

Mechanical Services – Fire and smoke control in buildings
Design Review Report

11 Gibbons St Redfern

11 Gibbons St Redfern

For: **NSW Independent Planning Commission**

Report No: 01630, Rev A
Date: 24th July, 2019



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Revision Table

Revision	Date	Description	Prepared By	Signature
A	24.07.19	Preliminary issue	M. Sarkis	

Abbreviations

AHU	Air Handling Unit
AP	Access Panel
BCA	Building Code of Australia (Applicable Version)
C/W	Complete With
DD	Double Deflection Register
DTS	Deemed to Satisfy
EF	Exhaust Fan
EG	Eggcrate Grille
FD	Fire Damper
FFCP	Fire Fan Control Panel
FIP	Fire Indication Panel
KE	Kitchen Exhaust
MSD	Motorised Smoke Damper
NCC	National Construction Code (Applicable Volume and Version)
OA	Outside Air
OBD	Opposed Blade Damper
SA	Supply Air

TBA	To Be Advised
TE	Toilet Exhaust
UNO	Unless Noted Otherwise
VCD	Volume Control Damper
VSD	Variable Speed Drive

Introduction

This report has been prepared at the request of the NSW Independent Planning Commission. The purpose of the report is to review Referenced Documents for the new proposed project at 11 Gibbons Street, Redfern NSW, and provide expert opinion on whether the proposed fire and smoke mitigation measures, including fire and smoke dampers will comply with BCA 2016 Amendment-1 requirements.

Report Summary

Project : 11 Gibbons Street, Redfern NSW

Description of Building:

The building is a new proposed 18-storey mixed-use development, comprising social and affordable housing and commercial/retail.
Class of building: Class 2, 5 and 6
Effective Height: Over 50m

Scope of Review:

The scope of the review is limited to high level desktop review of the Referenced Documents and to only the Fire and smoke control measures that would be applicable to the proposed development under the BCA.
Review of ventilation is excluded from this report (by others); no air-conditioning is proposed for the project.

Report Commissioned By:

NSW Independent Planning Commission

Executive Summary

A high level desktop review of the Referenced Documents was conducted. A number of very serious issues and non-compliances were identified as follows:

1. Missing stair pressurisation relief system for the fire isolated stairwells. This is a critical part of the required Smoke Hazard Management and must be implemented to the full requirements of BCA 2016 Amendment-1, Part E2.2, and referenced Australian and New Zealand Standard AS/NZS1668.1-2015.
2. Missing Zone Pressurisation System for the Ground Floor Class 5 and 6 Tenancies. This is critical and is required under the DTS provisions of BCA 2016 Amendment-1, Part E2.2, and referenced Australian and New Zealand Standard AS/NZS1668.1-2015. Alternatively, a Fire Engineered Performance Based Solution, may be suitable to achieve the Performance Requirements.
3. Missing Smoke Dampers for all the residential Outside Air ductwork, including for the main branches from the OA riser shaft, and all OA branches to the Apartment Units. These are required under the DTS provisions of BCA 2016 Amendment-1, Part E2.2, and referenced Australian and New Zealand Standard AS/NZS1668.1-2015. Typical for all residential Levels
4. Missing fire rating of the main residential Outside Air (OA) main duct branches as it crosses the Fire Isolated Stairs, from the OA shaft to the Lobby. Typical for each residential level.
5. Missing Fire Damper on the main residential Outside Air (OA) main duct branches, as it crosses the Fire Isolated Stairs, and into the Lobby. Typical for each residential level.
6. Missing design details, including no specification and no description of controls operation in fire mode. It is critical that the fire mode operation is in full compliance with the DTS provisions of BCA 2016 Amendment-1 and referenced Australian and New Zealand Standard AS/NZS1668.1-2015 and the Fire Engineer Report. This applies to all Mechanical Services equipment and systems.
7. Missing details of the power supply types. It is critical that all power supplies including, but not limited to Essential Power supplies to all fire and smoke hazard management systems and devices are in full compliance with the DTS provisions of BCA 2016 Amendment-1 and referenced Australian and New Zealand Standard AS/NZS1668.1-2015, AS/NZS3000 and AS1670.1-2015.
8. The Ground Floor Hydrant pump room ventilation has been designed as Natural ventilation via a 1.7 sqm façade louvre. There is no evidence that such ventilation complies with the DTS provisions of BCA 2016 Amendment-1 and referenced Australian Standard AS2941. This standard has strict and explicit specification re the required cooling ventilation. It is recommended that the consultant

provides verification for the suitability of the proposed natural ventilation. Otherwise it is recommended that this room has mechanical exhaust in order to comply with cooling ventilation requirements.

9. The Ground floor mechanical services drawing shows the Cleaners Room ventilation duct crossing the Fire Control Room. This is non-compliant with the DTS provisions of BCA 2016 Amendment-1, Specification E1.8, and must be rectified.
10. It is not clear what is the proposed ductwork material for the residential apartments ventilation including for the OA, wet areas exhaust (Bath rooms and Laundry) and Range hood exhaust. It is critical that the ductwork material is fully compliant with the DTS provisions of BCA 2016 Amendment-1, Section C and referenced Australian Standards including but not limited to AS4254 and AS1530.
11. The trickle ventilator material proposed as part of the apartment ventilation system, have been presented as PVC, Aluminium and Wood material. It is critical that the proposed material is fully compliant with the DTS provisions of BCA 2016 Amendment-1, Section C, and referenced Australian Standards including but not limited to AS4254 and AS1530.
12. Based on the above findings, the design does not comply with the DA consent clause B6, which requires compliance with the BCA to achieve and maintain acceptable standards including fire safety. Similarly, clause E29 of the DA consent, calls for installation and performance of the mechanical systems, to comply with the BCA and AS1668.

Disclaimer

TWO MS takes all reasonable care when performing the services, however, TWO MS accepts no liability for costs to all damages incurred as a result of relying on this report. TWO MS do not warrant or indemnify any design and/or performance criteria.

Referenced Documents

The following documents were provided to me by Mr. PC Thomas from Team Catalyst on the 19.07.19:

- BCA Assessment Report by Steve Watson & Partners, Reference 2018/1523 R1.0 dated 1/09/2017
- Fire Safety Strategy Report by Core Engineering Group, dated 29 August 2018
- Development Consent (application No 7749)
- Ground Floor Architectural plan drawing SK.16.1 Revision E
- Mechanical services drawing NS18138-M01, M03 to M05 Revision 1, M06 Revision 2, M07 to M10, Revision 1 by Arrow Consulting Engineers
- Ground Floor Mechanical Services drawing GIB-MD20000 Revision B by Northrop

Qualifications

I am a Chartered Professional mechanical engineer with 25 year experience in building services. A copy of my curriculum vitae is attached to this report in Appendix A.

I have extensive experience in the design and inspections of residential apartment buildings. See details in the CV for major residential projects completed.

Appendix A: CV of Michel Sarkis

Curriculum Vitae of

Michel Sarkis

Position	Managing Director
Address	152 Wollongong Road ARNCLIFFE NSW 2205 PO Box A98 AUSTRALIA
Telephone / Facsimile	[REDACTED]
Email	[REDACTED]
Web	www.twoms.com.au
Date of Birth	[REDACTED]
Nationality	Australian

EDUCATIONAL/PROFESSIONAL QUALIFICATIONS

25 years experience in Building Services

MIEAust, CPEng, NPER, RPEQ

Accredited Assessor for the Compulsory Buildings Disclosure (CBD) program

Accredited Assessor for the National Australian Built Environment Rating System (NABERS)

AIRAH qualified Energy Auditor (Carbon Detectives accredited course, through AIRAH)

BCA Section J Assessor (Professional Development course through The University of Sydney)

Section J of the BCA (Professional developments courses completed through AIRAH)

Essential Safety Measures (Professional developments courses completed through AIRAH)

BCA Essentials and BCA NSW (Professional developments courses completed through AIRAH)

AS1668 Seminar Series (Professional developments courses completed through AIRAH)

Heat Transmission Analysis in Ductwork and Pipework – Research and development completed for the ABCB, for the development of Specification J5.2 and J5.4 of the BCA. The research was conducted in conjunction with Obrart & Co and published in AIRAH journal ‘Equilibrium’)

Honorary Lecturer/Tutor at the University of Sydney – Thermal Heat Loads Analysis; Introduction to Architectural Science; Heat, Thermal behaviour and dynamic response of buildings and Services and sustainability

National Environmental Balancing Bureau (NEBB Course) – Testing, Adjusting and Balancing of Environmental Systems

Master of Building Services (*First Class Honors*)- *Sydney University, Sydney*

The Australian Institute of Building NSW Chapter Medal 2007

Dean’s Honours List 2006 and 2005

David Rowe Memorial (Mechanical Services) Prize 2006

Architectural Science (Building Service) Prize 2005

Dean's Honours List 2004

Bachelor of Engineering (*First Class Honours*)- *University of NSW, Sydney*

Co-op Scholarship in Mechanical & Manufacturing Engineering
University of NSW, Sydney

Buildings Heat Loads Analysis and Energy Consumption Simulation Training – ACADS BSG Australian software developer for building services

Smoke Controls and Fire Dampers

Ventilation in Buildings

Section J

Australian Standards and BCA 2016

AMCA Fire Dampers Certification

Passive and Active Smoke conference

Attendance to annual BCA Seminars

Attendance to annual AIRAH Essential Safety Measures course

Mitsubishi Electric VRF Commissioning course

Attendance to AIRAH Technical Seminars

PROFESSIONAL MEMBERSHIPS

Chartered Professional Engineer of Engineers Australia	Since 2015
Registered Professional Engineer of Queensland	Since 2015
Institute of Engineers Australia	Member since 2014
Australian Institute of Refrigeration Airconditioning and Heating (AIRAH)	Member since 2003
Member of ACADS-BSG	Member since 2006
Member of ASHRAE	Member since 2010

WORK HISTORY

Managing Director

2002 - present

TWO MS Pty Ltd

Mechanical Services Consultants

Building Energy Consultants

152 Wollongong Road
ARNCLIFFE NSW 2205

Business Synopsis :

Mechanical Services and Energy Consultants, providing ESD design solutions, services coordination and Building Information Modelling (BIM), Building Management System (BMS), Auditing, BCA Section J compliance, NABERS certified ratings, CBD certified assessments, Energy solutions, modelling and optimisation, Expert Witness for Legal matters and Fire Safety Certification.

Major Projects:

High and Medium Rise Mix Use/Residential

- **594-600 Princes Hwy, Rockdale** – Quest Serviced Apartments and Residential Units (2019)
- **12-14 INDWARRA AVE, NORTH KELLYVILLE**- 169 Residential units (2019)
- **Lot 16CDE Schofields** - 296 Residential units (2019)
- **98-102 Fairway Dr, Kellyville**- 4-towers, 222 units (2019)
- **44-56 Cudgegong Rd, Rouse Hill**- Stage 1 of 10 residential buildings comprising 711 units (2019)
- **717-727 Canterbury Rd, Belmore**- 193 mixed use units (2019)
- **70-78 Regent Street Kogarah** – High Riser Residential Tower (2018-2019)

- **2-8 Vaughan St Lidcombe**- 131 residential units (2019)
- **47-61 Princes Highway St Peters**- mixed use (2019)
- **9-19 Mary St Auburn**- 166 mixed use units with 5 basements (2019)
- **10-14 Carinya St, Blacktown**- 101 Residential units (2019)
- **63-81 Princess Hwy St, Peters**- 93 mixed use units (2019)
- **16 Parkes St Parramatta** – 47 Storey high rise (2018-2019)
- **387 Macquarie St Liverpool** – 25 Storey High Rise (2018)
- **27 Church St Mascot** (2018)
- **30-36 Warby St Campbelltown** (2018)
- **Lot 3, 68 Hezlett Rd Kellyville** (2018)
- **56-60 Burwood Rd, BURWOOD** (2018)
- **Lot 210 & 211 Lord Sheffield circuit Penrith** (2018)
- **86 Centenary Drive Strathfield** (2018)
- **13-17 Taylor Street, Lidcome** (2018)
- **1-13 Dianella Street Caringbah** (2017-2018)
- **8-14 LYONS ST STRATHFIELD NSW** – (2017-2018)
- **485-521 Harris Street, Ultimo**- (2017-2018)
- **19-25 Everton Rd Strathfield**- (2017-2018)
- **242-252 Pitt Street Merrylands NSW**- High rise Mixed use development (2017-2018)
- **3-5 Milray Street Lindfield**- (2018)
- **37-39 Mary St Rydalmere**- Large Mixed use Development (2017)
- **570-580 Canterbury Road Campsie** – Large Mixed Use development (2017)
- **485-521 Harris Street, Ultimo** – Large multi-residential (2017)
- **86 Centenary Drive Strathfield**- Large multi-residential development (2017)
- **1 Zoe Place Mt Druitt** – Large Mixed Use development (2017)
- **108 Miller St Pyrmont** – Prestige Mixed Use and terraces development (2017)
- **Iconic – 830 Elizabeth St Waterloo** (2016)
- **32-40 Kerr Pade Auburn** – Over 50m Residential tower with six basements carpark (2015-2016)
- **Clement Park Stage 3** – Large Mixed use with 5 residential blocks sitting on a common podium level which consists of retail shops and a supermarket and two basement car park levels
- **Cnr Powell and Parramatta Rd Homebush** - 400 Apartments Mixed use development (2015-2016)
- **31 Crown St Wollongong** - 319 Apartments and 3500 sqm Retail development (2015-2016)
- **717-727 Canterbury Rd, Belmore** – 242 Apartments Mixed used development (2015-2016)

- **61-71 Queen St Auburn** - 12 Storey Mixed use development with 4 Basements carpark (2015)
- **380 Forest Rd Hurstville** - 12 Storey Mixed use development with 3 Basements carpark (2015)
- **18-22 Broughton St Campbelltown** - 10 Storey Mixed use development with 2 Basements carpark (2015)
- **680-684 Princess Hwy Sutherland** - 12 Storey Mixed use development with 4 Basements carpark (2014, 2015)
- **Skye, North Sydney** – 22 Storey residential with 6 Basements carpark (2014, 2015)
- **32-40 Kerr Parade, Auburn** – 4 levels basement carpark, 11 storey multi-residential (2014, 2015)
- **6-14 Park Rd, Auburn** – 3 levels basement carpark, ground floor commercial and 12 storey multi-residential (2014)
- **Otto Stage 1 and 2, Rothschild Ave, Rosebery** – 7 residential buildings ranging in heights between 3 and 7 storeys with basement carparks. (2014-ongoing)
- **Breeze, Little Bay** – upmarket residential apartments (2014)
- **Botanic, Lane Cove** – 14-18 Finlayson St, Lane Cove - six storey residential with associated carparking in the basement and lower ground floors (2013-ongoing)
- **564 Princess Hwy, Rockdale** – 12 Storey and an 10 storey multiresidential towers (2013, 2015)
- **132-134 Parramatta Rd, Camperdown** – Two multi-residential apartment buildings (2013- ongoing)
- **Botanic, Lane Cove** – 79 upmarket multistorey residential development (2012 – ongoing)
- **Nield Ave, Greenwich** – 6 Blocks Large multistorey residential (2012-ongoing)
- **12-20 Tyler St , Campbelltown** – Large multistorey residential (2011-2012)
- **Goldsmith, Katoomba** - Large multistorey residential (2011-2012)
- **24-26 Tyler St, Campbelltown** – Large multistorey residential (2010-2011)
- **16-22 Damersq St, Gordon** (2010)
- **63-71 Enmore Rd, Newton** (2009)
- **Bullecourt, Ultimo** (2004) – project management
- **Top of the Town, Darlinghurst** (2002-2004) – project management of hotel refurbishment to residential apartments

Commercial

- **22-26 Montgomery Street Kogarah NSW**- Office Building (2019)
- **147-151 PARRAMATTA ROAD, AUBURN**- Hotel (2019)
- **38 Doonside Rd, DOONSIDE- Graces place**- World first facility for the Victims of Homicide Crimes (2019)
- **8-10 GOULD STREET STRATHFIELD SOUTH** – Office Building (2018)
- **90-92 Marine Pde Maroubra** – Boarding House (2018)
- **213 Bunnerong Rd Maroubra** – Boarding House (2018)
- **31 Bong Bong St Kiama** – Hotel (2018)

- **41 Great Western Highway, Parramatta** – Boutique Hotel (2017-2018)
- **16-18 Wentworth Street, Parramatta** – Commercial Office Building (2017-2018)
- **106-108 Church St, Parramatta** – Commercial Office Building (2017-2018)
- **380 Pennant Hills Road Pennant Hills** – Commercial Office Building (2017-2018)
- **502 Mount View Rd, Mount View** – Hunter Valley vineyard production facility and accommodation (2017-2018)
- **213 Bunnerong Rd Maroubra, Boarding House** (2018)
- **107 Frederick St Rockdale** – Boarding House (2017)
- **Deane St Burwood** – Large Retail, Commercial Offices and Child care (2016)
- **Supreme Court - 1 Hospital Rd Sydney** (2015)
- **Gregory Hills** – Large Aquatic Centre and Child Care Centre (2015-2016)
- **The Iranian Embassy** – (2015)
- **2A Brown St Ashfield** – Retail Centre (2015)
- **1 Martin Place** – Office building, Fitout (2013 ongoing)
- **The University of Sydney** - Electrical engineering building (2014)
- **175 Liverpool St** – High rise office building (2014)
- **Garden Island Navy Base** – design engineering (2014)
- **Waverley Depot** (2014)
- **Red Bull Headquarters** – Alexandria. Innovative commercial offices in the revitalised heritage precinct of 41-43 Bourke Rd, including fit-out of silo towers (2008 and 2014)
- **ACFS** – 4 Stars NABERS Whole Building Energy commitment rating (2013)
- **1 Bligh St Sydney** – Tenancy fitout for L27 and L28 (2012-2013)
- **CIITIBANK - 1 Homebush Bay Drive Rhodes** – Commercial Offices (2013)
- **TOLL IPEC** – Large distribution centre (2012 – 2013)
- **8 First Ave, Blacktown** – 5 stars NABERS office building (2010-2013)
- **St Andrews House** – Office Tenancy and Commercial kitchen
- **221 Miller St North Sydney** – Office Tenancy
- **Bigge St Liverpool** – nine storey office building (2010 - ongoing)
- **174 Phillip St, Sydney, NSW Bar Association** – Upgrade of Refrigeration plant and new office airconditioning (2010 – ongoing)
- **174 Phillip St, Sydney, Stage 11** – Upgrade of Smoke Hazard Management (2010)
- **Macquarie Bank** – Refurbishment of various office levels including : 1 Martin Plc and 9 Hunter St (2009-2010)
- **AUDI Terminal - Victoria Park, Zetland** – Headquarters of AUDI Australia (2009)
- **Kogarah Town Centre** - project management (2002-2004)

Educational

- **La Salle Bathurst** (2019)
- **Magdalene Catholic High, New GLA Facilities** (2019)
- **L1 FLINDERS CTR- CHILDCARE** (2018)
- **Magdalene Catholic College** (2018)
- **Ravenswood** (2014-2018)
- **Sydney University** – Electrical Engineering Building (2014 – 2015)
- **New College UNSW** – New seven storeys, three hundred and fifteen (315) units postgraduate college housing at the university of New South Wales (2008)
- **Bossley Park High School (2011)**
- **Powerhouse Museum** – Refurbishment of Level 2 and Level 3 part plans including , sanitary ventilation and equipment upgrades, commercial kitchen ventilation and Airconditioning (2012)
- **B4U Cosmetics** – 160 Sussex Street, Sydney (2014) – tenancy fitout
- **Montessori Early Childhood Education, Bankstown** (2014)

Private Prestige Residential

- **9 Drumalbyn Rd Bellevue Hill** (2019)
- **19 Elamang Ave, Kirribilli** (2019)
- **1 Macquarie St Sydney** (2018)
- **3 Bay View Street Lavender Bay** (2018)
- **1 Wallaroy Crescent, Double Bay** (2018)
- **L12, 1 Macquarie St Sydney** (2018)
- **17 Wunulla Rd Point Piper** (2017)
- **99 Newton Rd, Strathfield** (2017)
- **172 Tennyson Rd, Tennyson Point** (2017)
- **3 Greycliffe Ave, Vacluse** (2017)
- **50 The Crescent, Vacluse** (2015-2017)
- **652 Old Northern Rd, Dural** (2015-2017)
- **29 Coolong Rd, Vacluse** (2015)
- **Point Piper, Huang Residence** (2014)
- **Rose Bay, Neale Residence** (2014)
- **Strathfield, Issa Residence** (2012)

- **Mosman, Bertini Residence** (2009-2010)

Medical & Laboratories

- **The Sydney Private Hospital Ashfield** (2018)
- **HMRI, Newcastle Hospital** - expert witness, ongoing (2017)
- **L12, 60 Sussex St** (2014)
- **Minto Medical Centre** (2009-2010)
- **GIVAUDAN** – Two Levels, Fragrance and Food Flavouring Laboratory (2008)
- **Columna** – Specialist Spinal Rehabilitation and Medical Research, Radiology and Manufacturing (2007)

Industrial

- **Moyes Kurnell** (2014)
- **95 Burrows Rd, Alexandria** – Industrial units, storage areas and childcare (2014)
- **Moyes Delta Gliders, Kurnell** (2014)
- **DB Schenker** - Redbank Motorway Industrial Estate QLD (2013)
- **Patricks Terminal, Port Botany** – Buildings 1,2 and 5 (2013)
- **Site H, Erskine Park** – Large Industrial Warehousing and offices (2012)
- **Voith and Brady** - Large Industrial Warehousing and offices (2012)
- **MasterPet** – Design of Smoke Hazard Management and HVAC for large Warehouse and offices (2011)
- **Southern Engineering Services, Head Office** – Unanderra (2010-2011)

Infrastructure

- **Ryde Water Pumping Station** – (2017-2018)
- **Glenfield Sewer Treatment plant** (2014, 2015)
- **Sydney Water Sewage Pumping Stations** - Ventilation Upgrades (67 stations) 2008 -2014

- **Railcorp** – Granville office HVAC design (2012-2013)
- **Sydney Water, Water Pumping Stations** – Ventilation and Temperature control Upgrades (2010 to date. Ongoing)

Food Industry

- **Radley’s Met Centre** (2018)
- **Frango Chicken** (2018)
- **Chargrille Charlies** (2017-2018)
- **Burger Project Gateway** (2016-2017)
- **GYG Broadway** (2016)
- **GYG Darling Park** (2016)
- **Burger Project Macquarie Centre** (2016)
- **Burger Project, MLC Centre** – (2015)
- **Missy French, 22 Rockwall crs Potts Point** – (2015)
- **1 Grosevnor place Sydney** – (2015)
- **Braza Miranda** (2014, 2015)
- **Burger Project, World Square** – (2014)
- **Max Brenner Alexandria** (2014)
- **Rockpool, World square** (2014)
- **Rockpool, 7 Bridge St Sydney** (2013)
- **Neil Perry’s “Burger Project”, World Square** (2014)
- **215 Kingsgrove** (2014)
- **Dirty Dogs Hot Dogs** (2013)
- **Harry du Wheels** (2012)
- **BRAZA, TR18-19 Darling Walk (2011) + Braza Leichardt** (2012)
- **22 Rockwall Crs, Potts Point** (2011)
- **Parea Greek Taverna, Rocky Point Rd, Kogarah** (2010)

Clubs

- **37 Mary St Rydalmere** – Gymnasium (2017)
- **Macquarie Links International Golf Club** (2015)
- **South Sydney Leagues, Redfern** - new club facility for South Sydney Leagues Club (2009-2010)
- **Kings Cross Hotel** – refurbishment (2010)
- **Frazer Park Football Grandstand** (2014)
- **Church of the 4Square Gospel, Minto** (2014)

Aged Care and Over 55 Lifestyle Resorts

- **Kantarra at Austral** – STAGE 1: Building ‘A’ and ‘B’, which includes twenty five (25) two bedroom apartments and sixteen (16) three bedroom apartments, associated amenities and basement carparking. (2007)
- **Waterbrook Yowie Bay Stage 2** – lifestyle retirement Living (2010 ongoing)
- **IBIS Care at Kantarra** – Residential Care Facility One Hundred and twenty (120) bed Residential Care Facility and associated amenities and basement carparking (2008)

Retail

- **Pacific Square, Maroubra** (2014, 2015)
- **2A Brown St Ashfield** – 16 Tenancies fitout (2015)
- **Breeze Cronulla** – Retail tenancies fitout (2014-2015)
- **Brookes Bros, Martin Plc, Sydney** – tenancy fitout (2014)
- **Woolworth Extension, Fairy Meadow** (2012-2014)
- **Pacific Square, Maroubra** (2014)
- **Southcity Shopping Centre, Wagga Wagga** (2012)
- **Riverwood Plaza** – upgrade of the existing refrigeration plant and airconditioning systems (2012)
- **Stamford Plaza, Double Bay** – upmarket three level residential with ground floor commercial centre and two levels of caraprak (2008)
- **Portico Plaza** - STAGE 1: Coordination of Building Services for Shopping Centre with fifty three shops including Woolworths (2006/2007)

NABERS Energy Auditing & Section J

- **502 Mount View Rd Mount View- Winery (2019)**
- **35AA Burwood Rd Burwood- Section J (2019)**
- **218 railway Pde Kogarah- Section J (2018)**
- **IMCD 8A2 and a Speculative Warehouse 8A1- NABERS and Section J (2018)**
- **FRNSW Logistics Warehouse - Section J (2018)**
- **Montesori Child Care Centre, L1 8-14 Lyons St, Strathfield (2018)**
- **Lot 4 Keylink South (2018)**
- **107 Fredrick Street, Carlton – Section J (2016-17)**
- **Key Link South – Section J (2016)**
- **Schneider Electric – Section J (2016)**
- **Joy Global – Section J (2016)**
- **331 Charlestown Rd Charlestown – Centrelick, BEEC (2015)**
- **ACFS (Australian Custom & Freight Services) - Port of Brisbane – NABERS Commitment rating for 4 Stars Office Energy (2015)**
- **Sydney Ambulance Metropolitan Infrasturcture Strategy Project – Section J consultant (2015-2016)**
- **Joy Global – Section J consultant (2015)**
- **B2, 160 Bourke Rd Alexandria – Montessori Child care, Section J Assesment (2015)**
- **462 Chapel Rd Bankstown - Montessori Child care, Section J Assesment (2015)**
- **109-119 Gymea Bay Rd Gymea – Child Care Centre – Section J, DTS (2015)**
- **107 Fredrick St Rockdale – Boarding House – Section J, DTS (2014)**
- **Centrelink, 10 First Ave, Blacktown – NABERS 5.5Stars (2013, 2014)**
- **ACFS (Australian Custom & Freight Services) - Port of Brisbane - Section J, JV3 (2013, 2015)**
- **Patricks Terminal Botany – Buildings 1, 2 and 5 (2013)**
- **Montessori Early Childhood Education, Bankstown (2014)**
- **DAIKIN Head Office - 62-66 Governor Macquarie Drv Chipping Norton (2010)**
- **Otto Stage 1 and 2, Rothschild Ave, Rosebery (2014)**
- **DB Schenker (2013)**
- **Smeaton Grange, Dunn Rd (2014)**
- **Northline, Brisbane (2013)**
- **Brady Warehouse, Greystanes (2012)**

Partner/Director

1997 – 2001

‘Technocad R &M’

Suite 42B, 203 Castlereagh Street
Sydney NSW

Business Synopsis :

Mechanical Services Engineering Company providing computer aided design, drafting, services coordination, engineering and site surveys.

- Marketing and sales lead generation
- Services coordination
- Site surveys
- Computer Aided Drawings – airconditioning / mechanical services
- Tendering
- Accounts management

Major Projects :

- **400 George Street** - tenancy fitouts
- **GPO Sydney Offices** - tenancy fitouts
- **OSW World Square Apartments** - construction and as built drawings
- **Travelodge City Apartments** - construction and as built drawings
- **UNSW Scientia Theatres** - construction and as built drawings
- **Forum St Leonards Apartments** - tenancy fitouts
- **Chandler Aquatic Centre, Brisbane** - construction and as built drawings
- International Airport Sydney - chill water plant
- **NSW Leagues Club Offices and Apartments** - construction and as built drawings
- **Regency Towers, Chatswood** - construction and as built drawings
- **OPTUS Exchange, Mascot** - construction and as built drawings
- **Pier 8 & 9, Walsh Bay** - construction and as built drawings
- **88 Philip Street, Sydney** - tenancy fitouts

Engineer / Estimator

1995 – 1996

James L. Williams

Unit 10, 476 Gardners Road
Alexandria NSW

Business Synopsis :

Major provider of Mechanical Services – Design and Construction.

- Tendering
- Engineering
- Design assessment
- Procurement

Achievements/Projects :

- Horizon Tower, Darlinghurst
- Hawksbury Hospital
- Fairfax Printing Press, Chullora
- Penrith Panthers Leagues Club

Other Interests/Achievements

- 1st Place winner in the ANB (Australian Natural Bodybuilding) Sydney Championships 2006 in the under 90Kg.
- Gym exercise, outdoor activities, sport, field and games, travel, reading and personal development.
- Assistance with the thermal study of duct and pipework heat transmission and the effect of insulation, for consideration for inclusion in National Construction Code part J5 (2009)

Languages

Very good communication and language skills in English and Arabic and fundamental French.

INSURANCE

'*TWO MS*' carry a \$5,000,000.00 Professional Indemnity, \$20,000,000.00 Public Indemnity insurance (in the aggregate), accident and disability insurance. Michel Sarkis holds Confined Space and CPR Certificates and Green Card.

REFERENCES, REFEREES & PORTFOLIO

Nader Zreik
Hansen Yuncken
NSW & ACT Design Manager



Rafael Triana
Aland
Design manager



Alan Obrart
OBRART & CO
Building Services Consultant



Rob Fuller
Waratah Airconditioning Services
Mechanical contractor



Raffi Zakarian
Airconditionig Guys
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