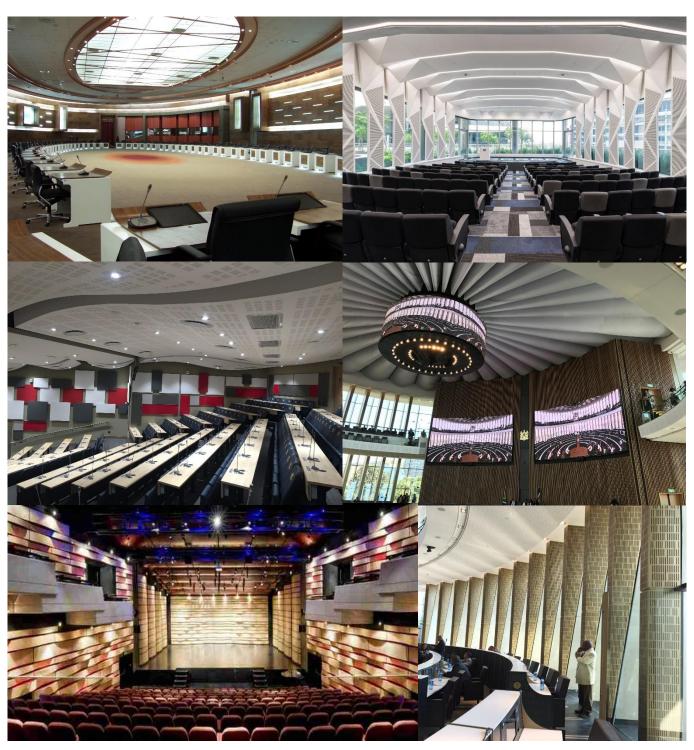


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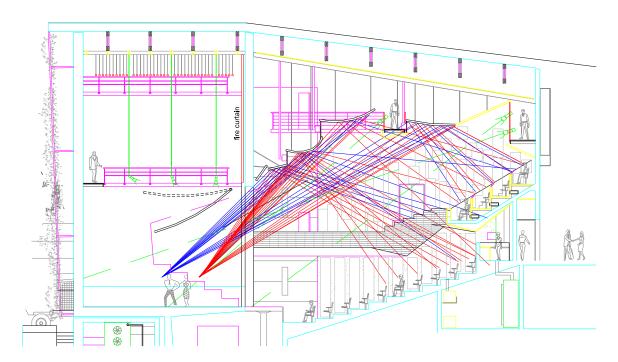


May 2025



LINSPACE (Pty) Ltd 2014 / 250741 / 07 Director: Ivan Lin Pr.Eng. BScEng(Elec)(Wits) Associate Engineers: Ian Gordon BScEng(Aero)(Wits) Associate: Anton van Wyk

INTRODUCTION



1.1. Credentials of LINSPACE Engineers

LINSPACE - Previously Known as Pro Acoustic Consulting Engineers (PACE)

32 years of proven consulting track record with the largest client base in Africa.

LINSPACE engineers have been entrusted with major and iconic projects

Fully glazed Johannesburg Council Chamber, United Nations Offices Nairobi campus, SASOL, SA Reserve Bank, DSTV, Bowman glass auditorium, Soweto Theatre, Standard Bank, ABSA, Nedbank, FNB, Vodacom, MTN, Facebook JHB, Google (JHB, Accra & Lagos), Microsoft (JHB & Nairobi), Old Mutual Sandton, BMW, etc. etc.

LINSPACE engineers are SPACE ENABLERS

The principal engineer Ivan Lin has been actively promoting "User Experience Driven Engineering" or "User Experience Driven Architecture" for the last 16 years.

LINSPACE engineers understand space performance issues

Linspace engineers are active researchers in the relationship between occupant work performance and environmental designs approaches.

LINSPACE enables "Form" to function, beautifully

We design and make beautiful "Forms" work acoustically: www.linspace.co.za

LINSPACE engineers challenge the Norm

LINSPACE engineers believe that even if Norm is OK, it does not mean Norm is acceptable. If any improvement in the space performance/cost ratio is possible, the Norm must be challenged.

LINSPACE engineers set standards

LINSPACE engineers assisted in drafting the following:

Acoustic Standards for Belmond Hotels Group

Acoustic Standards for Lux Hotels and Resorts

Acoustic Standards for Department of Higher Education Student Residences

GBCSA Office Tool V1 IEQ12 Acoustic credits and GBCSA Retail Tool V1 Noise rating tool

GBCSA Office Tool V2 IEQ12 Acoustic Credits

GBCSA Interior Tool Pilot Acoustic Quality credits,

GBCSA Existing Building Performance Pilot Acoustic Quality Credits

LINSPACE engineers set records (possibly!)

Possibly world first deployment of large-scale multi-media interface for Parliamentary Delegate System (Cape Town Parliament chamber 2003)

Ivan Lin invented Intelligent Adaptive Multi-zone Sound Masking System (IAMSA). More than 200,000 sqm of successful deployment to date in SA.

Ivan Lin has been involved in the design of more than 10 parliamentary environments in SA and internationally, possibly the most in the world.

LINSPACE engineers have been entrusted by the largest commercial building industry client base in SA.

1.1.1 Acoustics

Architectural Acoustics

The engineers of LINSPACE are recognized leaders in the field of Architectural Acoustics in South Africa. Our role in the Architectural Acoustic field is to ensure that a proposed building will be conducive to its intended purpose from an acoustic perspective.

Past projects of LINSPACE engineers include the ABSA Towers, American International School, New Anglo American Rosebank Offices, Barclays Johannesburg, BCX IT Head Office, BMW Head Office, Citibank Sandton, Council of Johannesburg new Chamber, DSTV new head offices, Embassy Towers, Facebook Head offices, FNB Call Centres, Google Johannesburg, Google Ghana, Huawei Head Office, Hotel Verde Zanzibar, Market Theatre, Microsoft South Africa, MTN head offices, Nedcor New Town Development, Old Mutual new Offices Sandton, Palazzo Steyn, SASOL Head Office Sandton, Steyn City, Sol Plaatjie University, Standard Bank Rosebank, Telkom SA new offices, Total Johannesburg, United Nations Office at Nairobi, University of Mpumalanga, University of Pretoria campuses, Vodacom head offices, Werkmans, Sandton, etc.

Hospitality Sector:

The Principal Engineer Ivan Lin has been assisting on Hospitality Projects internationally since 1992. In recent years, Ivan has also been engaged directly by development or tenant clients to ensure the design professionals adhering to the prescribed acoustics performance and user experience criteria in commercial, public and hospitality sectors. For the Hospital Sector, Ivan have been assisting with acoustic design, acoustic brand standard compliance and rationalisation. Hotel brands assisted include Belmond Hotels, Hilton Hotels & Resorts brands, Radisson Hotel brands, Accor Hotel brands, Lux* Resorts & Hotels, One&Only...etc.

LINSPACE has been selected as a Preferred Acoustic Consultant by a number of hotel brands. Belmond Luxury Hotels, one of the most premium hospitality operators internationally, selected LINPSACE from a panel of international acoustic consultants to author their Development Brand Acoustic Standard in 2025.

Green Building Acoustics

As sustainability, environmental responsibility and employee well-being gains greater relevance and importance in the development of modern buildings, more emphasis is placed on the "green design" of buildings. The Green Star Council of South Africa (GBCSA) was created to establish a common language and standard of measurement for green buildings. This is done through the Green Star rating tools.

An important element of the building design is the indoor environmental quality (IEQ) offered by a building. This relates to air quality, lighting levels and noise levels. It is accepted that internal noise levels have a significant effect on the occupants of a building, affecting their satisfaction, well-being and hence their health and productivity. The GBCSA, through the Green Star Tool aims to "recognize buildings that are designed to maintain internal noise levels at an appropriate level" by awarding up to two Green Star points to such projects.

We have been involved in several Green Star projects, preparing the documentation required to claim the points related to internal building noise levels. Notable examples include the Nedcor Phase 2 building (the first building to be officially certified under the Green Star tool) and the Vodafone Innovation Centre (the first building to achieve a 6 star Green Star rating). Recently, we have been advising on the new Green Building Council Head Office in Johannesburg.

1.1.2 Audio-visual Engineering

In the past, Audiovisual System Design has been a grey area where clients or engineers would be reliant on contractors for proposals. The absence of specialist engineers to prepare technical specifications and to evaluate submissions would often lead to tender award decisions being made with insufficient technical justification.

LINSPACE engineers have identified these challenges and have been entrusted by major clients such as Anglo American, the Department of International Relations and Cooperation, United Nations Office Nairobi, Macquarie South Bank Limited, Total South African Head Office, Loftus Stadium, Sasol, Cape Town Unicity, South African Reserve Bank Head Office, South African Parliament Chamber, NCOP Chamber, Mpumalanga Legislature, Tanzanian Parliament, Council of Johannesburg, DSTV, American School International Johannesburg, Development Bank SA, Free State Legislature, and recently the Johannesburg City Council Chamber, to provide technical specifications - handling the design, tendering process, and implementation of their AV presentation systems, videoconferencing systems, and parliamentary congress and simultaneous interpretation systems.

COMPANY DETAILS

2.1. History

Pro Acoustic Devices C.C. 1992-

Pro Acoustic Devices CC (PAD) was established in 1992 with a primary focus of development and research of architectural acoustic conditioning products, mainly for the broadcasting and music industry in South Africa.

Pro Acoustic Consortium (Pty) Ltd 1999-

During 1999, due to the increasing awareness of work space functional quality in the commercial building sector and growing requests received for consulting services, the principal engineers of PAD realised that a product independent architectural acoustic consulting services was required. PAD was then closed and the pure consulting services Pro Acoustic Consortium was born.

Renaming: Pro Acoustic Consulting Engineers (Pty) Ltd 2011-

During 2011, the directors felt that the word "Consortium" was not appropriate. Pro Acoustic Consortium was then renamed to Pro Acoustic Consulting Engineers.

Pro Acoustic - Evolved: LINSPACE (Pty) Ltd 2015 -

Pro Acoustic restructured into two separate companies. Ivan Lin starts a new consultancy LINSPACE in March 2015. LINSPACE is a professional consultancy offering a User Experience Driven Design approach in Acoustics and AV technologies for Architecture and Interior Spaces.

2.2. Registration with professional and associated bodies

- Member of the Green Building Council
- Engineering Council of South Africa (ECSA)
- South African Institute of Electrical Engineers (SAIEE)
- South African Acoustic Institute (SAAI)
- Audio Engineering Society (AES) (International) (individual registration)

2.3. Key technical staff

Ivan Lin Pr.Eng. – Principal Engineer

Nationality: South African

Qualifications: BSc (Eng) Elec (Wits), Pr.Eng (ECSA)

Membership: Engineering Council of South Africa (ECSA)

South African Institute of Electrical Engineers (SAIEE)
South African Institute of Acoustics, Senior member (SAAI)

Audio Engineering Society (International) (AES)

Position: Director / Acoustic and Electro-Acoustic Engineer

Specialities: Radio, Television and Music Studios, Auditorium and Theatres,

Corporate offices, Conference facilities, Worship Spaces, Hospitality and Leisure Sector Projects, Environmental Acoustics, Electro-

Acoustics

Ian Gordon

Nationality: South African

Qualification: BSc Eng (Aeronautics) (Wits)

Position: Project Engineer

Membership: South African Institute of Acoustics

Engineering Council of South Africa (ECSA)

Anton van Wyk

Nationality: South African

Previous positions: Omega Digital project division manager

Wild&Marr Technical Director

Current Position: Associated Audio-Visual System Consultant

2.4. CONTACT DETAILS

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Telephone number: +27 82 445 6141

Email address: ivanlin@linspace.com

Postal Address: PO Box 411145

Craighall 2024

Johannesburg South Africa

Street Address: 141 Boundary Lane

Sandhurst Sandton 2196

Johannesburg South Africa

2.5. ACOUSTIC PROJECTS (CURRENT AND PASS PROJECTS)

Auditoriums and Education Spaces

ABSA Towers North AGORA Aga Khan School Tanzania

American International School Dakar

American International School Johannesburg:

Theatre & Arts Court Bank of Botswana

BAOBAB School Lusaka Zambia

Botswana School of the Performing Arts Bowman & Gilfillan new auditorium

BUSKAID Music School Cell C Auditorium Conewall Hill College

Department of Higher Education Standards

Dainfern College

Dimension Data Campus Development Discovery Health Building, Sandton Drakensburg Boys' Choir Auditorium Ekurhuleni West TVET College Auditorium Ekurhuleni East TVET College Auditorium

Eskom Simmerpan

GIBS Lecture Theatres upgrade Green School South Africa

Heronbridge College, Johannesburg

International School Uganda International School Dakar International School Tanzania Jafza VVIP Auditorium, Dubai

JSE Building, Sandton KPMG Campus: Phase 1 Lebone School Hall

Mapulaneng Hospital auditorium Midstream College auditorium Mmamethlake Hospital auditorium National Research Foundation

Parliamentary/Council Chambers

Cape Town Unicity Council Chamber, Cape Town Civic

Centre

Ehlanzeni Council Chamber Free State Legislature Chamber

Johannesburg New City Council Chamber Maluti-a-Phofung Council Chamber Mpumalanga Provincial Legislature National Council of Provinces (NCOP) South African Parliament Chamber

Tanzanian Parliament

United Nations Office at Nairobi (UNON) Kenya

Office and Health Care Buildings

102 Rivonia Road (Ernst & Young)

11 Diagonal Street (ex JSE) 129 Rivonia Road: MMI and ENS ABSA Capital Illovo offices ABSA Ridgeside Durban ABSA Towers West

ABSA Project X ACSA AWPO building ACSA Business Gate

African Medical Centre of Excellence, Abuja Nigeria

Allen & Overy Sandton

Ampath Laboratories, Centurion

Anglo American New Head Offices 144 Oxford Rosebank Anglo American New Oxford Parks- Ikhusasa Offices

Anglo American 44 Main Street Anglo American 55 Marshall Street

Anglogold

ATNS (Air Traffic & Navigation Services) Ltd.

Arthur Andersen offices Bank of Botswana Bank of Ghana National Olympic Committee South Africa (NOCSA)

Nedbank, Menlyn Maine, Pretoria

Nedcor North Sandton Newtown Market Theatres

Northwest Provincial Legislature Chamber

OHR Somayach Synagogue

Pretoria Boy's Auditorium - Phase 1 and 2

RAU Art Centre

Redhill School: Music Centre

Sedibeng College

Sol Plaatje University – All Campuses St Alban's College, Music School

St David's Chapel

St Mary's The Edge Performing Arts Complex St Peter's Primary School, Johannesburg

St Vincent's School Hall

Steinhoff Properties Auditorium Steyn City: School Hall Phase 2

Telesure Auditorium

Thabo Mbeki Presidential Library

UNISA Florida Library UNISA Samuel Pauw Library University of Mpumalanga

University of Cape Town HQ Pearson building University of Pretoria: 2012 Lecture Venues University of Pretoria: Engineering III Faculty University of Pretoria: AE du Toit Extension University of Pretoria: AE du Toit Refurbishment

University of Pretoria: Groenkloof Campus University of Pretoria: Javett Arts Centre University of Pretoria: Law Faculty buildings University of Pretoria: Engineering III Department

University of Pretoria: Study Centre University of Pretoria: IT Atrium University of Pretoria: Engineering IV

University of Witwatersrand: Pro Development

Building

University of Witwatersrand: John Moffat Hall University of Witwatersrand: Music School

Auditorium

University of Witwatersrand: Film School Cinema University of Witwatersrand: Health Sciences University of Witwatersrand: Smart Classrooms University of Mpumalanga – all campuses University of Mpumalanga Great Hall

Convention Centres

Botswana Gaborone International Convention

Centre

International Convention Centre, Swaziland

Jafza, Dubai

Madinat Jumeirah, Dubai Sandton Convention Centre Bankserv Africa

Barclays Bank South Africa BHP Billiton – 6 Hollard Street B.P. South Africa Head Office

Blue IQ Innovation Hub

Bowman Gilfillan

British High Commission
Business Connexion

BMW Head Office Midrand

BMW Warehouse Extension Midrand

Centurion Square Citibank Sandton

Covington Offices Johannesburg

CSIR offices

Debswana BDVC Facility & Technical Facility

DELL Head Office Waterfall Midrand
Department of Education, South Africa

Department of International Relations and Cooperation,

New Head Office

Department of Rural Development and Land Reform

Department of Science and Technology
Deutsche Bank Securities, Sandton
Dimension Data Campus Development
Discovery Health Call Centre KZN
Discovery Health Building, Sandton
Discovery Health Fun Factory

DSTV Experience Centre Mpumalaga

DSV

Edcon Refurbishment Embassy Towers

DSTv City new head office

Eris Property Group – Block G Eskom NMC Call Centre

Everite Limited Facebook Offices

Fairlands Developments: Westbank and FNB Homeloans

Finastra

FNB Atrium – Port Elizabeth FNB City Fraser Street Upgrade FNB Call Centre – Ferndale

FNB Inanda Greens FNB Menlyn Mall FNB Umhlanga FNB Windhoek

Global Options Head Office Goldman Sachs Sandton Google Offices, Accra

Google Offices, Lagos – as Google inhouse validator

Google Offices Johannesburg Gordon Institute of Business Greenhouse, Cape Town Greenstone Multi purpose hall

Hannover RE

Helios Towers - Tanzania

Helios Towers – DRC

Huawei Head Offices

Hollard Phase II

Illovo Phase 3

In2Food Offices

Helios Towers - Congo Brazzaville

Entertainment Venues / Cinemas / Public Spaces

Country Club Johannesburg Pavillion

DSTV Cinema

Barnyard Theatre Pretoria British Airways Airport Lounge

Boardwalk Casino, Conference Centre and Hotel

Bulwer & New Osizweni Arts Centre

Emperors Palace Cinemas Golden Gate Dino Park **Germiston Theatre**

Hyde Park Events Venue, Sandton

International Broadcast Centre for FIFA 2010

World Cup Soccer

Jabulani /Soweto Theatre Complex

Market Theatres

Northgate MTN Sundome Ocean Basket Branches

Ster Kinekor

Southdowns Art Theatre **Southgate Food Court**

United International Pictures (UIP) Preview Cinema

Johannesburg City Council JSE Building, Sandton

KPMG Campus: Phase 1

KPP

Lakeside Growthpoint

Law-on-Keyes

Liberty Life Head Office Lesotho Central Bank

Macquarie Bank, 1 Sandton Drive SA office

Mastercard Foundation Ethiopia Mastercard Foundation Ghana Mastercard Foundation Kenya Mastercard Foundation Nigeria Mastercard Foundation Rwanda Mastercard Foundation Senegal

Mastercard Foundation Toronto Canada

Mastercard Foundation Uganda

Hotels, Apartments and Residences Marsh Head Office

ACCOR Fairmont Project ICON Menlyn Maine Development

ACCOR Novotel Kinshasa Midstream College

ACCOR Novotel Kolwezi DRC ACCOR Novotel Lubumbashi DRC Microsoft Johannesburg

ACCOR Pullman Airport City Accra Ghana

Belmond Hotels Group Acoustic Standards

Boardwalk Casino, Conference Centre and Hotel

Capital Hotels and Apartments Sandton

Caesars Casino, convention centre (world trade

centre)

Carnival City Casino, Brakpan

Elephant Point Hotel Embassy Towers Sandton

Emperor's Casino Arena and Hotel

Four Seasons Westcliff

Four Seasons Sound House Naviva Maxico

Grandwest Casino, Cape Town

Hilton Canopy ALM Hotel Resort Seychelles

Hilton Double Tree Asaba, Nigeria

Hilton Double Tree Addis Ababa, Ethiopia

Hilton Legend Lagos, Nigeria Hilton Double Tree Gaborone

Hilton Double Tree Mbabane Hotel Verde, Zanzibar

Houghton Apartments and Hotel

Jafza, Dubai

Leonardo Legacy, Sandton LUX* Grand Baie Mauritius

Midstream Medical College

Microsoft Nairobi

Midrand Vodaworld Auditorium

Momentum Metropolitan Holdings New Head offices

MTN Boardroom

MTN Phase II and Campus Development

MTN Regional Offices MTN Swaziland

National Council of Provinces (NCOP)

National Research Auditorium

Nedbank Lakeview Nedbank Phase II **Nedbank Newtown** Nedcor North Sandton

Old Mutual Emerging Markets

Pan African Parliament

Peregrine, Katherine Street Towers

Polifin Auditorium

Rani Towers Mozambique Rand Water Auditorium Redefine Offices Sandton

Rio Tinto Head Office, Johannesburg Rosebank Towers - Virgin Active

SAB Central Office SABS Call Centre

Navivia Sound House, Maxico

One & Only Cape Town

Palazzo Steyn

Private Entertainment Facility for Undisclosed

High-End Client

Private Game Farm for Saudi Royalties Radisson Blue Umhlanga – advisory

Radisson Blue Banjul Gambia Radisson One Place Accra Ghana

Radisson Red Rosebank

Secunda Graceland Casino Complex

Steyn City, Johannesburg Sibaya Casino Hotel The Triple Cape Town

Tswalu Private Resort for Oppenheimer Family

Witbank Casino Hotel

Museums

Anglo Platinum Innovation Centre

Freedom Park Phase II

Hector Peterson Museum, Soweto

National Film, Video and Sound Archives of South

Africa, Pretoria

Studio Projects

33 Baker Street, Std Bank Video Studio

Atlas Studios Johannesburg Cape Town Film Studios Cube Recording Studios East Coast Radio Studios EMI Powerhouse Studio

Frank Studios

Gordon Institute of Business Science Video Studio

Homestudio Music Studios

M'du Records

Malawi Broadcasting Corporation - Blantyre M-Net Television Studios, various studios Multichoice AFM Suites and Dubbing Studios National Electronic Media Institute of South Africa

Newzroom Afrika Studios

Radio Safari

RAU Television Studio

SABC:

Durban studios

Music Control Room

Johannesburg studios

Radio 5 Studios M4 music studios Radio OB Vehicle

M4 Music Studio Control Room

Henry Video Production and SSL Final Mix

Drama Studio
M2 music studios

Sappi Boardroom Sasol Head Office Sasol Oil Randburg

Smollan Unilever Durban

Softline head office, Woodmead

South African Institute of Architects (SAIA) Offices

South African Blood Bank (SANB) Offices

South African Reserve Bank (SARB) Head Office

Refurbishment/Upgrade 2020 Stauch Vorster Architects Offices

Standard Chartered Bank

Standard Bank, Morningside College

Standard Bank of SA Ltd., Executive meeting room,

Johannesburg

Standard Bank Rosebank Executive meeting facilities

Saint Gobain New Head Offices SAP New Offices AV design

South 32 Melrose Acoustic Assessment Standard Bank of SA Ltd. Kingsmead Standard Bank of SA Ltd., Rosebank

Statistics South Africa

T-Systems Head Office, Midrand

Telesure Building

Tiger Brands Head Office Upbeat Properties 101 – Total Head Office: Refurbishment Unilever Durban office

United Nations Office at Nairobi Vereeniging Town Council

Vodacom Florida, Bronberg and Midrand

WAICA Re Ghana

Wilde-at-Heart: Wonderland and Greenhouse

World Bank

Zurich Reinsurance, JHB CBD

Airport Terminals

King Shaka Airport, Durban

O R Tambo International Airport, Johannesburg

O R Tambo ACSA AWPO building O R Tambo ACSA Business Gate Zanzibar T1, T2-2 terminals

Places of Worship

Apostolic Faith Mission, Botswana

Bet David, Johannesburg CSI Johannesburg North CSI Kyalami Castle CRC Johannesburg

Bethesda Church, Pretoria

Christian Family Church, Boksburg Church on the Hill, Nelspruit Delta Church, Moreleta Park

God First: City Green

Bloemfontein

Music Recording Studio and Control Room

Cape Town: Music Recording Studio and Control

Room

Port Elizabeth studios

Scorpio Music Shine Studios

SASANI Studios new Stage 1 and 4

SASANI Hyde Park Studios

Sc-Bono Tv Studio

SONY Studios Johannesburg

Stark Studios

Swaziland Broadcasting Studios Swaziland Broadcasting Corporation

Downtown Studios

Classic FM SA Radio Studios

Primedia 702 and Highveld Studios Johannesburg

Radio Algoa On Air Studios

The Refinery Video/Audio Studios VIACOM Studios Johannesburg YFM Rosebank Studio complex Universal Music Studios (EMI)

Data Centres / Noise Mitigation Design

Absa Towers West, Johannesburg Africa Data Centres – Cape Town Anglo Platinum, Rustenburg

Dimension Data NTT Samrand JOH1 Data Centre

Dimension Data Bloemfontein Data Centre

Discovery Fun Factory HVAC, Sandton

FNB Menlyn Corner, Pretoria

Futuretech JOH1B

Green Park Towers HVAC, Morningside Interxion Data Centre Accra Ghana

IS Data Centre, Randburg

JSE Data Room, Sandton

Life Flora

Life Wilgehuiwel

Mediclinic Midstream Generators noise mitigation

Sandton City rooftop Development

Sci-Bono Laboratory and Lecture Venue,

Johannesburg

Teraco Data Centres Johannesburg and Cape Town

Vantage Data Centres Cape Town

WITS Hall 29 Generator Room

Zondereinde Power Plant

Gracepoint Church

Eastside Community Church, Pretoria

Great Park Synagogue NG Studentgemeente

NG Communitas

Real Life Church

Rivers Church, Morningside Rosebank Union Church

St Dunstan's Church

Tsu-Chi Buddhist Temple Bedfordview Johannesburg

Universal Church Kingdom of God, Parkstation

Green Star Surveys and Assessments

ABSA Towers West, Johannesburg

BCX Head Office Centurion Square DSTV Randburg

FNB Contact Centre

Green Building Council Head office Cape Town

Green Building Council Rosebank

Hyundai Head Office

Illovo Phase 3

KMPG Campus, Johannesburg Nedcor Phase 2 building, Sandton

SASOL Corporate offices Upbeat Properties 101 - Total

Villa Mall, Pretoria Vodafone SSIC

Stadiums

Loftus Versfeld Stadium Acoustics and Audio/visual Systems upgrade to meet FIFA 2010 requirements.

FNB Stadium Acoustic analysis