Extraordinary General Meeting

20 August 2018

Strata Plan 64622

ALTAIR

3 KINGS CROSS ROAD
RUSHCUTTERS BAY

Annexure A

Motion 2
Electrical infrastructure upgrade

Shelmerdines Report
Mechanical services apartment air conditioning review June 2018

Altair Explanatory newsletter June 2018
Circulated June 2018

Altair information meeting July 2018
Presentation slides provided at the meeting 16 July 2018

Shelmerdines
Consulting Engineers

MECHANICAL SERVICES APARTMENT AIR CONDITOINING REVIEW

for

ALTAIR APARTMENTS
3 KINGS CROSS ROAD
KING CROSS, NSW

Prepared by:

SHELMERDINES Consulting Engineers
ABN 40 003 331 879
55 Hume Street
Crows Nest NSW 2065
Telephone: 02 9435 3021
Fax: 02 9439 8709

For:

Altair Apartments – Strata Plan 64622
3 King Cross Road
KINGS CROSS NSW 2000

6910M
Issue - A
18 June 2018

1.0 INTRODUCTION

The body corporate at Altair Apartments are currently investigating the feasibility of increasing the power supply to the building by an additional 380amps (3 phase) in order to facilitate the potential air conditioning of apartments. Shelmerdines Consulting Engineers have been engaged to undertake a review of the potential air conditioning requirements and determine an equitable manner in which to facilitate and control the uptake of air conditioning by apartment owners.

To address the equitable allocation of the available power supply we have carried out preliminary heat load calculation for each apartment type and calculated the allowable power allocation on a prorate basis.

2.0 METHODOLOGY

Peak cooling loads have been calculated using Acads-BSG CAMEL software program, Version 5.11.1. The program uses the Carrier Air Conditioning Load Estimation Method as outlined and endorsed by the AIRAH Application Manual DA-9 “Air Conditioning Systems – Load Estimation and Associated Psychrometrics”.

The program analyses the apartment orientation, extent & construction of external walls, extent & type of external glazing, external shading, floor & roof loads, internal loads, extent of infiltration, etc, to determine the cooling & heating demands of each apartment.

Peak (day time) cooling loads have been calculated for the potential conditioned spaces including Living, Dining, Kitchen, corridors and Bedroom areas. Loads do not include for unconditioned areas, such as; bathrooms, cupboards, services risers, etc.

Note the air conditioning cooling capacity required for each apartment is predominately impacted by the orientation & extent of glazing & extent of external walls as opposed to the floor area of the apartment. For example it is therefore probable that apartments with both a northern & western glazed façade will require more cooling than a larger apartment with only a northern façade.

Heat load calculations are based on typical apartment types for comparison purposes only to establish comparable power allowances. Actual cooling capacity requirements for individual apartments should be assessed independently on a case by case basis. Air conditioning system capacities shall not exceed the Allocated Diversified Amps Available tabled attached.

Apartment areas tabled are based on the estimated area of conditioned space for each typical apartment type. Areas may not match apartment surveyed/titled areas.

2.1 Cooling Load Calculation Design Conditions

The heating and cooling load calculations were based the following design conditions:

Inside:

Summer:	23.0ºC DB	50% RH
Winter:	21.0ºC DB	

Outside:

Summer:	32.8ºC DB	22.6ºC WB
Winter:	7ºC DB	

Glazing:

Type:	Clear Single Glazed
U Factor:	5.80 W/m^{2}K
Shading Co:	Combined glass/blind shading of 0.4/0.6
Internal Shading:	Yes

Outside Air: Naturally ventilated

Infiltration: 0.5 air changes/hour

Occupancy: 4 people per apartment (max) based on 2 residents plus 2 guests.

Activity: 74W/Person Sensible load.
56W/Person Latent load

Lighting and Equipment load:

Lighting: 5.0 W/m^2
Equipment 5.0 W/m^2

Partition load:

The common corridor, bathroom WC and Laundries were considered unconditioned spaces.

Partition loads were calculated per area of unconditioned space under the following conditions:

- Delta T used for partitions between bathrooms and conditioned spaces is taken as 50% of temperature differences.
- Delta T used for internal partitions, floors and ceilings between conditioned spaces of apartments is taken as 25% of temperature difference, assuming 50% of adjacent apartments are unconditioned (unoccupied).
- Proportional temperature difference of 2 degrees between conditioned space and unconditioned corridors and other common areas.

All calculated loads include a Cooling and Heating Safety Factor of: 10%

2.2 Building Construction:

External Walls:

Block work Wall construction
Type: 110mm Brick, R1.5 Batts, 10mm Plasterboard
U-Value: 0.51 W/m^2K
Density: 224 kg/m^2 (Camel Library Reference)

Internal Walls:

Conditioned spaces/Corridors & Inter-tenancy walls
Type: Nominal 90mm inter-tenancy wall
U-Value: 2.0 W/m^2K

Internal Floors:

Type: 200mm Concrete, carpet & underlay
U-Value: 1.3 W/m^2K

Internal Ceilings:

Type: 200mm Concrete with plasterboard ceiling
U-Value: 1.65 W/m^2K

Concrete Roof:

Concrete roof construction (R-values)

Type:	150HW Concrete, 10mm Roof Membrane, Roof Space, 13mm Plasterboard
U-Value:	1.16 W/m^{2}K
Density:	383 kg/m^2 (Camel Library Reference)

3.0 AIR CONDITOINING – DIVERSIFIED POWER ALLOCATION

The attached table summarises the calculated diversified single phase power allocation available for each apartment type, subject to the proposed upgrade of an additional 380 Amp (3 Phase) power supply.

A diversification factor of 64% has been applied to the total power available based on 80% building occupancy with air conditioning units drawing 80% of full load amps.

The Full Load Amps Ratings of proposed apartment air conditioning units shall not exceed the single phase Allocated Diversified Amps Available tabled.

4.0 AIR CONDITIONING – CONFIGURATION REQUIREMENTS

The air conditioning systems to be installed shall typically be reverse-cycle, air-cooled split or mutli-split systems.

Indoor units shall be wall mounted, above ceiling/bulkhead ducted units or hotel style bulkhead units.

Condensing units shall be installed on balconies for Levels 1-16. Depending on practical considerations, condensing units serving apartments on Level 17-19 shall be, ideally, installed on the roof (to replace existing Level 17-19 condensing units).

Condensate from the indoor units shall be piped to a suitable drain point within each apartment.

Refrigerant pipework exposed on balconies shall be concealed in a proprietary ducting system.

Noise and vibration of installed air conditioning systems shall be in accordance with EPA & council requirements.

For comparison purposes we have reviewed the allocated diversified amps against suitable wall mounted split units (Daikin ‘FXK(X)M-P’ Series) and wall mounted multihead/VRV units (Daikin ‘Super Multi NX’ & ‘VRV iv S’ Series) to ensure suitable capacity air conditioning units can be selected based on the allocated amp limitations.

5.0 AIR CONDITIONING – APPLICATION & APPROVAL

Apartment owners seeking to install air conditioning will need to make application to the body corporate in accordance with the body corporate by-laws. Air condition shall not be installed without body corporate approval.

Installation of air conditioning may be subject to council approval.

6910 - Altair Apartments

3 Kings Cross Rd, Rushcutters Bay NSW 2011

Shelmerdines Consulting Engineers

Additional Available Capacity	1140	Amps (1 Phase)
Existing capacity serving Level 17-19	296	Amps (1 Phase) - 98.7 Amps 3 phase
Total	1436	Amps (1 Phase)
Diversity	64%	(80% occupied running at 80% capacity)
Diversified Capacity	2244	Amps (1 Phase)

Apartment Numbers	Apartment Type	No. of Apts	No. of Bedrooms	Orientation	Area (m^2)	Total Cooling (kW)	Total Heating (kW)	Cooling (W/m^2)	Heating (W/m^2)	Prorata Amps Available (1 Phase)	Allocated Diversified Amps Available (1 Phase)
101, 102, 103	I	3	1	N	74	7.4	4.5	100	61	8.6	13.4
401w, 501w, 601w, 701w	U, P	4	1	NW	58	9.3	6.5	160	112	10.7	16.8
403w, 406e, 503w, 506e, 603w, 607e, 703w, 707e	X, R	8	1	N	42	4.7	3.8	112	90	5.4	8.5
404w, 409e, 504w, 509e, 604w, 611e, 704w, 711e	Y, S	8	1	S	47	4.1	3.9	87	83	4.7	7.4
405w, 505w, 605w, 705w	V, Q	4	1	SW	58	9.0	6.5	155	112	10.4	16.3
402w, 502w, 602w, 702w	W, T	4	1.5	N	63	5.6	4.8	89	76	6.5	10.1
407e, 507e, 608e, 708e	Z, K	4	1.5	N	64	5.2	4.4	81	69	6.0	9.4
605w, 610e, 705w, 710e, 805w, 810e, 905w, 910e, 1005w, 1005e, 1105w, 1110e, 1205w, 1210e, 1304w, 1308e, 1404w, 1408e, 1504w, 1508e, 1604w, 1608e, 1703w, 1706e, 1803w, 1806e	L	26	1.5	WSE	56	7.6	6.4	136	114	8.8	13.7
802w, 803w, 807e, 808e, 902w, 903w, 907e, 908e, 1002w, 1003w, 1007e, 1008e, 1102w, 1103w, 1107e, 1108e, 1202w, 1203w, 1207e, 1208e	M	20	1.5	N	48	4.1	3.5	85	73	4.7	7.4
1302w,1306e, 1402w, 1406e, 1502w, 1506e, 1602w, 1606e	K	8	1.5	N	72	5.6	4.9	78	68	6.5	10.1
801w, 901w, 1001w, 1101w, 1201w	H	5	2	NWS	74	14.0	9.7	189	131	16.2	25.3
809e, 909e, 1009e, 1109e, 1209e	H	5	2	NES	74	11.7	9.7	158	131	13.5	21.1
804w, 806e, 904w, 906e, 1004w, 1006e, 1104w, 1106e, 1204w, 1206e	J	10	2	NS	86	6.7	6.9	78	80	7.7	12.1
508e, 609e	F	2	2.5	NES	92	12.5	10.8	136	117	14.4	22.6
1303w, 1305e, 1405e, 1503w, 1505e, 1603w	G	6	2.5	NS	110	8.2	8.3	75	75	9.5	14.8
408e, 709e	N, D	2	3	NES	92	12.5	10.8	136	117	14.4	22.6
1301w, 1401w, 1501w, 1601w	D	4	3	NWS	100	15.5	11.3	155	113	17.9	28.0
1307e, 1407e, 1507e, 1607e	D	4	3	NES	100	12.9	11.3	129	113	14.9	23.3
1403w, 1605e	E	2	3	NS	110	8.2	8.3	75	75	9.5	14.8
1701w, 1801w	B	2	3	NWS	150	19.2	14.8	128	99	11.0*	17.2*
1705e, 1805e	B	2	3	NES	150	15.9	14.8	106	99	11.0*	17.2*
1702w,1704e, 1802w, 1804e	C	4	3	NS	140	10.0	10.2	71	73	18.0	28.1
1901w	A	1	3	NWS	190	23.9	23.4	126	123	20.8*	32.5*
1902e	A	1	3	NES	190	20.4	23.4	107	123	20.8*	32.5*
Total - Apartments		139								1436.0	2341.3
Total - Retail		1			240						70.0**

Notes:

1. The cooling & heating loads noted above are calculated for comparison purposes only.
2. The cooling and heating loads of indivudal apartments should be reviewed in detail to determine actual air conditoining cooling & heating requirements.
3. The available amps nominated for each apartment type have been prorated based on the nominal cooling capacity
4. All amp ratings calculated above are quoted as single phase amps, except where noted (* - 3 phase)
5. Apartment air conditioning unit Full Load Amps Ratings shall not exceed the single phase Allocated Diversified Amps Available noted above
6. Note air conditoining unit minimum circuit amps rating will be greater than the rated Full Load Amps
7. ** - Allocated (single phase) amps for Retail is based on current AC systems installed & is not included in, or impacted by, the proposed additional power supply

Strata Plan 64622
June 2018

Owner's Newsletter

Power Supply & Air-Conditioning in Altair

Should we proceed with Plan B?

Possible Special Levy of $400k-$500k

ALTAIR

Background

Altair was commissioned in 2001 and in 2002 was awarded as 'The best residential housing scheme in the world' by an international architectural congress. This was, in part, because of the use of a system of 'cross-flow' ventilation.

The two penthouse apartments have fully ducted A/C. The eight sub-penthouses have limited ducted A/C (in the dining/lounge area only). The remaining approximately 130 apartments, mainly one and two bed apartments, do not have A/C and are specifically prevented from installing A/C through a long-standing by-law.

The retail lot has a limited agreement to allow A/C which has technically expired (in January 2017) but has been allowed to roll-over temporarily as this issue is investigated for the entire building.

At the 2017 AGM it was agreed that the SC would conduct research into the practicalities, logistics and broad costs of possibly allowing A/C in Altair (Plan B).

At the 2018 AGM the Owners asked the SC to advance research into engineering, regulation and more precise costs necessary to allow the use of air-conditioning in Altair.

Ultimately any decision to proceed would require a Special Resolution, which in simple terms needs 75% approval by the Owners at a General Meeting.

Research

Your SC has conducted research from a completely impartial standpoint.

Your SC has no position on this issue. The matter is entirely for the Owners to decide.

The research has been conducted by consultation with appropriate experts;

- Electrical Engineers - Shelmerdines
- Grace Lawyers
- Our Strata Management company - Strata Choice
- Our Building Management company - Francis Management
- City of Sydney Council Planning
- An Independent Certified Town Planner
- An architectural practice
- Altair's original construction electricians - CESA
- Real estate agents making recent sales in Altair.

Our research has spanned 18 months but is not totally definitive. There are ongoing variables that will probably not be finalized until after we obtain approval from the Owners to proceed such as City of Sydney Council requirements, architectural drawings, engineering issues etc.

We believe, however, that we now understand the issues and costs sufficiently well to ask the Owners to vote on whether to proceed with this matter.

Power Supply

Altair employed consultants, Northrop in 2011 and Shelmerdines in 2017, to report on the status of our power supply. These reports are on our website. Both consultants have confirmed that Altair does not have sufficient power supply to allow unlimited universal A/C.

Accessing sufficient power to do this would involve installing a dedicated sub-station in the Altair carpark. This option has been researched and abandoned for cost, logistical and legal reasons…at this stage.

Depending on issues such as Electric Vehicle Charging [EVC], this may eventually be forced on us and we have taken this possibility into account with Plan B. All work and costs associated with Plan B are both required for Plan B but would also contribute towards installing a sub-station if necessary, without wastage or duplicate costs.

Currently, Altair is supplied with 400amps of power [across 3 phases] from a sub-station in the basement of the Elan building. We are advised that we can be given access to a maximum additional amount of 380amps from this source.

To access this additional supply, we will require an upgrade to our electrical infrastructure [mains wiring, main sub-board and sub-mains risers].

This additional extra power, however, is still not sufficient to allow unrestricted universal air conditioning and therefore each apartment would have to be limited by allocation of additional amps for A/C.

More detailed issues surrounding power supply are covered in a newsletter to Owners dated November 2017 which is on our website.

Air-Conditioning

Altair was designed and constructed as a 'non-air-conditioned' building. It has no universal A/C infrastructure. There are no existing ducts for over 90% of apartments. Most apartments have no, or very limited, ceiling or underfloor space. Altair walls do not have A/C usable cavities. It is not practical to retro-fit A/C ducting into Altair.

Any new A/C would have to be on a per apartment basis, with wall-mounted split system units and condensers on the balconies.

As there will be limited access to extra power, the size of any A/C units would be limited by 'extra' amps allocated to each apartment.

Electrical

CESA, the electrical company who installed the original Altair wiring, have quoted on upgrading the switchboards, wiring etc. Our electrical engineering consultants, Shelmerdines, have reviewed the CESA specifications and costings and advise that they are appropriate.

Installation would take approx. 12 weeks with minor interruptions to power.

Amperage Allocation

Shelmerdines have been retained to recommend the most effective and fair system of allocating the available extra amps. This process considers:

a. Apartment footprint. We have 27 different footprints.

b. The measured exposure to the exterior walls and the construction materials of those walls.

c. The aspect of each apartment – mainly north-east or north-west.

d. Heating and cooling coefficients.

e. The size of each apartment with specific reference to 'air-condition-able' space in each apartment – discounting laundries, cupboards and bathrooms etc.

f. Entitlements of existing air-conditioned apartments which currently comprise a mixture of three-phase and single-phase power.

The inputs have been applied in accordance with an industry standard to calculate each lot's allocation.

The rationale for amp allocation recommended by Shelmerdines for each apartment is on our website. The allocation by apartment is attached.

Shelmerdines believe that in all cases this will lead to meaningful A/C service but note that some footprints are challenging and that the result might be A/C zones rather than an overall effect across the apartment. For example, bathrooms, laundries and hallways have been discounted as air-condition-able areas.

Owners are responsible for any further research regarding the A/C effect of this allocation. As a reference point we are advised that very rough ballpark figures for installation of A/C in apartments might be

One bed	$5-10k
Two bed	$10-20k
Three bed	$20-30k (TBC)

NB. These costs are owner costs and are additional to any Special Levy.

Shelmerdines will offer a design and certification service to individual apartment owners to ensure the most effective results, quality of workmanship and certification to CoSC standards. This service will be a direct cost to individual owners.

It is strongly recommended that owners use this service to gain both a professional result and required certification. We may consider mandating this via by-law.

City of Sydney Council

CoSC will require a DA for this work.
They will require, at least, a Statement of Environmental Effects from a certified town planner including

a. Detailed architectural and engineering drawings of every level and site affected.

b. Appropriate processes ensuring that DA conditions covering location, noise, vibration, drainage and aesthetics of any equipment on common property (balconies) are met by a qualified certifier.

We are advised that CoSC are not certain to approve such a DA; and that we might be required to 'ameliorate' the environmental impact of A/C by installing solar panels.to succeed in gaining DA approval.

It may be that Altair could be issued an over-arching DA; but every apartment wishing to install A/C will also need an individual DA, perhaps under the Altair 'umbrella'.

Solar

We have reviewed solar panels on the roof several times over the past 10 years and the overall equations have not 'stacked up'. This is a complex issue and is constantly evolving with changing government and energy company policies and rapidly developing technology.

With the possibility that we may be required to install solar panels to attain a DA we have retained Shelmerdines to review solar panels.

The business (cost efficiency) case for solar remains weak. Nevertheless, we continue to research avenues which could show a benefit to the building, particularly in relation to pool heating.

Solar will not provide enough additional power to allow any substantive change in our position re A/C. It will not increase our power supply enough to allow unlimited universal A/C.

Architectural Drawings

The strong advice of our Town Planner is that we hire a 'name' architect to produce the drawings required by CoSC as this issue may require advocacy.

The original architect for Altair, Ian Moore, has declined to be involved in this exercise and has expressed strong opposition to further A/C being allowed. He recommends ceiling fans.

On the advice of our Town Planner we have consulted with a 'name' architectural practice for preliminary advice. They advise that this is quite a big draughting job and will likely require architectural (and possibly mechanical) drawings for every affected balcony.

They estimate a cost of approx. $45k-$55k; but this could be more depending on the degree of mechanical drawings required.

Legal Requirements

We will require appropriate by-laws covering both the change to the Power Supply and the change to allow A/C in some lots. Grace Lawyers confirm that these actions will need Special Resolution(s).

We will probably need by-laws that strictly proscribe approval processes including design of system. Installation processes covering

- Noise
- Vibration
- Amp limits
- Unit limits
- Drainage
- Location
- Aesthetics
- Inspection procedures
- CoSC Certification procedures

The by-laws might also create a right for each lot to allocated amps whether used now or held unused for possible later usage (by a new owner?).

We do not propose to draft these by-laws until we get a 75% approval from the Owners at a General Meeting to proceed in principle and if required the detailed by-laws would likely be put to the owners at a subsequent General Meeting (2019 AGM?).

Sales Impact

Eight apartments have sold in Altair in roughly the last six months. We have consulted the seven real estate agents involved in these sales to gauge buyer feedback re A/C. NB. **This is a small sample - and does not purport to be a scientific survey -** but there was consistency in the agents' feedback with one notable exception.

a. The market is 'down' and difficult. Buyers are much reduced in number and can afford to be picky.

b. There are virtually no buyers seeking non-A/C apartments.

c. A/C is always a selling positive; but not always critical.

d. There is, however, a market that will not buy without A/C.

e. Buyers assume that a premium building like Altair will automatically have A/C. "I can't believe that a building like Altair doesn't have A/C"

f. Noise can sometimes be an issue at Open for Inspections as the doors have to be left open to let the breeze in.

g. Lack of A/C varies as an issue, but <u>if it is an issue; it is a huge issue</u>…and usually cannot be overcome.

h. "These are expensive, premium apartments and people expect the bells and whistles".

i. Agents note that it is impossible to put a definitive value on A/C, but some speculated that it could be worth between $50k-$100k to the right buyer.

j. They also note that lack of A/C narrows the market and inhibits competition which reduces pricing tension.

k. It may not be necessary to install A/C, but the right to be able to install A/C would be a strong counter to the lack of A/C.

l. One agent advised that in their experience buyers interested in Altair knew there was no A/C and therefore it simply was not an issue.

Lack of A/C may not be a defining issue for all buyers, but it **eliminates some buyers** (who expect A/C "at those prices") and reduces pricing tension.

Lack of A/C was generally seen as a negative in a buyers' market.

Costs

All cost estimates follow discussion with our consultants. We believe that these costs are realistically indicative but are not finalized, formal quotes. Costs do not include GST.

Electrical Upgrade	$290k
Engineering project design and management	$25k
Architectural and engineering drawings	$55k
Town Planner	$10k
Legal Costs	$10k
Solar Installation (f required)	$63k
Costs already incurred	$35k
Total	**$488k**

Funding

We can fund Plan B two ways.

1. SPECIAL LEVY

The final cost is likely to be between $400k and $500k plus GST. We could fund this amount in two tranches.

Tranche A

- Possibly effective 1 October in line with the normal levy cycle.
- Known fixed costs - $375k – which is the same as the current quarterly levy.
- Thus, when the first tranche is payable [October?] the <u>average</u> apartment in Altair with a quarterly levy of roughly $2750.00 would pay $2750.00 [standard levy] plus 2,750.00 [special levy] = $5,500.00

Tranche B

- Possibly effective 1 April after all costs are finalized.

- Tranche B would be the balance of the total cost less Tranche A. Probably somewhere between $25k and $125k

2. COST AMORTIZATION

We could pay the $500k for Plan B in 2019 out of the Lift Fund which is essentially Altair's bank.

We have budgeted for about $1.5m in 2026 to fund the major refurbishment of our lifts.

Accordingly, we would have to make restitution of the $500k to the Lift Fund to ensure that the fund has the required $1.5m by 2026

Our normal levies are scheduled to increase by 2% - 3% per annum.

We have modelled paying for Plan B out of the Lift Fund and calculated what would be required to maintain our normal spending plans (including inflation) plus restore the Lift Fund to $1.5m by 2026.

This would require moving our annual levy increases by an extra 1% from the projected 2-3% to possibly **4% - from 2019 to 2025.** The actual levy would be determined each year by the owners at the AGM.

This method would remove the need for a Special Levy and spread the cost over seven years. It may also have tax advantages for investors.

Your SC believes that Plan B is now a reasonable scheme and a viable option.

It is, of course, a matter for the owners whether they wish to proceed.

Next Steps

a. We propose an information meeting at **6.30pm on Monday July 16 at the Holiday Inn** where owners can ask questions regarding any aspect of Plan B. There will be no voting at that meeting.

b. After owners have time to consider their position we will hold an EGM (August?). Owners will vote by entitlements on whether they wish to proceed with Plan B.

c. There will be a binding over-arching motion to proceed, which will be a Special Resolution.

d. There will also be a motion on whether to fund Plan B by Special Levy or Cost Amortization.

e. If we decide to proceed then we will have detailed by-laws drawn up which will require owner approval at a General Meeting (probably the 2019 AGM).

Your Strata Committee

MECHANICAL SERVICES
APARTMENT AIR CONDITIONING REVIEW

Shelmerdines
Consulting Engineers

6910 - ALTAIR APARTMENTS
3 Kings Cross Rd, Rushcutters Bay NSW 2011

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Existing capacity serving level 17 - 19	296 Amps (1 Phase) -98.7 Amps 3 Phase
Total	1436 Amps (1 Phase)
Diversity	64% (80% occupied running at 80% capacity)
Diversified Capacity	2244 Amps (1 Phase)

APARTMENT NUMBERS	APT TYPE	NO. OF APTS	NO. OF BED-ROOMS	ORIEN-TATION	AREA (m^2)	TOTAL COOLING (kW)	TOTAL HEATING (kW)	COOLING (W/m^2)	HEATING (W/m^2)	PRORATA AMPS AVAILABLE (1 PHASE)	ALLOCATED DIVERSIVIED AMPS AVAIL. (1 PHASE)
101, 102,103	I	3	1	N	74	7.4	4.5	100	61	8.6	13.4
401W, 501W, 601W, 701W	U,P	4	1	NW	58	9.3	6.5	160	112	10.7	16.8
403W. 406E, 503W, 506E, 603W, 607E, 703W, 707E	X,R	8	1	N	42	4.7	3.8	112	90	5.4	8.5
404W, 409E, 504W, 509E, 604W, 611E, 704W, 711E	Y,S	8	1	S	47	4.1	3.9	87	83	4.7	7.4
405W, 505W, 605W, 705W	V,Q	4	1	SW	58	9.0	6.5	155	112	10.4	16.3
402W, 502W, 602W, 702W	W,T	4	1.5	N	63	5.6	4.8	89	76	6.5	10.1
407E, 507E, 608E, 708E	Z,K	4	1.5	N	64	5.2	4.4	81	69	6.0	9.4
605W, 610E, 705W, 710E, 805W, 810E, 905W, 910E, 1005W, 1005E, 1105W, 1110E, 1205W, 1210E, 1304W, 1308E, 1404W, 1408E, 1504W, 1508E, 1604W, 1608E, 1703W, 1706E, 1803W, 1806E	L	26	1.5	WSE	56	7.6	6.4	136	114	8.8	13.7
802W, 803W, 807E, 808E, 902W, 903W, 907E, 908E, 1002W, 1003W, 1007E, 1008E, 1102W, 1103W, 1107E, 1108E, 1202W, 1203W, 1207E, 1208E	M	20	1.5	N	48	4.1	3.5	85	73	4.7	7.4
1302W, 1306E, 1402W, 1406E, 1502W, 1506E, 1602W, 1606E	K	8	1.5	N	72	5.6	4.9	78	68	6.5	10.1
801W, 901W, 1001W, 1101W, 1201W	H	5	2	NWS	74	14.0	9.7	189	131	16.2	25.3
809E, 909E, 1009E, 1109E, 1209E	H	5	2	NES	74	11.7	9.7	158	131	13.5	21.1
804W, 806E, 904W, 906E, 1004W, 1006E, 1104W, 1106E, 1204W, 1206E	J	10	2	NS	86	6.7	6.9	78	80	7.7	12.1
508E, 609E	F	2	2.5	NES	92	12.5	10.8	136	117	14.4	22.6
1303W, 1305E, 1405E, 1503W, 1505E, 1603W	G	6	2.5	NS	110	8.2	8.3	75	75	9.5	14.8
408E, 709E	N,D	2	3	NES	92	12.5	10.8	136	117	14.4	22.6
1301W, 1401W, 1501W, 1601W	D	4	3	NWS	100	15.5	11.3	155	113	17.9	28.0
1307E, 1407E, 1507E, 1607E	D	4	3	NES	100	12.9	11.3	129	113	14.9	23.3
1403W, 1605E	E	2	3	NS	110	8.2	8.3	75	75	9.5	14.8
1701W, 1801W	B	2	3	NWS	150	19.2	14.8	128	99	11.0*	17.2*
1705E, 1805E	B	2	3	NES	150	15.9	14.8	106	99	11.0*	17.2*
1702W, 1704E, 1802W, 1804E	C	4	3	NS	140	10.0	10.2	71	73	18.0	28.1
1901W	A	1	3	NSW	190	23.9	23.4	126	123	20.8*	32.5*
1902E	A	1	3	NES	190	20.4	23.4	107	123	20.8	32.5*
TOTAL - APARTMENTS		139								1436.0	2341.3
TOTAL - RETAIL		1			240						70.0**

NOTES
1. The cooling & heating loads noted above are for comparison purposes only.
2. The cooling and heating loads of individual apartments should be reviewed in detail to determine actual air conditioning cooling & heating requirements.
3. The available amps nominated for each apartment type have been prorated based on the nominal cooling capacity.
4. All amp ratings calculated above are quoted as single phase amps, except when noted (* - 3 phase)
5. Apartment air conditioning unit Full Load Amps Ratings shall not exceed the single phase Allocated Diversified Amps Available noted above.
6. Note air conditioning unit minimum circuit amps rating will be greater than the rated Full Load Amps
7. ** - Allocated (single phase) amps for Retail is based on current AC systems installed & is not included in, or impacted by, the proposed additional power supply

Plan B Information Meeting

Monday July 16
2018

ALTAIR

Why are we here?

- This is an information meeting about next steps on Plan B.
- Plan B is the investigation into Altair's power supply relative to allowing air-conditioning.
- The presentation follows the newsletter format.
- Please ask questions at any time.
- There will be no voting.
- We will have an EGM next month to make any decisions.

Background

- Altair was designed by Engelen Moore, Architects as a ‘cross-flow’ ventilation residential building. The original design was for no air-conditioning.

- In part, this contributed to Altair being voted ‘best residential scheme in the world’ in 2002.

Background

- The developers installed ducted air-conditioning in two penthouses; and partial ducted air-conditioning (lounge only) in eight sub-penthouses.
- Altair has 129 apartments with no air-conditioning.
- Long-standing by-laws prohibit (more) A/C.

Background

- Following resolution of the ‘defects issue’ in 2010 the EC consulted the real estate agents who sold the most properties in Altair to find if there were major remaining deterrents for potential buyers (2011).

- The lack of air-conditioning was a common issue for potential buyers.

Background

- Our Building Managers advised that it was unlikely we had sufficient power to allow universal A/C.
- We commissioned international electrical engineering consultants, Northrop, to investigate.
- Northrop (2012) confirmed that Altair did not have enough power to allow universal A/C and that resolving the issue would be a major project.
- There was no owner interest in pursuing the issue.

Background

- At the 2017 AGM an owner proposed a motion to allow A/C in Altair.
- This was the first time that any formal request to review A/C had been tabled in at least 12 years.
- The motion was withdrawn but the SC agreed to review the issue.

Background

- Electrical engineering consultants, Shelmerdines, were commissioned to investigate.
- Shelmerdines confirmed that Northrop (and our Building Managers) were correct.
- Altair does not have sufficient power supply to allow universal A/C.

Background

- At the 2018 AGM the owners voted to require the SC to advance the research into Plan B regarding:
- Practicality.
- Logistics.
- Costs.

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Research

- Electrical Engineers – Shelmerdines.
- Grace Lawyers.
- City of Sydney Planning.
- Independent certified Town Planner.
- Architectural practice.
- Electrical Contractors – CESA.
- Real estate agents.
- Strata Management – Strata Choice.
- Building Management – Francis Management.

Research

18 months (and all up - $35k).

Not totally definitive and probably won't be until after any decision to proceed…

but close enough to make a decision.

Research – Plan C

- At the 2017 AGM the SC was also asked to investigate ways of cooling Altair without A/C.

- At the recommendation of Sustainability Now, who did our Energy Audit, we approached a specialist ‘green’ architect, Graham Hunt.

Research – Plan C

The architect advised that

- It was not practical to ‘re-engineer’ Altair as a climate sensitive building.
- There were measures that could be adopted.
- Mainly glass tinting, awnings and ceiling fans.
- There are “no miracle cures”.
- If all the measures were employed he estimated that the temperature could be reduced by one or two degrees on a mild day.
- BUT if the temperature got into the 30’s then nothing but A/C will make much difference.

This is not just about
Air-Conditioning

It is about Altair's

Power Supply

ALTAIR

Power Supply

- Monitoring by consultants Northrop (2012) and Shelmerdines (2017) shows that currently the entire Altair building has a peak usage of between 325A and **345A**.
- Altair currently has access to **400A, only**.
- Altair currently has infrastructure…..service mains, main switchboard and service risers in each tower, to carry **400A, only.**

Power Supply

- Both Shelmerdines and Northrop calculate that to allow unrestricted, universal air-conditioning in Altair, the building would require a total supply of approximately **845A.**

Power Supply

- Northrop and Shelmerdines have advised that we don't have enough power to allow universal A/C.
- We could put in a sub-station (in the car park). This would give enough power (1600A in three phases) for normally 'unlimited' A/C.
  - Cost approx. $1.5m.
  - Eliminate 2, maybe 4, car spaces.
  - Loss of power to Altair and Elan for a few days.
  - Legal issues
  - Abandoned…at this stage.

Power Supply

AUSGRID advise that we can access a maximum of 780A – an extra 380A - from the existing sub-station (in the Elan basement).

- This will require up-grading our wiring, mains etc. – approx. $300k.
- This wiring will also be required if we ultimately install our own sub-station – so there would be no double-costing.

Power Supply

- The extra 380A will not be enough to allow universal A/C.
- Apartments would have to be allocated an extra limited supply of Amps for A/C.
- Shelmerdines advise that this supply will be adequate for ‘meaningful’ A/C but not universal A/C.

Power Supply

- This would make no allowance for any further major draw on electricity such as Electric Vehicle Charging.

Electric Vehicle Charging(EVC)

- This is potentially a major issue
  – for Altair…and Australia.
- The technology is rapidly evolving and it is simply too soon to say what the solutions are.
- Currently each EVC station requires 32A at start-up. 148 car spaces x 32A = 4735A.
- About 1600A in three phases.
- Four times our current power supply!
- All the power that a dedicated Altair sub-station could provide.

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Electric Vehicle Charging(EVC)

- Australia is, currently, very slow in adopting electric cars.
- We are not aware of any electric cars in Altair to date.
- We might ‘future-proof’ against a future that doesn’t arrive…
- or maybe not in the form we expect.

Electric Vehicle Charging(EVC)

- We are very conscious of the potential impact that EVC might have.
- It is too early to make plans.
- Any upgrades to wiring etc. that are part of Plan B would likely also be required for EVC.
- We retain a watching brief.

Air-Conditioning

- Altair was designed as a ‘non-air-conditioned’ building.
- There is no ducting in 90% of apartments.
- Most apartments have no, or very limited, ceiling space and no underfloor space.
- The apartment walls have very narrow cavities.
- It is not practical to retro-fit Altair with A/C ducting.

Air-Conditioning

- Any new A/C would be individual apartment, wall-mounted, split systems with condensers on the balcony.
- The size of A/C units in each apartment would be strictly limited by allocated amps – and by-laws.
- Even if we had enough power for unlimited air-conditioning it would still be via wall-mounted, split systems.

Electrical

- Re-wiring, mains up-grades etc. have been quoted by CESA - at about $300k.
- Shelmerdines have examined the estimate and advise that it is appropriate in specifications and broad price.
- If we proceed we will get competitive quotes.
- The work would take about 12 weeks with minor interruptions to power.

Amperage Allocation

- We have commissioned Shelmerdines to determine a fair and effective distribution of the extra (380) amps – in three phases.

Amperage Allocation

- Shelmerdines have considered:
  - Apartment footprint. Altair has 27 floorplans.
  - Measured exposure to exterior walls and wall construction.
  - Apartment aspect – mainly north-east and north-west.
  - Heating and cooling coefficients.
  - Size of apartment by air-condition-able areas. Bathrooms, laundries, hallways have been discounted.
  - Entitlements of existing A/C apartments which are a mix of three- and single-phase.
- Applied to an industry standard model.

Amperage Allocation

- All owners have a copy of the allocation – back page of newsletter sent June 29.
- The rationale from Shelmerdines has been posted on our website for over two weeks.
- Shelmerdines believe that all apartments will get a meaningful result but some apartments will have A/C ‘zones’ rather than total cover.
- Broadly, the bigger the apartment the harder the job.

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Amperage Allocation

- Owners are responsible for any further research into the A/C effects likely from their amp allocation.
- Shelmerdines will offer a service (at owner cost) to advise on your individual apartment.
- Highly recommended…and we may mandate this via by-law as a guarantee of correct installation, best result and required CoSC certification.

Installation

- Actual A/C installation would be an owner cost.

- A rough guesstimate of actual A/C installation costs is
  - One Bed $5k-10k
  - Two Bed $10k-20k
  - Three Bed $20k-30k
  - Additional to any Special Levy.

City of Sydney Council

- CoSC will require a DA.
- Statement of Environmental Effects by a certified Town Planner.
- Appropriate, agreed processes covering
  - Location
  - Noise
  - Vibration
  - Aesthetics
  - Maybe drainage
  - Each apartment will require qualified certification

City of Sydney Council

- Approval is not certain.
- It is possible that we will be required to ‘offset’ the environmental impact of A/C by installing solar panels – irrespective of whether they make financial sense.
- Depends which planner you get…”bit of a raffle”.

City of Sydney Council

- We may be able to obtain an ‘umbrella’ DA for Altair but…
- Every apartment wanting to install A/C will require an individual DA…but maybe under the Altair ‘umbrella’.
- All apartments will require specific endorsement by the Altair OC to obtain a DA.

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Energy Savings

- We have limited power supply and are very conscious of using and saving energy.
- Our peak electricity rate went up 54% from 2017 to 2018.
- Our gas rate has increased about 25% in two years.

Energy Savings

- Altair has joined an electricity buying group sponsored by Strata Choice.
- Our peak rate went from about 8c in 2017 to 13c in 2018 but…
- Our peer group in Smart Green Apartments registered peak rates of between 18 and 20c for 2018.
- And our contract peak rate will go down
  - 2019 12c
  - 2020 11c

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Energy Savings

- We are prepared to invest where we are confident of real savings and realistic payback periods.

- We installed pool covers to save heat loss and gas in 2012.

Energy Savings

- We learned some valuable lessons.
- The payback period must be less than the warranty period.
- Installers sometimes present the best possible scenario and maybe leave some stuff out.
- Theoretical savings are NOT the same as actual savings.
- Measure and monitor.

Energy Savings

- We commissioned an Energy Audit in 2017.
- Sustainability Now advised that we

1. Change our fluorescent bulbs to LED

2. Change our pool heaters from gas to electric.

3. Install solar panels.

LED

- We converted all the fluorescent bulbs (400+) in the stairwells, storage areas and car parks to LED in April and May.
- Our June power bill suggests that we have reduced Altair common area total power usage by 30% and
- will achieve payback by the end of 2019.

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Pool Heating

- We are currently reviewing pool heating with a consultant.
- In theory electric heating should be significantly more cost-efficient than gas.
- We have provided detailed data re pool surface areas, volumes, required temperatures, wind and sun exposure etc. to a UNSW research programme.

Pool Heating

- This analysis suggests that, in theory, we could save gas bills of $75k annually.
- Our actual annual gas bill to May 2018 is $37k.
- We need to be sure that any savings are real before we invest.
- We may also have to substantially re-model and maybe enlarge our pool room to install electric heaters.
- This project has some possibilities but is a work-in-progress.

Solar

- We have reviewed solar three times in the last nine years.
- It has never made financial sense.
- We commissioned Shelmerdines to re-review solar in 2018.
- Solar would generate up to 110A (in perfect conditions) but reliably maybe 50A (on dull days).
- This is not enough to change the equation for A/C.

Solar

- Solar panels have various warranties of between 5 and 10 years.
- Solar panels rust. Altair is about 1k from the sea.
- Solar on the roof at Altair has a payback of about 10 years.
- The business case for solar is weak.

Solar

- The energy companies don’t want any excess power we generate.
- We have investigated solar in tandem with pool heating but it doesn’t (currently) ‘stack up’.

Solar

- We have investigated adding batteries.

- Batteries are expensive (approx. $75k);
  - reduce in performance over time and die after 10 years;
  - do not solve any of our issues and
  - never achieve ‘payback’.

Solar

- Solar does not deliver either
  - Cost-efficiency or
  - Enough extra power to make a real difference.
- We continue to review solar.
- The technology and government and energy company policies are constantly evolving.
- …but it doesn't (currently) help with A/C.

Architectural Drawings

- Ian Moore, the original Altair architect, has declined to be involved.
- He is strongly opposed to additional A/C.
- He recommends ceiling fans.

Architectural Drawings

- Our Town Planner strongly recommends that we retain a ‘name’ architectural practice as we may need advocacy with CoSC.
- We would need detailed drawings of every affected site (every balcony).
- We may also need ‘mechanical’ drawings?
- Big job - $45k-$55k – maybe more.

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Legal Requirements

- Grace Lawyers confirm that we will need
- A Special Resolution for any change in by-law to allow A/C …and a Special Levy.
- In simple terms this requires 75% approval by the Owners at a General Meeting.
- A new by-law (or set of by-laws) detailing the conditions under which A/C might be installed.

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Sales Impact

- Eight apartments have sold since November.
- We have consulted the real estate agents who made the sales and asked.
- *Was (lack of) A/C a factor in the sales process?*
- *Could you speculate on what difference A/C might have had?*
- This is NOT a scientific survey but responses were very consistent.

Sales Impact - Feedback

- Market is down and difficult. Less, ‘picky’ buyers.
- No buyers seeking non-A/C apartments.
- A/C always a positive
- but not always critical.
- But there is a market that will NOT buy without A/C.
- Buyers assume (a modern building like) Altair will have A/C.
- Noise an issue at ‘Opens’ (esp. east side).

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Sales Impact - Feedback

- Lack of A/C varies in importance but…
- if is an issue it is a huge issue and…
- Impossible to counter.
- Hard to value but A/C may be worth $50k-$100k to the right buyer.
- Lack of A/C narrows market and reduces price tension.
- Installation of A/C ideal - but right to install A/C would be an important sales aid.

Sales Impact - Summary

- Lack of A/C may not be the defining issue but
- If it is an issue, it is a huge issue
- Eliminates buyers
- Narrows the market and
- Reduces pricing tension.

- Lack of A/C is seen as a negative in a buyers market.

Costs

All costs from consultants but not final quotes.

Costs do not include GST.

Electrical Up-grade	$290k
Project design and management	$ 25k
Architectural drawings	$ 55k
Town Planner	$ 10k
Legal Costs	$ 10k
Solar Installation (if required)	$ 63k
Costs incurred	$ 35k
	$488k +GST

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Funding - $400k-$500k?

Two options.

Special Levy – plus GST.

Amortization

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Special Levy

Tranche A.

1. Known costs – maybe $375k – similar to the total of all owner's quarterly levies.

2. Maybe October, in line with normal levy.

3. Average owner pays $2750 per quarter in normal levies – plus Special Levy of $2750 plus GST.

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Special Levy

Tranche B.

1. Maybe April after all costs are finalized.

2. Probably between $25k and $125k plus GST.

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Amortization

1. Pay for costs ($500k) out of Lift Fund.

2. Our 20-year plan projects annual levy increases of 3%.

(Average annual levy increase from 2010 to 2018 was 1.5%).

3. To maintain all funds and restore the Lift Fund would require increasing the levies to 4% (maybe 5%) from 2019 to 2025…barring any surprises (EVC, Aluminium Louvres?).

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Amortization

- This method would not require a Special Levy and …
- May have tax advantages for investors.
- But it would remove any ‘margin’ or buffer.
- Would require adjustments each year and approval by the owners at the AGM.
- Amortization may increase levies to uncompetitive levels for new buyers.

Plan B

Your SC has no position on Plan B

Your SC believes, however, that the reduction in cost and achievement of ‘meaningful’ A/C results means that

Plan B is now a reasonable scheme and a viable option.

But it is your decision.

Plan B – Key Questions

- Will Plan B make Altair a nicer place to live?
- Will Plan B increase the value of apartments…
- …more than the extra cost in levies?
- …and cost of installation?
- Will Plan B make apartments easier to sell in a buyers market?
- NB. The right to install A/C may be as powerful as actually installing A/C.
- Are there environmental issues with Plan B?

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Next Steps

- We will have an EGM in August (tbc) to allow owners to vote on this issue.
- There will be an over-arching but binding Special Resolution committing the owners to Plan B.
- There will be a motion on whether Plan B should be funded by a Special Levy or Amortization.
- If we decide to proceed detailed by-laws will be drafted for approval by the Owners at a subsequent General Meeting (2019 AGM?).

Any questions?

Thank you and good night

ALTAIR