Norman Disney & Fifty Years Young

18 June 2010

Rice Daubney
110 Walker Street
NORTH SYDNEY NSW 2060

Attention: Darren Tims

S28436\004\A-\05\ls100615s0011[1.0]

88 WALKER STREET - HIGH LEVEL PLANT ROOM

Dear Darren,

We have reviewed the high level plant rooms on the above building and can confirm that the plant requirements do not permit any reduction in the floor area currently shown on Rice Daubney's drawings.

This advice is based on the plant room accommodating the following equipment:

Item	Description	Reason for Location in Roof Plant Room
1	Water Storage and Pumps	Provides gravity feed to building.
2	Base Building and Tenant Generators	Exhaust flues to discharge at roof level, with large volumes of intake and exhaust ventilation. Double height space required.
3	Kitchen Exhaust Fans	Kitchen exhaust to discharge at roof level.
4	Heating Boilers	Exhaust flues to discharge at roof level.
5	Mid Rise and High Rise Air Handling Units (AHU)	Air handling units serve top portions of building and must feed into riser shafts at high level.
6	Exhaust Fans (General)	Exhaust fans to discharge at roof level.
7	Cooling Towers	Towers discharge to above and must be at the high point of the system. Large volumes of air required.
8	Pumps, Variable Speed Drives (VSD) and Electrical Switchboards	All need to be located close to the equipment which they serve in order to minimize energy losses.

Ideally, if additional space was available, the main chillers would also be located on the Lower High Rise Plant level. This would minimise energy, by reducing the distance between the cooling towers and the chillers, however this is not possible within the current space available.

Preliminary layouts have been prepared to show the size and layout of the equipment listed above. Copies of these layouts (SKM001, SKM002 and Section SKM005) are attached.

SYDNEY
MELBOURNE
BRISBANE
PERTH
CANBERRA
ADELAIDE

AUCKLAND
WELLINGTON

LONDON
MANCHESTER

KUALA LUMPUR

DUBAI

The size and location of this plant is similar to that previously proposed. These details have not altered significantly from the previous scheme because:

a) The majority of the plant and equipment (e.g. air handling units, tenant cooling towers, emergency generators) relate specifically to the commercial office and are not impacted by the separation of the office and hotel systems.

b) The area of the commercial building has reduced slightly from the previous scheme, however the plant selected is modular in nature and does not vary directly in proportion to the area served.

c) The space required for access and maintenance also remains relatively constant and does not reduce in proportion to the building area.

d) The cooling tower and heating capacity required by the hotel is a relatively small proportion of the total load and is substantially accounted for by the diversity in peak loadings between the hotel and office. This means that the cooling tower and heating boiler sizes (whilst slightly reduced) have not varied significantly.

As you will appreciate, these sketches are preliminary in nature, and as such do not fully detail the ductwork and pipework connections required all of which will add significantly to the complexity and congestion of these plant rooms.

We trust the above provides sufficient details for your present requirements.

NORMAN DISNEY & YOUNG

Richard Pickering
Director

Attach.

PIPE WORK AND ACCESS SPACE ALLOWANCE

PERFORATED METAL VERTICAL SUN SHADE

SPACE REQUIRED FOR MAINTENANCE [COIL & FILTER REPLACEMENT] TYPICAL FOR ALL AHUS

PERFORATED METAL HORIZONTAL SUN SHADE

OUTSIDE AIR INTAKE PLENUM

RETURN AIR DUCTWORK CONNECTS TO MIXING PLENUM (TYPICAL)

KITCHEN EXHAUST FANS WITHIN FIRE RATED ENCLOSURE

DOMESTIC WATER PUMP SET [6m²]

DOMESTIC COLD WATER STORAGE [9m³]

HEAT EXCHANGERS [INCLUDING PIPEWORK SPACE ALLOWANCE AND MAINTENANCE SPACE ALLOWANCE]

BOILER PLANT [3 OFF BOILERS] TUBE REMOVAL AREA INCLUSIVE

RL 189.325

LOWER PLANT ROOM

EXTENT OF FLOOD

AHU HR PZ-W

AHU MR CZ-S

AHU HR PZ-E2

AHU HR PZ-N

AHU HR CZ-N

2m

2.0m minimum

2.0m minimum

DUCTWORK AND PIPEWORK SPACE ALLOWANCE

EXHAUST FAN ZONE

EXHAUST FAN ZONE

WALKWAY/ACCESS ZONE

MECHANICAL SWITCHBOARD SPACE INCLUDES 1.5m ACCESS SPACE IN FRONT OF BOARD FOR ACCESS [OH&S REQUIREMENT]

PIPEWORK AND ACCESS SPACE ALLOWANCE.

BLACK WATER RE-USE STORAGE TANK [9m³]

BLACK WATER PUMPS [6m²]

1.2m

ACCESS WALKWAY

SECTION SKM-005

HOT WATER UNITS

2.0m

INTAKE ATTENUATOR

INTAKE ATTENUATOR

PLENUM

PLENUM

AHU HR PZ-E1

AHU MR PZ-E1

2.0m

OUTSIDE AIR PLENUM

HYD

HYD

FS

ELEC. ROOM

OTHER SERVICES

PLANT ROOM

RL 189.325

GL

FS

VARIABLE SPEED DRIVE BANK FOR MECHANICAL EQUIPMENT. INCLUDES 0.9m ACCESS SPACE IN FRONT OF VSD'S [OH&S REQUIREMENT].

DUCTWORK AND PIPEWORK SPACE ALLOWANCE.

PERFORATED METAL VERTICAL SUN SHADE

88 WALKER ST DEVELOPMENT

NDY - 2010/05/28

HIGH RISE PLANT [LOWER]

No.	Date	Revision	Drawn
01	16.06.10	DUCT & PIPE DETAIL ADDED	RP

Project 88 WALKER ST

Title COMMERCIAL TOWER
HIGH RISE PLANT
[LOWER]

Scale 1:100 @ A1 | Date 28/05/10 | Sketch No. SKM-001/01

Drawn JV | Proj No. 28436-004

PERFORATED METAL VERTICAL SUN SHADE

SPACE REQUIRED FOR PIPE WORK, ACCESS/MAINTENANCE AND SUFFICIENT AIR FLOW

AHU MAINTENANCE ZONE

PERFORATED METAL HORIZONTAL SUN SHADE

O/A PLENUM

RETURN AIR DUCTWORK CONNECTS TO MIXING PLENUM (TYPICAL)

DUCTWORK AND PIPEWORK SPACE ALLOWANCE

OFFICE COOLING TOWER 1

OFFICE COOLING TOWER 2

OFFICE COOLING TOWER 3

SPACE FOR CONDENSER WATER PIPES DROPPERS TO LOWER PLANT ROOM.

TENANT COOLING TOWER 1

TENANT COOLING TOWER 2

RL 192.975

UPPER PLANT ROOM

AHU HR CZ-S

AHU-MR-PZ-N

AHU MR PZ-E2

AHU MR CZ-N

BOILER FLUES

WALKWAY/ACCESS ZONE.

VENTILATION/EXHAUST FAN ZONE

VSD's

MSSB's

MECHANICAL SWITCHBOARD SPACE INCLUDES 1.5m ACCESS SPACE IN FRONT OF BOARDS FOR ACCESS [OH&S REQUIREMENT]

LINE OF UPPER PLANT ZONE

SECTION SKM-005

GENERATOR EXHAUST FLUES

HYD

FS

ELEC. ROOM

GL

PLANT ROOM

RL 189.325

VARIABLE SPEED DRIVE BANK FOR MECHANICAL EQUIPMENT. INCLUDES 0.9m ACCESS SPACE IN FRONT OF VSD's [OH&S REQUIREMENT].

VOID TO LOWER PLANT ROOM

PERFORATED METAL VERTICAL SUN SHADE

88 WALKER ST DEVELOPMENT

NDY 2010/05/28

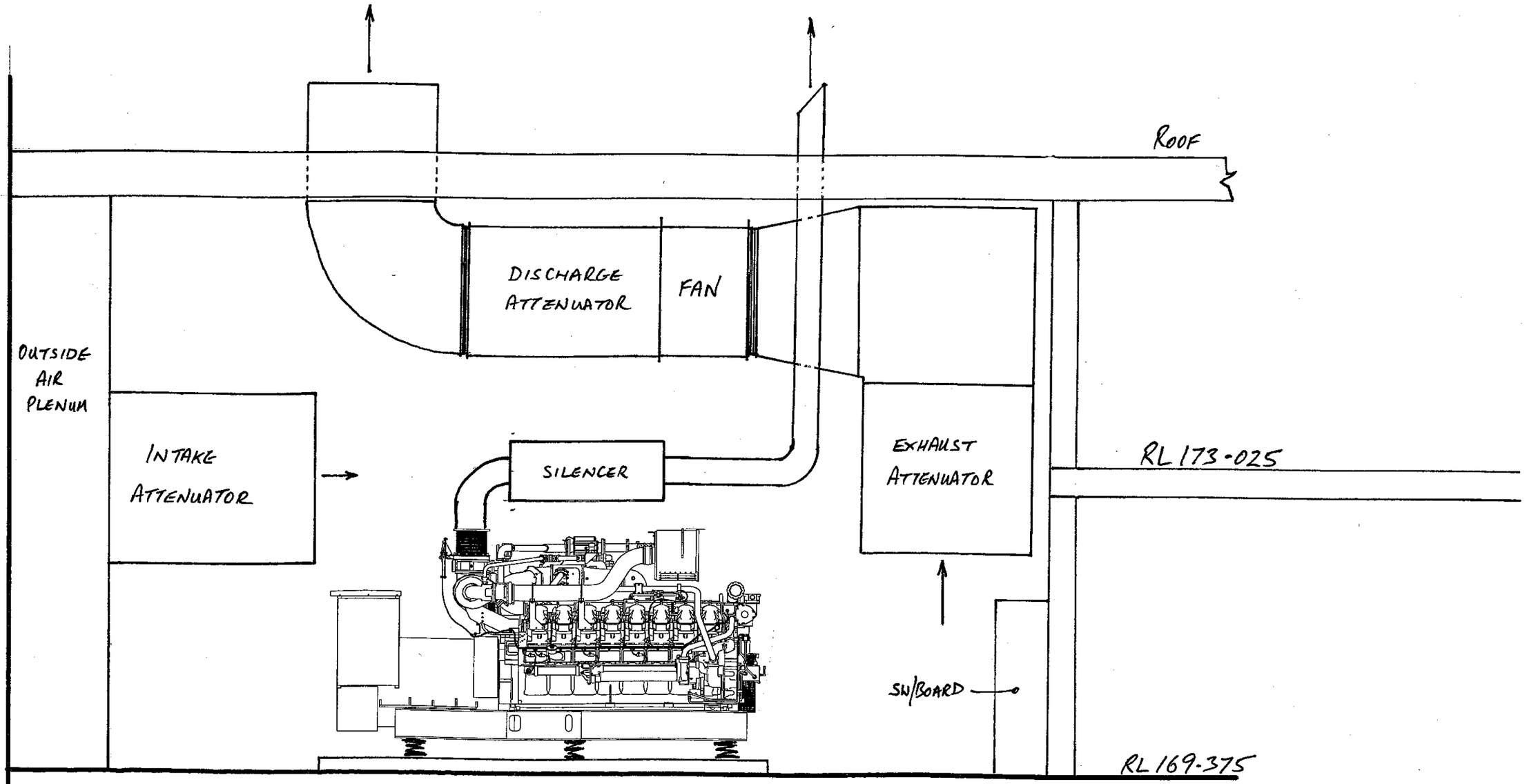
HIGH RISE PLANT [UPPER]

No.	Date	Revision	Drawn
01	16.06.10	DUCT & PIPE DETAIL ADDED	RP

Project: 88 WALKER ST

Title: COMMERCIAL TOWER HIGH RISE PLANT [UPPER]

Scale	Date	Sketch No.
APPROX 1:100	28/05/10	SKM-002
Drawn JV	Proj No. 28436-004	



88 WALKER STREET

GENERATOR ROOM SECTION

01 16.06.10 RP

No.	Date	Revision	Drawn

Project 88 WALKER STREET

Title GENERATOR ROOM SECTION

Scale 1:50	Date 16.06.10	Sketch No. SKM-005
Drawn R.P.	Proj No. 28436-004	