D – Previous Details

Previous Lift details based on Bates Smart competition scheme area for Tower 2 (D) were:

■ Performance Details (Based on 1.8 persons/bedroom)

Number of Lifts / Type	Three (3) Lifts / Overhead LMR
Rated Speed	4.0 m/s
Rated Capacity	21 passengers
Levels Served	B3, B2, B1, G, 1-29 inclusive
Total Population Based on 1.8 persons per bed room	955 persons
Performance details – Two way Lobby demand – 5 minute interval (Computer based calculated performance)	Conventional 3 Car Group Control
Waiting Interval	63.8 seconds
Handling Capacity	6.2%

2.2 Tower D – Revised Details

2.2.1 Revised Lift details based on Bates Smart apartment mix schedule dated 22/03/2013, with lift rated speed unchanged are:

■ Performance Details (Based on 1.8 persons/bedroom)

Number of Lifts / Type	Three (3) Lifts / Overhead LMR
Rated Speed	3 Lifts @ 4.0 m/s
Rated Capacity	21 passengers
Levels Served	B4, B3, B2, B1, G, 1-29 inclusive (Service to Level 30 not considered for two way lobby demand)
Total Population Based on 1.8 persons per bed room	1017 persons
Performance details – Two way Lobby demand – 5 minute interval (Computer based calculated performance)	Conventional 3 Car Group Control
Waiting Interval	65.4 seconds
Handling Capacity	6.1 %



2.2.2 Revised Lift details based on Bates Smart apartment mix schedule dated 22/03/2013 and revised lift rated speed are:

▪ **Performance Details (Based on 1.8 persons/bedroom)**

Number of Lifts / Type	Three (3) Lifts / Overhead LMR
Rated Speed	2 Lifts @ 4.0 m/s + 1 Lift @ 2.5 m/s
Rated Capacity	21 passengers
Levels Served	B4, B3, B2, B1, G, 1-29 inclusive, + Level 30 by 1 lift only (Service to Level 30 not considered for two way lobby demand)
Total Population Based on 1.8 persons per bed room	1017 persons
Performance details – Two way Lobby demand – 5 minute interval (*Computer based simulated performance)	Conventional 3 Car Group Control
Waiting Interval	68.0 seconds
Handling Capacity	6.0 %

*Simulated performance assessment required to accommodate varied lift speed within the 3 car group

3.0 CONCLUSION

From the above results for the revised scheme with the rated speed of 1 lift being reduced to 2.5 m/s, Waiting Interval at 68.0 seconds is marginally outside the 65.0 seconds recommended maximum for this project, however performance remains within acceptable industry standards & we raise no concern with the proposed change in the rated speed of 1 lift.

Notes:

- The above results are based on industry standard service characteristics and equipment capabilities. Differences between the calculated & simulated performance results and actual service provided by the installed equipment may be encountered due to variations in user behaviour and /or building design which were not anticipated for the purpose of this report.
- This report provides comment on the Lift Services schematic design only and all lift equipment design, manufacture & installation remains the responsibility of the Lift Services supplier.

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