

Assessment of appropriate options for apartments

The following represent suggested types suitable for various apartments. All are a single pipe run except for M, the multi pipe split. Note the maximum noise from condenser DA condition and Acoustic Report is 52dba. Most units do not exceed this value... owner to check. Other manufacturers can be considered, which is recommended, as some installers are keen on other manufacturers.

Below is a table of Daikin models Stratawe have considered, to assist apartment owners to understand their options, not to be regarded as an approved selection.

Daikin Model	Possible Suppliers options	Comments
SDS Split Ducted (Small)	Daikin FDYQ or FBQ Split ducted inverter Small capacity (<= 7kw single phase), Daikin indicate piping Length (equivalent including bends and fitting loss) < 7 kW 30m length = 7 kW 50 m lengths and 30m height.	<ul style="list-style-type: none"><li>The 7 kW has the lowest noise rating for the indoor unit (41 dBA Vs 45 dBA for &lt;7 kW units.</li><li>The 7 kW can have the outdoor condenser on the roof, and comfortably service all but a few units on the taller west building. The installer would need to satisfy themselves if their equipment can work.</li><li>Flow rates (350~550 l/sec) more likely to suit existing 250 dia flexible ductwork. Depends on pressure/flow characteristics of fan coil unit selected and the installed ducting pressure drop.</li></ul>
SDES Split Ducted (Extra Small)	Daikin FDSX models may be possible but are subject to lower equivalent length pipe runs Daikin indicate max 30m, max 20m height.	Lower flow rates and less pressure capabilities compared with SDS. Maybe suitable, owner to confirm.
SDL Split Ducted (Large)	Daikin FDYQ or FBQ Split ducted inverter larger capacity (>10kw capacity up to 16kw single phase), Daikin indicate max equivalent 70m length and 30m height	<ul style="list-style-type: none"><li>Bigger is sometimes not better.</li><li>Indoor fan noisier than SDS 7 kW ( at 43 dBA)</li><li>This unit is not suitable for existing small size ductwork... requires ductwork to be replaced/modified.</li></ul>
MP Multi Split Plus	Daikin Super Multi Plus (larger capacity approx 14kw), single main feeder pipes but only splitting to multi heads within the floor.	This system generally would replace the existing ductwork distribution system and use multiple room by room fan coil units, some of which can be ducted and some can be bulkhead/hi wall type Either by: <ul style="list-style-type: none"><li>threading pipes in existing ceiling, or</li><li>replacing ceiling.</li></ul> This system is very good for zoning and energy reduction, quiet and flexible, but requires extra work in the unit.
HW Hi Wall Mounted Units	Single Daikin high wall split up to 6kw Only short pipe runs and low height difference.	Possible alternative for multiple runs per apartment. Only suitable for low level condensers ie courtyard
M Multi Pipe Split	Daikin Super Multi NX (small capacity <8kw) multi main feeder pipes to each indoor fan coil. Max distance between fan coil and condenser approx 20m	Multi pipe runs are required. Only suitable for low level condensers ie courtyard

East

Tower 3 (East) has level 1 (lower carpark), 2 (main ground entry), 3, 4, 5 penthouse and roof plantroom.

Bldg 3/ East Level/Apartment	Pipe/condenser location	Reuse Existing Ducting	Enlarge Existing Ducting	Replace ducting by: multi pipework**, or wall units
L 1/2 Apt 14	Courtyard location. No pipe allowances to rise to roof.	SDS (7 kW)***	SDL	HW*, M* or MP
L 1 Apt 15	Own garden subject to acoustic,. No pipe allowances to rise to roof.	SDS (7 kW)***	SDL	HW*, M* or MP
L 1 16	Pipes rise up GC to roof condenser Renovation prevents garden access	SDS (7 kW)***	SDL	HW*, M* or MP
L 1/2 Apt 17	In garden via east wall. No pipe allowances to rise to roof.	SDS (7 kW)	SDL	HW*, M* or MP
L 2 Apt 19, 20	Pipes rise up GC to roof condenser	SDS (7 kW)***	SDL	HW*, M* or MP
L 2 Apt 18, 21	Courtyard Location subject to acoustic. No pipe allowances to rise to roof.	SDS (7 kW)***	SDL	HW*, M* or MP
L 3 Apt 22 L 4 Apt 26	Pipes rise in comms cpbd to roof condenser	SDS (7 kW)***	SDL	MP
L 3 Apt 23, 24 L 4 Apt 27, 28	Pipes rise up GC to roof condenser	SDS (7 kW)***	SDL	MP
L 3 Apt 25 L 4 Apt 29	Pipes rise up elec cpbd to roof condenser	SDS (7 kW)***	SDL	MP
L 5 Apt 30, 31, 32 penthouses	Separate systems not using existing GC, Elec or comms risers. TBC by Owners.	SDS (7 kW)***	SDL	MP

Note 1 \*only if condenser is NOT on roof

Note 2 \*\*The difference between the M and MP is that:

- M has multiple pipes from condenser and is **unsuitable** for condenser on the roof,
- MP has a single pair of pipes.

Note 3 \*\*\* Owner to confirm with the contractor that this model is suitable for height and pipe run length.

Note 4 \*\*\*\*To be suitable must minimise the horizontal pipe runs and number of bends with condensers in plant room as close as possible to where pipework enters plantroom from the garbage chute area.

Upgrade Option Tables

West

Tower 1 (West) has level 1 (lower carpark), 2 (main ground entry), 3, 4,5,6,7 penthouse and roof plantroom. Please refer to Note 3 for all possible supplier options.

Bldg 1/ West Level/Apartment	Pipe/condenser location	Reuse Existing Ducting	Enlarge Existing Ducting	Replace ducting by: multi pipework**, or wall units
L 1/2 Apt 56	West wall in garden or own courtyard. No pipe allowances to rise to roof.	SDS (7 kW)***	SDL	HW*, M* or MP
L 1 Apt 57,58	Own garden subject to acoustic. No pipe allowances to rise to roof.	SDS (7 kW)*** SDS (7 kW)***	SDL SDL	HW*, M* or MP MP
L 1/2 Apt 59	Own courtyard or garden location. No pipe allowances to rise to roof.	SDS (7 kW)***	SDL	HW*, M* or MP
L 2 Apt 61, 62	Pipes rise up GC to roof condenser****	SDS (7 kW)***	SDL	MP
L 2 Apt 60,63	Courtyard Location subject to acoustic. No pipe allowances to rise to roof.	SDS (7 kW)***	SDL	HW*, M* or MP
L 3 Apt 64 L 4 Apt 68 L 5 Apt 72 L 6 Apt 76	Pipes rise in communications cupboard (CC) to roof condenser	SDS (7 kW)***	SDL	MP
L 3 Apt 65, 66 L 4 Apt 69, 70 L 5 Apt 73, 74 L 6 Apt 77, 78	Pipes rise up via garbage chute space (GC) to roof condenser	SDS (7 kW)***	SDL	MP
L 3 Apt 67 L 4 Apt 71 L 5 Apt 75 L 6 Apt 79	Pipes rise up electrical cupboard (EC) to roof condenser	SDS (7 kW)***	SDL	MP
L 7 Apt 80 and 81 Penthouses	Separate systems not using existing GC, EC or CC risers. TBC by Owners.	SDS (7 kW)***	SDL	MP

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- MP has a single pair of pipes.

Note 3 \*\*\* Owner to confirm with the contractor that this model is suitable for height and pipe run length.

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South

Tower 4 (South) has level 1 (lower carpark), 2 (main ground entry), 3, 4 penthouse and roof plantroom.

Bldg 4/ South Level/Apartment	Pipe/condenser location	Reuse Existing Ducting	Enlarge Existing Ducting	Replace ducting by: multi pipework**, or wall units
L 1 Apt 1, 2	1 and 2 in garden but want access to the roof.	SDS (7 kW)	SDL	HW*, M* or MP
L 2 Apt 3	Condenser in own garage. No pipe allowances to rise to roof.	N/A		
L 2 Apt 6	Courtyard Location subject to acoustic. No pipe allowances to rise to roof	SDS (7 kW)	SDL	HW*, M* or MP
L 2 Apt5 L 3 Apt 7, 8, 9	5, 7, 8 and 9 already done	N/A		
L 2 Apt 4 L 3 Apt 10	Pipes rise up elec cpbd to roof condenser	SDS (7 kW)***	SDL	HW*, M* or MP
L 4 Apt 11	Although 11 has upgraded want to redo and put condenser on roof	SDS (7 kW)***	SDL	HW*, M* or MP
L 4 Apt 12, L5 Apt 13	12 done. Separate systems not using existing GC, Elec or comms risers. TBC by Owners.	N/A SDS (7 kW)***	SDL	MP

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- MP has a single pair of pipes.

Note 3 \*\*\* Owner to confirm with the contractor that this model is suitable for height and pipe run length.

Note 4 \*\*\*\*To be suitable must minimise the horizontal pipe runs and number of bends with condensers in plant room as close as possible to where pipework enters plantroom from the garbage chute area.

Note Ground floor apartments 15, 34, 35, 57 and 58 with gardens can use a small window for a piping route to their garden. They can bulk purchase of small replacement windows for each apartment modified. This approach will not work for Apartments 1, 2 and 16 who have modified or will modify their glass windows and have or will lose their small windows.

North

Tower 2 (North) has level 1 (lower carpark), 2 (main ground entry), 3,4,5,6 penthouse and roof plantroom.

Bldg 2/ West Level/Apartment	Pipe/condenser location	Reuse Existing Ducting	Enlarge Existing Ducting	Replace ducting by: multi pipework**, or wall units
L 1/2 Apt 33	Installed in courtyard. No pipe allowances to rise to roof.	N/A		
L 1 Apt 34, 35	Own garden subject to acoustic, . No pipe allowances to rise to roof.	SDS (7 kW)*** SDS (7 kW)***	SDL SDL	HW*, M* or MP MP
L 1/2 Apt 36	Courtyard location. No pipe allowances to rise to roof.	SDS (7 kW)***	SDL	HW*, M* or MP
L 2 Apt 38, 39	Pipes rise up GC to roof condenser****	SDS (7 kW)***	SDL	MP
L 2 Apt 37, 40	Courtyard Location subject to acoustic. No pipe allowances to rise to roof.	SDS (7 kW)***	SDL	HW*, M* or MP
L 3 Apt 41 L 4 Apt 45 L 5 Apt 49	Pipes rise in comms cpbd to roof condenser	SDS (7 kW)***	SDL	MP
L 3 Apt 42 L 3 43 L 4 Apt 46, 47 L 5 Apt 50, 51	Already installed on roof Pipes rise up GC to roof condenser	N/A SDS (7 kW)***	 SDL	 MP
L 5 Apt 52 L 3 Apt 44 L 4 Apt 48	Already installed on roof Pipes rise up elec cpbd to roof condenser	N/A SDS (7 kW)***	 SDL	 MP
L 6 Apt 53,54,55 penthouses	Already installed on roof	N/A		

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- MP has a single pair of pipes.

Note 3 \*\*\* Owner to confirm with the contractor that this model is suitable for height and pipe run length.

Note 4 \*\*\*\*To be suitable must minimise the horizontal pipe runs and number of bends with condensers in plant room as close as possible to where pipework enters plantroom from the garbage chute area.

NOTES

- THE ROOF MEMBRANE SHALL NOT BE PENETRATED.
- ALL REFRIGERANT PIPEWORK SHALL BE SUPPORTED SUCH THAT THE PIPEWORK DOES NOT COME INTO CONTACT WITH THE ROOF.
- ALL PIPEWORK SHALL PENETRATE THE PLANTROOM EXTERNAL WALL ELEVATION SHALL BE MIN100mm AFFL OF THE ROOF (U.N.O)
- ALL EXPOSED PIPEWORK SHALL BE COVERED WITH A UV RESISTANT BOXING EQUAL TO "COLORBOND", COLOUR OF BOXING TO BE "COLORBOND" COLOUR DUNE OR EQUAL.
- PIPEWORK TO PENETRATE WALL ELEVATION AT L/L & RISE TO RETICULATE WITHIN PLANTROOM.
- EXISTING CONDENSER WATER EQUIPMENT SHALL REMAIN, ANY INSTALLATION OF NEW EQUIPMENT SHALL BE CO-ORDINATED AROUND IT (U.N.O).
- EXISTING CONDENSERS AND PIPING TO REMAIN UNTOUCHED.

THE SOLUTION/S DOCUMENTED ON THESE DRAWINGS ARE GENERIC ONLY AND DO NOT PURPORT TO BE A COMPLYING SOLUTION AND IN ALL CASES COUNCIL MUST BE COMPLIED WITH AND BCA / NCC AND ACOUSTIC AND VIBRATION PERFORMANCE. THIS INCLUDES COMPLIANCE WITH THE NEED FOR A INSTALLATION CERTIFICATE PREPARED BY A NSW PLANNING DEPT BUILDING PROFESSIONAL BOARD CERTIFIED PROFESSIONAL. THIS LEGISLATION MAY TAKE EFFECT IN 2013. CHECK WITH COUNCIL BEFORE INSTALLING AS MILESTONE INSPECTIONS ARE PART OF THE NEW PROCESS.

THE INSTALLER CONTRACTOR MUST PROVIDE A CERTIFICATE SAYING ALL WORKS COMPLY WITH LOCAL COUNCIL RULES & REGULATIONS INCLUDING NCC/BCA VOL 1 2013 SPECIFICATION C3.15, SECT J5 AND J8. NCC/BCA 2013 IS THE BCA APPLICABLE AT THE TIME OF ISSUE OF CC. PROVIDE UV LIGHT RESISTANCE COVER TO PIPEWORK INSULATION ALL METAL COMPONENTS TO BE GALVANISED. UNIT TO BE INSTALLED LEVEL.

WORKS BY STRATA:

- ALL FLOOR SLAB PENETRATIONS AND INITIAL SEALING IN CUPBOARDS
- SAFETY RAILINGS
- PLANT SCREENING AT ROOF LEVEL
- ADJUSTMENT OF EXISTING CONDENSERS WHERE REQUIRED.
- THERMAL TRIGGER CONTROLS FOR EXISTING COOLING TOWER FAN WHEN CONDENSERS ARE PLACED INSIDE PLANTROOMS

WORKS FOR APT' OWNER AIR CONDITIONING (A/C) CONTRACTOR:

- INSTALLATION OF COMPLETE APARTMENT A/C SYSTEM
- PRIOR TO INSTALLATION PROVIDE AN ELECTRICIANS ASSESSMENT OF THE CURRENT 3 PHASE LOADING
- IF SINGLE PHASE IS PROPOSED THEN DEMONSTRATE THAT THE LOAD WILL BE CONNECTED TO A BALANCE PHASE. REGISTER PROPOSAL ON THE IORA WEBSITE.
- AS EACH INSTALLATION OCCURS THIS WILL ENSURE A BALANCED ELECTRICAL SUPPLY RESULTS.
- PROVIDE A REPORT FROM A LICENSED ELECTRICIAN TO CONFIRM FIRE SEALING NOTE: ALL SLAB PENETRATIONS SHALL BE INITIALLY CARRIED OUT IN A SINGLE WORKS CONTRACT BY THE STRATA. ONCE HOLES ARE CUT EACH SLAB PENETRATION SHALL BE FIRE SEALED WITH FOAM BY THE STRATA FOR FUTURE KNOCK OUT BY THE APT' OWNER MECHANICAL CONTRACTOR. IT SHALL BE THE APT' OWNER MECHANICAL CONTRACTOR RESPONSIBILITY TO FIRE SEAL RESPECTIVE PENETRATIONS AFTER THE INSTALLATION OF EACH A/C SYSTEM.

- ALL PIPEWORK SHALL BE INSULATED IN ACCORDANCE WITH SECTION J & ACHIEVE THE FIRE INDICES OF THE BCA. AN EXAMPLE OF PIPEWORK INSULATION THAT MAY COMPLY WITH THE REQUIREMENT OF THE BCA IS 25mm 'BRADFORD' FR ARMAFLEX
- ALL SLAB PENETRATIONS SHALL BE FIRE RATED SEALED - REFER TO DETAIL FOR TYPICAL ARRANGEMENT. COMPLY WITH NCC/BCA 3.15 AND ANY PERFORMANCE BASED TYPE TEST ALTERNATIVE.
- ALL UNITS MUST COMPLY WITH APPLICABLE BCA SECTION J ENERGY EFFICIENCY EER/COP CRITERIA.
- INSTALLATION MUST COMPLY WITH NCC/BCA SECT J8.

A	SHOP DWG	17.05.13
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REVISIONS		