

THOMSON

ELEVATOR CONSULTANCY SERVICES

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19 December 2013

GL Investments Co Pty Ltd
ATF GL No.1 Trust
Suite 2.02B
350 George Street
Sydney NSW 2000

Attention: Jenny Watt

Re: Four Points 161 Sussex Street, Sydney – Hotel Lift Study

Dear Jenny

As per your request we have completed the lift pedestrian traffic count of the existing hotel lifts at Four Points – 161 Sussex Street, Sydney.

The dates and times the head count was carried out were:

- Tuesday 4.30pm to 8.30pm
- Wednesday 7.00am to 9.45am
- Saturday 2.00pm to 7.30pm.

Four Points Director of Food and Beverage provided the occupancy rates for these times and they were 97.95% for The Tuesday night/ Wednesday morning and 99.12% for the Saturday evening. Needless to say the lifts during this time were busy but our observation was that they handled the traffic well. We do note that the handling capacity¹ during this time was not more than 9% in a 5 minute period of the estimated building population being 1.4 persons per room.

The highest number of people entering and exiting the lifts at the main foyer in a five minute block during our counting was 80 persons – 33 entering the lift and 47 exiting the lift. This occurred between 6.20 and 6.25pm on the Saturday.

With the information gather we ran numerous traffic simulations to see what the effect would be on the lifts should with the addition of the new rooms and also what would happen with the lifts if other parameters change such as arrival rates and occupancy.

We have below two tables the blue being our calculations and simulations results based on 97% occupancy and the green based on 85% occupancy. The table - Total pax summary by JH dated 26-11-13 as provided by GL Investmentco Pty Ltd was also used for the basis of the simulations.

¹ Handling Capacity = the total number of passengers that an elevator system can transport in a five minute period, not exceeding 80% of the car capacity.

	Current	Estimated Based on actual head count	Current + New Rooms	Current + New	6 Lifts Current + New	6 Lifts Current + New	7 Lifts Current + New	7 Lifts Current + New
Handling capacity %	13.0	9	13	9	13	9	13	9
Interval	55.6	30.3	No result as cars fill up and system overloads at 97% Occupancy	50.1	54.1	30	37.5	20.2
Average Waiting time (Sec)	26.7	14.2		24.6	30.1	14.7	17.4	10.3
Longest Waiting (Sec)	178.2	82.1		149.4	238.3	94.2	133.4	77.7
Average Travel Time (Sec)	68.3	49		67.6	73.7	57.1	65.6	50.8
Longest Travel Time (Sec)	187.6	149.4		184.9	193.9	172.3	183.7	171.1
Average Time to Destination (Sec)	95.0	63.1		92.2	104.7	71.8	82.9	61.1
Longest Time to Destination (Sec)	249.6	174.1		239.6	288.8	196.9	211.8	181.9
Capacity Factor by Mass (%) ¹	61.4	23.1		51	79.4	31.4	55.1	20.6
Capacity Factor by Area (%) ²	76.7	28.9		63.6	99.2	39.3	68.8	25.7
Based on Occupancy (%)	97.0	97		97	97	97	97	97

In the blue table above if we look at the results for at the measured handling capacity (HC) of 9% the lift system will cope with the proposed additional rooms. However if this handling capacity changes above this the lift system quickly becomes saturated and the performance of the lifts dramatically drops off. You will see if the building was at 97% occupancy and the capacity was 13% the simulation produces no results as it determines that the system at 13% will fail. You can see even in the green table below at 13% HC and 85% occupancy the results would be considered poor for the mid-high end hotel market, in fact the lifts would not be able to meet this demand as the cars would be overflowing with people, this is shown by the capacity factor by area being 110% and this is impossible to achieve as the lift is full. Whereas at 9% HC, 85% occupancy the lifts would be able to cope with the demands, although not near the levels that they currently provide.

	Current	Estimated Based on actual head count	Current + New	Current + New	6 Lifts Current + New	6 Lifts Current + New	7 Lifts Current + New	7 Lifts Current + New
Handling capacity %	13.0	9	13	9	13	9	13	9
Interval	55.6	23.9	69	40.5	45.2	24.5	30.5	16
Average Waiting time (Sec)	26.7	13.1	42.2	21.6	22.3	13.6	13.7	9.3
Longest Waiting (Sec)	178.2	70.4	286.5	118.3	146.3	93.7	106.6	70.1
Average Travel Time (Sec)	68.3	45.5	75.5	59.2	67	51.5	59.5	45.6
Longest Travel Time (Sec)	187.6	151.3	192.5	168	183.3	156	178.9	145.9
Average Time to Destination (Sec)	95.0	58.5	117.7	81.1	89.3	65.1	73.2	54.9
Longest Time to Destination (Sec)	249.6	176.1	340.7	229.9	227.8	187.7	195.9	161.4
Capacity Factor by Mass (%)	61.4	16	88.8	31	58.1	21.8	39.2	14.3
Capacity Factor by Area (%)	76.7	19.9	110.9	36.1	72.6	27.3	48.9	17.8
Based on Occupancy (%)	85.0	85	85	85	85	85	85	85

¹ Capacity Factor by Mass kg's (%) is to percentage of car load compared to the maximum car load.

² Capacity Factor by Area m² (%) is to percentage of car area taken compared to the maximum car area.

Based on the figures once the lifts are upgraded it is our opinion that they will be operating at their capacity the majority of the time. There is no spare capacity based on the measured figures of 9%. Any additional capacity will quickly add to the average waiting times and degradation of the lift performance. The current system with the additional rooms would not provide a good level of service at the occupancy rates we witnessed during our studies. However, with one additional lift installed to operate with the same group of lifts (Beside lift 5) would provide a level of good level of service.

Typically in a hotel the maximum area used is not more than 30%, during our site recording we noted numerous passengers opt to wait rather than enter a lift with other people, particularly during the quieter periods.

Based on our review, on site studies and the information above we would recommend that an additional lift installed beside lift 5. As this provides capacity due the busy periods and also would provide adequate service during the times of lift outages, such as maintenance and repairs.

If this is not possible measures will need to be made to keep the occupancy near 85%. Should the hotel be as full as it was on the Saturday of our measurements, we believe you will possibly loose return patrons due to the reduced lift service if this was to happen too frequently.

It is our opinion that to install a single lift in another part of the building would not provide the same benefit that it would if installed beside the existing group, unless it was made an executive lift for the top one or two floors and a separate entrance was to be provided along with special treatment for those patrons that enticed them to use that lift only, otherwise they will use the main group regardless.

Other factors that we saw effect the smooth operation of the lifts was the hall lanterns and gongs. These need to be checked and always working, we noted a number of occasions that these did not operate clearly and the lift arrived opened its doors then closed and left empty.

We note that the upgrade will provide a more efficient lift service but we do not believe the gains will be enough to have the peaks adequately handled.

If you require further information please do not hesitate to give us a call at any time.

Sincerely,



Rod Post
Associate