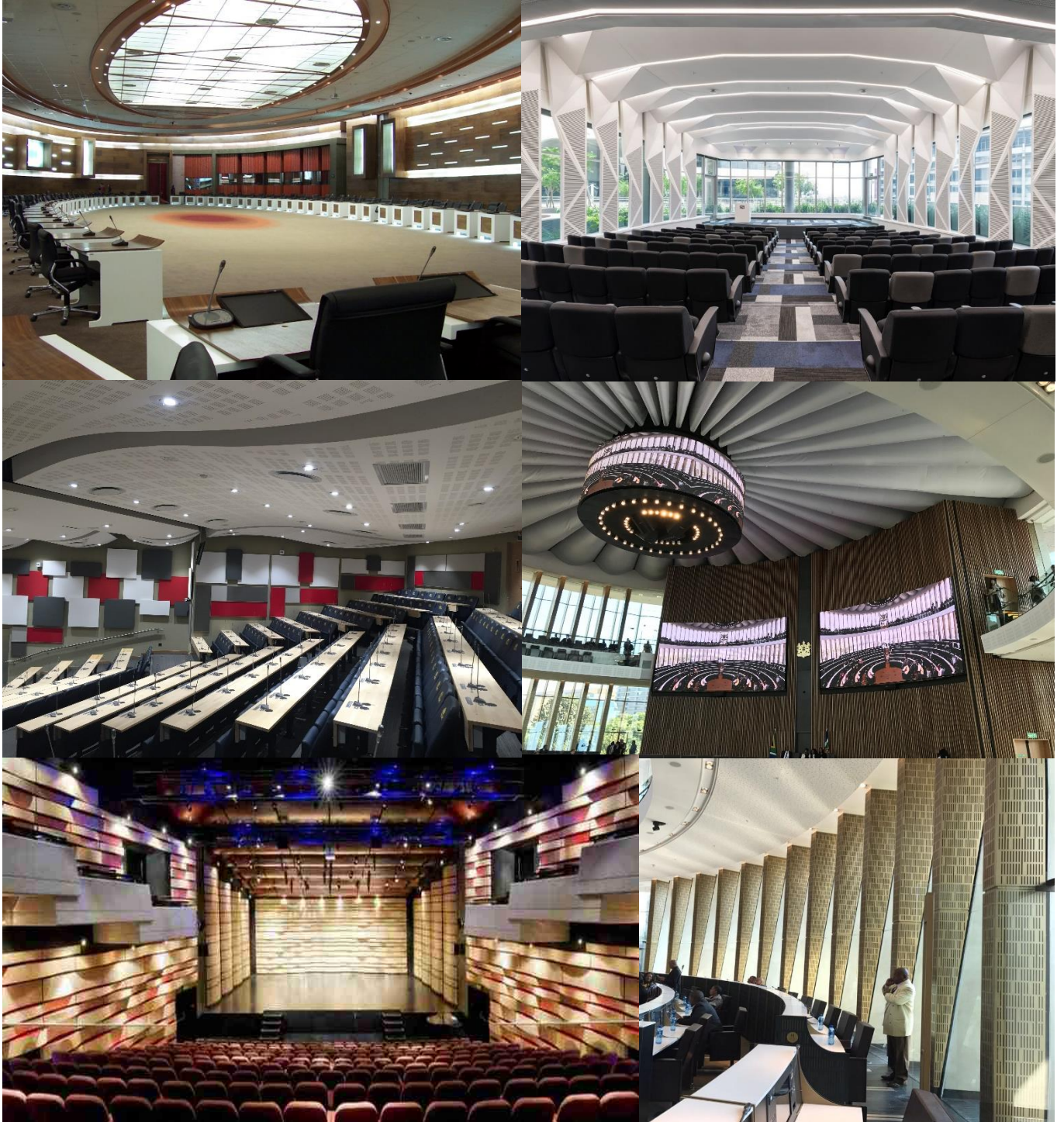


L I N S P A C E

ACOUSTICS • AV • SPACE ENABLING

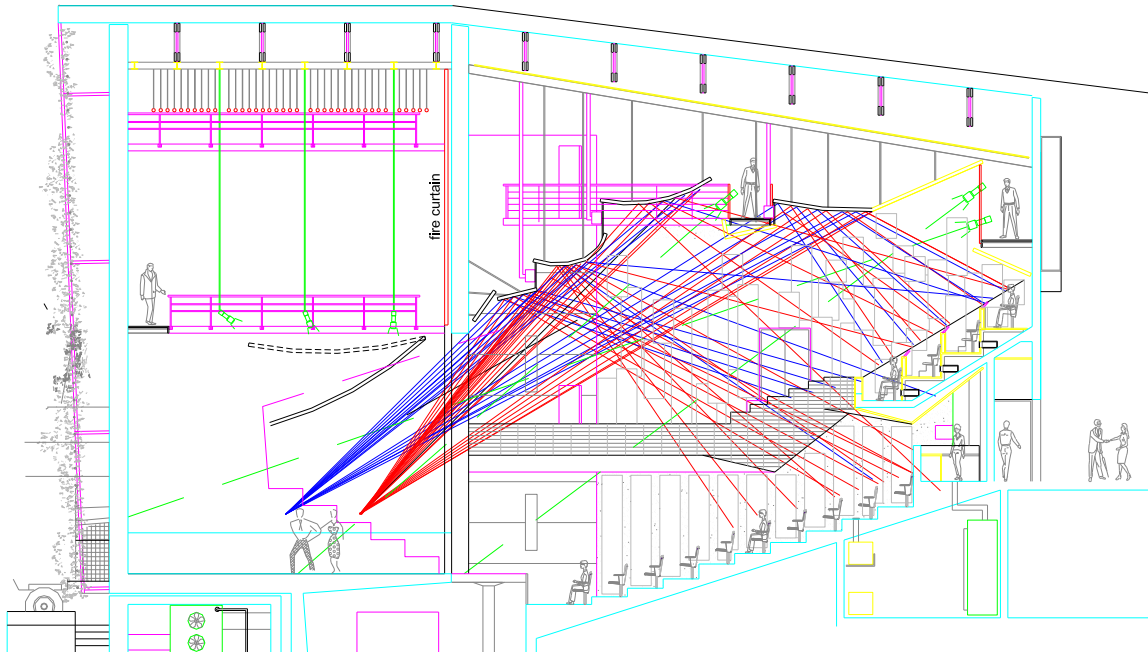
141 Boundary Lane Sandhurst
Sandton South Africa
PO Box 411145 Craighall 2024
Tel +27 (0)11 886 7693
Admin eMail: office@linspace.co.za
Web: www.linspace.co.za



LINSPLACE (Pty) Ltd 2014 / 250741 / 07
Director: Ivan Lin Pr.Eng. BScEng(Elec)(Wits)
Associates: E Johnson

LINSPLACE
is a
B-BBEE Level 1 Contributor

1. INTRODUCTION



1.1. Credentials of LINSPLACE Engineers

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

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

LINSPLACE engineers have been entrusted with major and iconic projects

New JHB glass Council Chamber, SASOL, SA Reserve Bank, DSTV, Bowman glass auditorium, Soweto Theatre, Standard Bank, ABSA, Nedbank, FNB, Vodacom, MTN, Facebook JHB, Google (JHB, Accra & Nairobi), Microsoft (JHB & Nairobi), Old Mutual Sandton, BMW, etc. etc.

LINSPLACE 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 15 years.

LINSPLACE engineers understand space performance issues

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

LINSPLACE enables “Form” to function, beautifully

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

LINSPLACE engineers challenge the Norm

LINSPLACE 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.

LINSPLACE engineers set standards

LINSPLACE engineers assisted in drafting the following:

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

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.

Recent projects of LINSPACE engineers include the new ABSA Towers West, American International School, Acsiopolis, ATNS, Anglo American Johannesburg 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, Rosebank Towers – Virgin Active, SASOL Head Office Sandton, Steyn City, Sol Plaatjie University, Standard Bank Rosebank, Telkom SA new offices, Total Johannesburg, 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 in the EMEA region 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 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 on certain hotel brands.

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 at 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.

1.1.3 Sound Masking

An ideal Sound Masking in the context of an office environment is a means of introducing a well-controlled and calibrated neutral background noise for the purpose of achieving improved speech privacy and reduced sound disturbances between workstations.

A successful sound masking design and installation is non-obtrusive to the occupants and is uniform throughout the floor plate.

A sound masking system on its own cannot provide a total solution in improving office acoustics. Other factors such as the quality and the design of the acoustic ceiling and partitions are equally important to achieve a cumulative improvement in acoustic comfort and privacy.

IAMSM refers to a sound masking system that is intelligent and adaptive to multiple zones of local ambient noise environments. This is in contrast to the traditional approach where an entire building is commonly one single sound masking zone with fixed volumes for the entire building or floor plates.

IAMSM systems use ambient sensing microphones to provide dynamic feedback for each of the defined areas and adjust the masking level accordingly within a predefined range.

The IAMSM concept is not equipment vendor specific. There are multiple South African suppliers that are able to implement this concept.

2. 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: LINSPLACE (Pty) Ltd 2015 -

Pro Acoustic restructured into two separate companies. Ivan Lin starts a new consultancy LINSPLACE in March 2015. LINSPLACE 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)

Allen Wiggill

Nationality: South African
Qualification: BSc Eng (Mechanical) (Potch)
Position: Project Engineer
Membership: South African Institute of Acoustics
Engineering Council of South Africa (ECSA)

2.4. CONTACT DETAILS

Website: www.linspace.co.za
Telephone number: 082 445 6141
Email address: ivanlin@linspace.co.za
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
American International School Dakar
American International School Johannesburg:
Theatre & Arts Court
Bank of Botswana
BAOBAB School Lusaka Zambia
Botswana School of the Performing Arts

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

Bowman & Gilfillan new auditorium
 BUSKAID Music School
 Cell C Auditorium
 Conewall Hill College
 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
 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
 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 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

National Council of Provinces (NCOP)
 South African Parliament Chamber
 Tanzanian Parliament
 United Nations Office at Nairobi (UNON) Kenya

Office 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
 Allen & Overy Sandton
 Ampath Laboratories, Centurion
 Anglo American New Head Offices 144 Oxford Rosebank
 Anglo American New Oxford Parks- Ikhushasa Offices
 Anglo American 44 Main Street
 Anglo American 55 Marshall Street
 Anglogold
 ATNS (Air Traffic & Navigation Services) Ltd.
 Arthur Andersen offices
 Bank of Botswana
 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
 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 City new head office
 DSTV Experience Centre Mpumalaga
 DSV
 Edcon Refurbishment

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

Entertainment Venues / Cinemas

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

Hotels/Apartments

ACCOR Novotel Kinshasa
ACCOR Pullman Airport City Accra Ghana
Boardwalk Casino, Conference Centre and Hotel
Capital Hotels and Apartments Sandton
Caesars Casino, convention centre (world trade centre)
Carnival City Casino, Brakpan
Embassy Towers Sandton

Embassy Towers
Eris Property Group – Block G
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
Hollard Phase II
Huawei Head Offices
Illovo Phase 3
In2Food Offices
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 Ghana
Mastercard Foundation Kenya
Mastercard Foundation Uganda
Marsh Head Office
Menlyn Maine Development
Midstream College
Midstream Medical College
Microsoft Head Office
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

Emperor's Casino Arena and Hotel
Grandwest Casino, Cape Town
Hilton Canopy ALM Hotel Seychelles
Hilton Double Tree Asaba, Nigeria
Hilton Double Tree Gaborone
Hilton Double Tree Mbabane
Hotel Verde, Zanzibar
Houghton Apartments and Hotel
Jafza, Dubai
Leonardo Legacy, Sandton
LUX* Grand Bay Mauritius
One & Only Cape Town
Palazzo Steyn
Radisson Blue Menlyn Maine
Radisson Blue Umhlanga - advisory
Radisson One Place Accra Ghana
Radisson Red Rosebank
Secunda Graceland Casino Complex
Steyn City, Johannesburg
Sibaya Casino Hotel
The Triple Cape Town
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

Studios

33 Baker Street, Std Bank Studio
Cape Town Film Studios
Cube Recording Studios
East Coast Radio Studios
EMI Powerhouse Studio
Gordon Institute of Business Science
Homestudio Music Studios
M'du Records
Malawi Broadcasting Corporation - Blantyre
M-Net Television 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

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
Sappi Boardroom
Sasol Head Office
Sasol Oil Randburg
Smollan Unilever Durban
Softline head office, Woodmead
South African Institute of Architects (SAIA) 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
Saint Gobain New Head Offices
SAP New Offices AV design
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
Vereeniging Town Council
Vodacom Florida, Bronberg and Midrand
Wilde-at-Heart: Wonderland and Greenhouse
World Bank
Zurich Reinsurance, JHB CBD

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

Henry Video Production and SSL Final Mix
Drama Studio
M2 music studios
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 Studios Johannesburg
Radio Algoa On Air Studios
The Refinery Video/Audio
VIACOM Studios Johannesburg
YFM Rosebank Studio complex
Universal Music Studios (EMI)

Data Centres / Noise Mitigation Design

Absa Towers West, Johannesburg
Anglo Platinum, Rustenburg
Dimension Data samrand JOH1 Data Centre
Dimension Data Bloemfontein Data Centre
Discovery Fun Factory HVAC, Sandton
FNB Menlyn Corner, Pretoria
Green Park Towers HVAC, Morningside
IS Data Centre, Randburg
JSE Data Room, Sandton
Mediclinic Midstream Generators noise mitigation
Sci-Bono Laboratory and Lecture Venue,
Johannesburg
Vantage Data Centre JNB-A Isando
WITS Hall 29 Generator Room

Delta Church, Moreleta Park
God First: City Green
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
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