NORTHROP

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Job No.: S150308

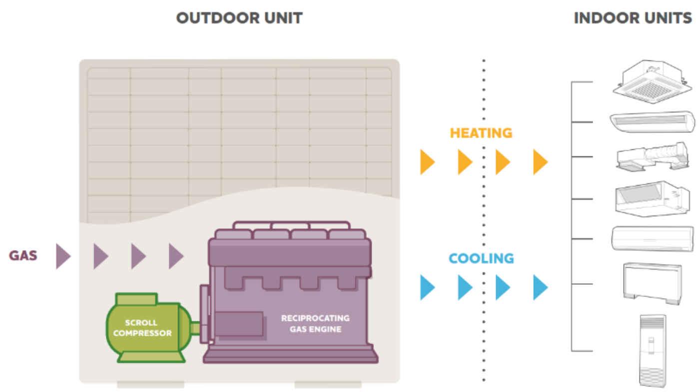
Tallawolladah Pty Ltd
C/o Altus Group
Email: nick.marston@altusgroup.com

Dear Nick,

RE: Campbell's Store Bay 11 & S96MOD

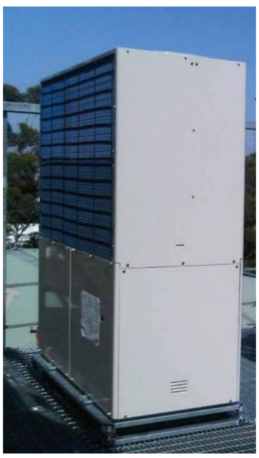
Following are the reasons behind increasing the bay 11 roof openings.

(a) Campbell's store site has insufficient electricity to operate conventional reverse cycle air conditioners. A gas powered air conditioning unit was chosen to eliminate the need for expensive electrical infrastructure upgrade (installing a sub-station) as they reduce the electricity required by around 90%. These units require single phase power when compared to three phase for conventional units. Natural gas as an alternative energy source produces significantly lower amounts of harmful emissions: 80% less NOx, 100% less SOx and 35% less CO_2 than coal fired power station used to generate electricity. The operating cost is 1/10th the cost of the conventional unit.

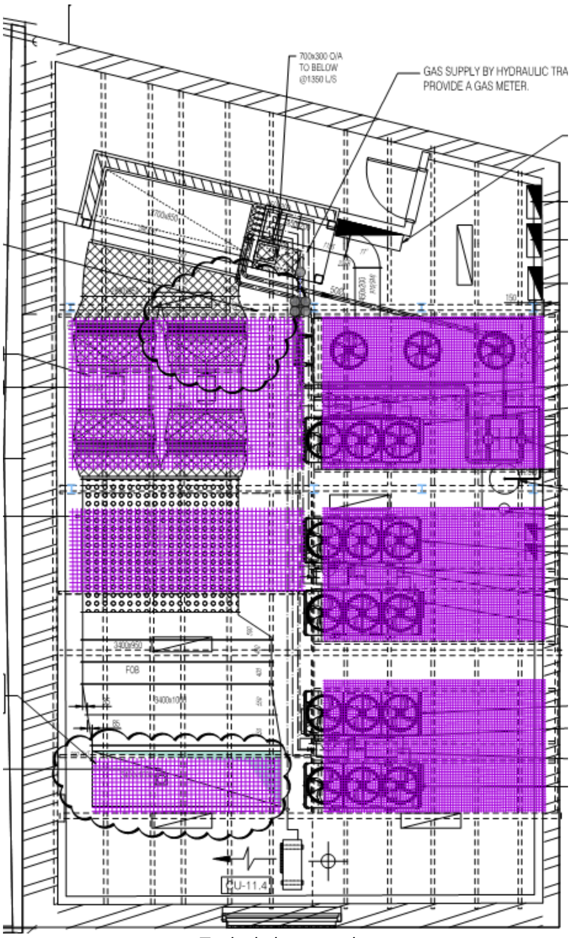


(b) The roof openings for the air intake had to be increased to 25sqm as Gas fired reverse cycle air conditioners require 2.5 times more ventilation when compared with similar capacity electrical conventional reverse cycle air conditioners. This is in addition to the 17.7sqm of exhaust openings for kitchen exhaust, dry cooler and 5 off condensers.

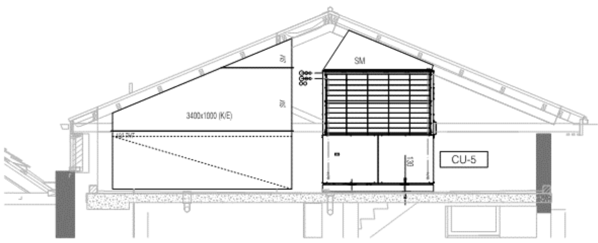
(c) These gas fired reverse cycle air conditioning units are designed for outdoor application with only 30Pa external static pressure on the exhaust fan. On indoor installation within a plantroom (such as in bay 11 plantroom), the air intake and exhaust louvre has to cater for the pressure drop. Bird mesh with over 70% free area is the only product that could satisfy the static pressure requirements.



Typical gas fired condenser



Typical plantroom layout



Typical section condenser

Full Name of Designer:	Leo Mathews
Qualifications:	BE Mechanical
Address of Designer:	Level 11, 345 George Street,
	Sydney NSW 2000
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Name of Employer:	Northrop Consulting Engineers P/L

Leo Mathews
Senior Mechanical Engineer
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