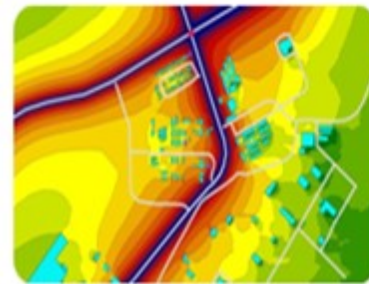


machoy

Mackenzie Hoy Consulting Acoustics Engineers



Year Book 2010/2011

machoy



Contact Details:

5 Coniston Way, Pinelands
South Africa, 7405

tel: +27 (0)21 531 4452
fax: +27 (0)21 531 3334
web: www.machoyrsa.com
email: info@machoyrsa.com

Contents:

Cape Town Stadium PA System Audit

Jamal Trust Houghton Mosque

Athlone Cooling Towers Demolition

Queen Victoria Hotel

Norsonic Acoustic Camera

IRT Bus Station Infrastructure – Cape Town

Paarl Media Montague Gardens – New Generator Station

Vodacom Foreshore Data Centre

Khayalitsha Library

KenGen – SoundPLAN Noise Mapping Training

Rossing Uranium – Noise Monitoring Training Program

Culemborg Development - Pedestrian Wind Study

Parliament Precinct – Pedestrian Wind Study

2011/2012 – Projects in Progress

World Cup 2010 Cape Town Stadium: PA System Audit

After all this excitement of the World Cup, we were asked by James Ricketts of EES, the electronic consultants, to help with evaluating the new PA System for the new Cape Town International Stadium. As a result we did biggest measurement of speech transmission intelligibility index ever done in South Africa. One hundred and thirteen measurements were taken. And how does the stadium PA System match up? Well, you have to ask James...



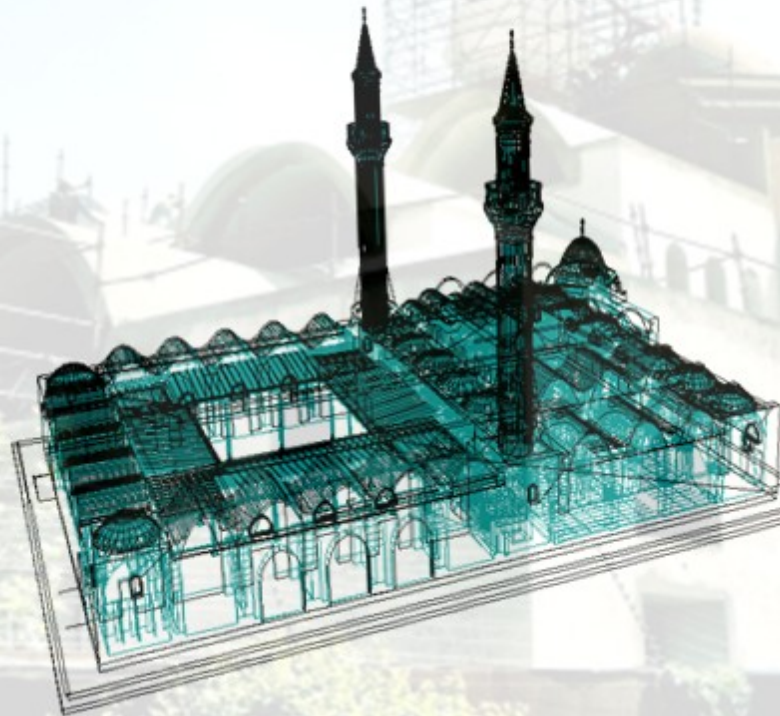
James Ricketts





Houghton Mosque

There is a need for places of worship for Muslim People and the construction of Jamaat Mosque in Houghton has recently been undertaken. The Mosque is an extraordinary beautiful building but, due to it's internal finishes, part of them being hard surfaces, any public address system would just sound "mushy". With the aid of our Odeon software we were able to design an appropriate PA system for the Houghton Mosque which is being installed as I am writing this. OH? you ask what about the "Call to Prayer" does that not disturb people? No it does not, these days "Call to Prayer" goes out by radio.





Athlone Cooling Towers Demolition

It was decided to demolish the Cooling Towers of the old Athlone Power Station, since they have become unsafe. We were invited by Shannon Maree of the City of Cape Town to take whatever measurements we would want for our own interest sake and also to provide information to the City of Cape Town. We set up all of our equipment one and a half hours before the event. Five minutes before the scheduled demolition, we set about setting the equipment triggers. This was the beginning of what can only be described as a comedy of errors. Terry Mackenzie Hoy went over to Matthew Ellis operating the video camera to make sure that everything was in order. As he stood in front of the video camera, the towers were demolished – five minutes before schedule. The result is that the video camera recorded much of Terry Mackenzie's backside and not much of the towers going down. On the next page you can see a photograph of Matthew Ellis, Terry Mackenzie Hoy and Timothy Tanzer (from left to right) in the smaller photograph something has changed. Yes, that's right, the white helmet in front of Terry has moved to the left of Terry and Timothy has his arms crossed and there is a big circle in the sky where the towers used to be. In the end one instrument did work and we can reliably advise you that sound of two cooling towers coming down at a distance of about 300 metres is about 120dBA.



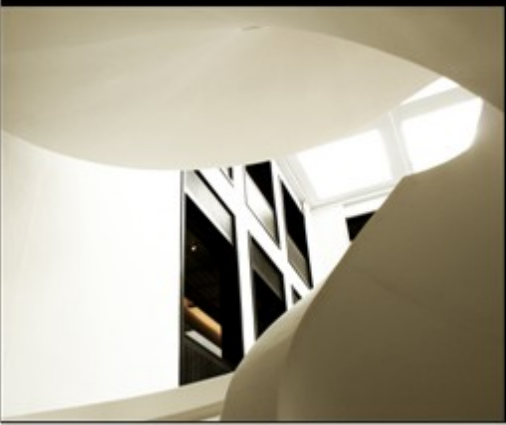
Shannon Maree





Queen Victoria Hotel

Queen Victoria Hotel was a project with Peerutin Architects. We designed noise control particularly for the atrium area and it was so successful that it adds enormously to the luxury and sense of place of this Five Star Establishment.

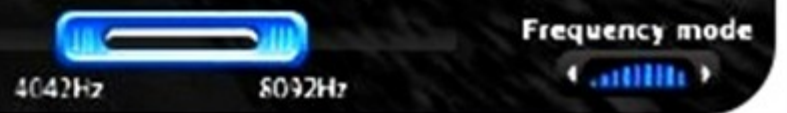
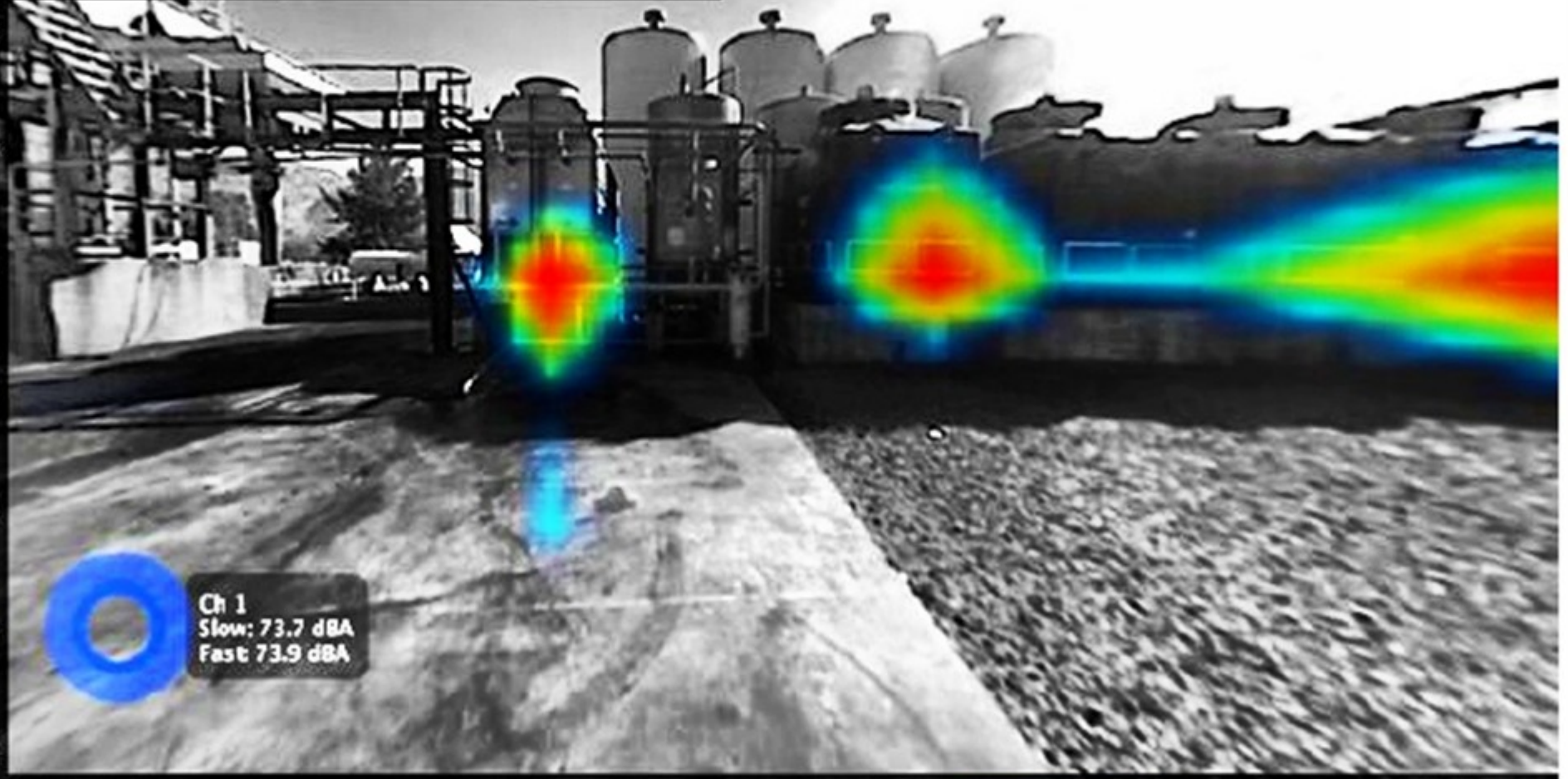
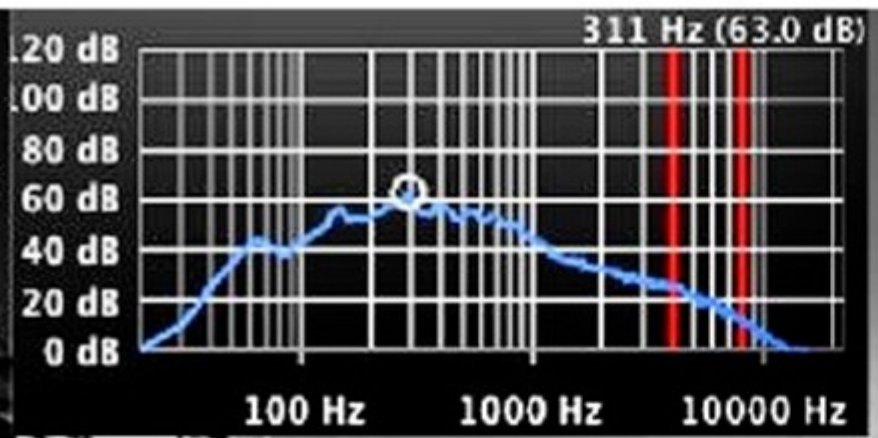
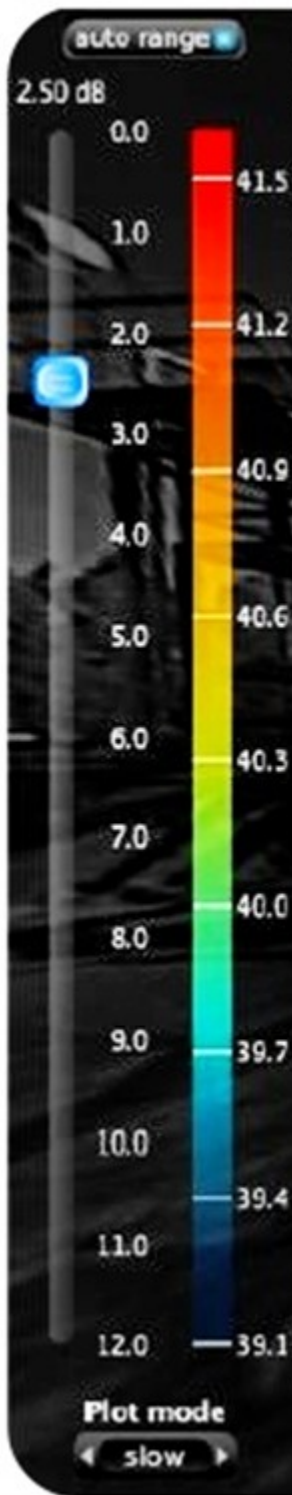




Norsonic Acoustic Camera

Imagine not having just to hear sound, imagine if you could see it. Well this dream has now become a reality. Norsonic AS in Norway have manufactured a device called an Acoustic Camera. You point it at a noise source and you see on a screen the distribution of noise around the source. You can see in the page that follows, the noise source of some cooling towers in Ceres. Quite evidently the main noise of the cooling tower comes from the bottom of the tower, not the top. This makes a huge difference in the design of noise control for this – allowing us to design a barrier for these cooling towers that is much lower than it would have to be if we assume the noise was coming out of the top of the tower. We only had the Acoustic Camera for a short time in South Africa, but we are very impressed with its ability to detect and pinpoint noise sources. Watch this space...





Cape Town MyCiTi IRT Bus Station Infrastructure

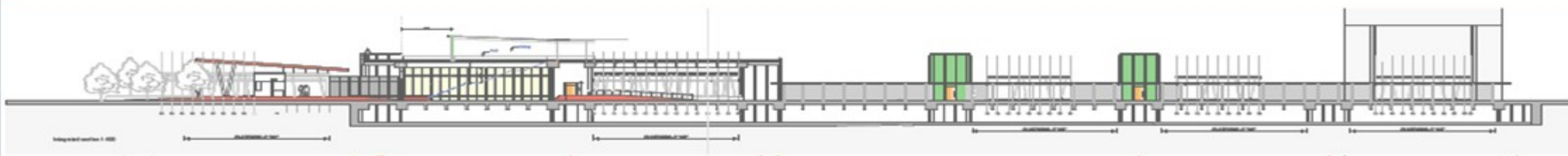


No-one living in Cape Town can have failed to notice the roll-out the MyCiTi Integrated Rapid Transport System. This requires many bus stations to be constructed and chief architect for this all, is Wilfried Bohm (right).



Wilfried Bohm

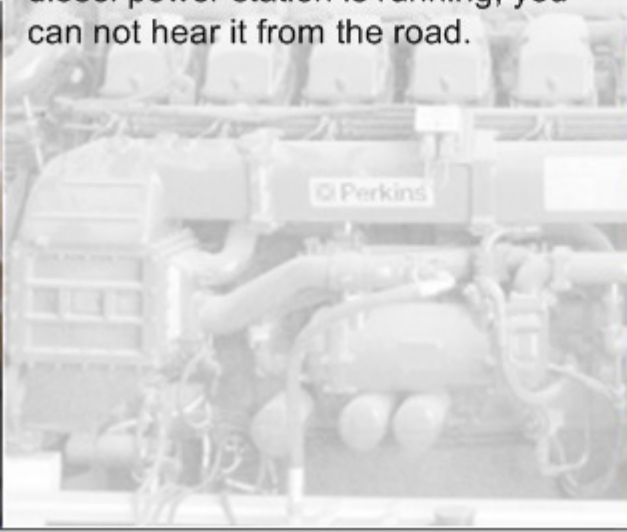
Wilfried took on board our many suggestions for acoustic noise control in the stations. One of the one's we really liked is we told him to make one wall as irregular as possible to prevent cross reflections in the station and this is why if you go civic station you will see that one of the wall seems to be built by a drunk person. For all we know it was built by a drunk person, but it's shape is deliberate. A wonderful project and good for the country.

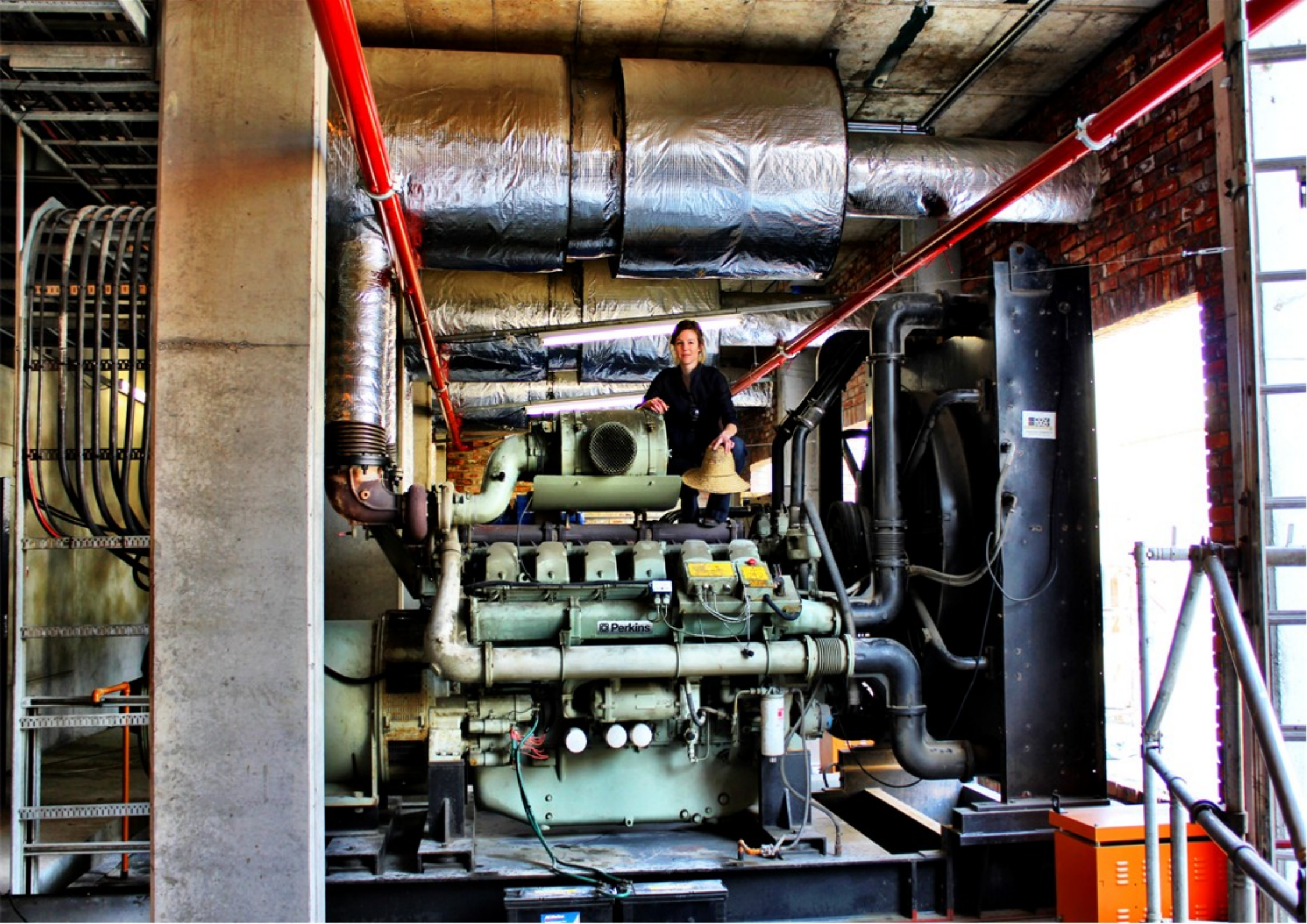




Paarl Media Montague Gardens – New Generator Station

Let us imagine that you want to put a six megawatt power station into a factory which, while it is an industrial environment, has to meet stringent City of Cape Town noise requirements. What do you do? Well the first thing you have to do is make sure that the Diesel Generators for the factory has adequate silencers on their outlets. By “adequate” meaning they have to be designed specifically for each engine, taking in to account the firing frequency of the engines, which are of different size in capacity. On the next page you can see the lady responsible for designing the silencers. Rachel Viljoen is dwarfed by the silencer above her and the three beyond. A very successful project and when the diesel power station is running, you can not hear it from the road.



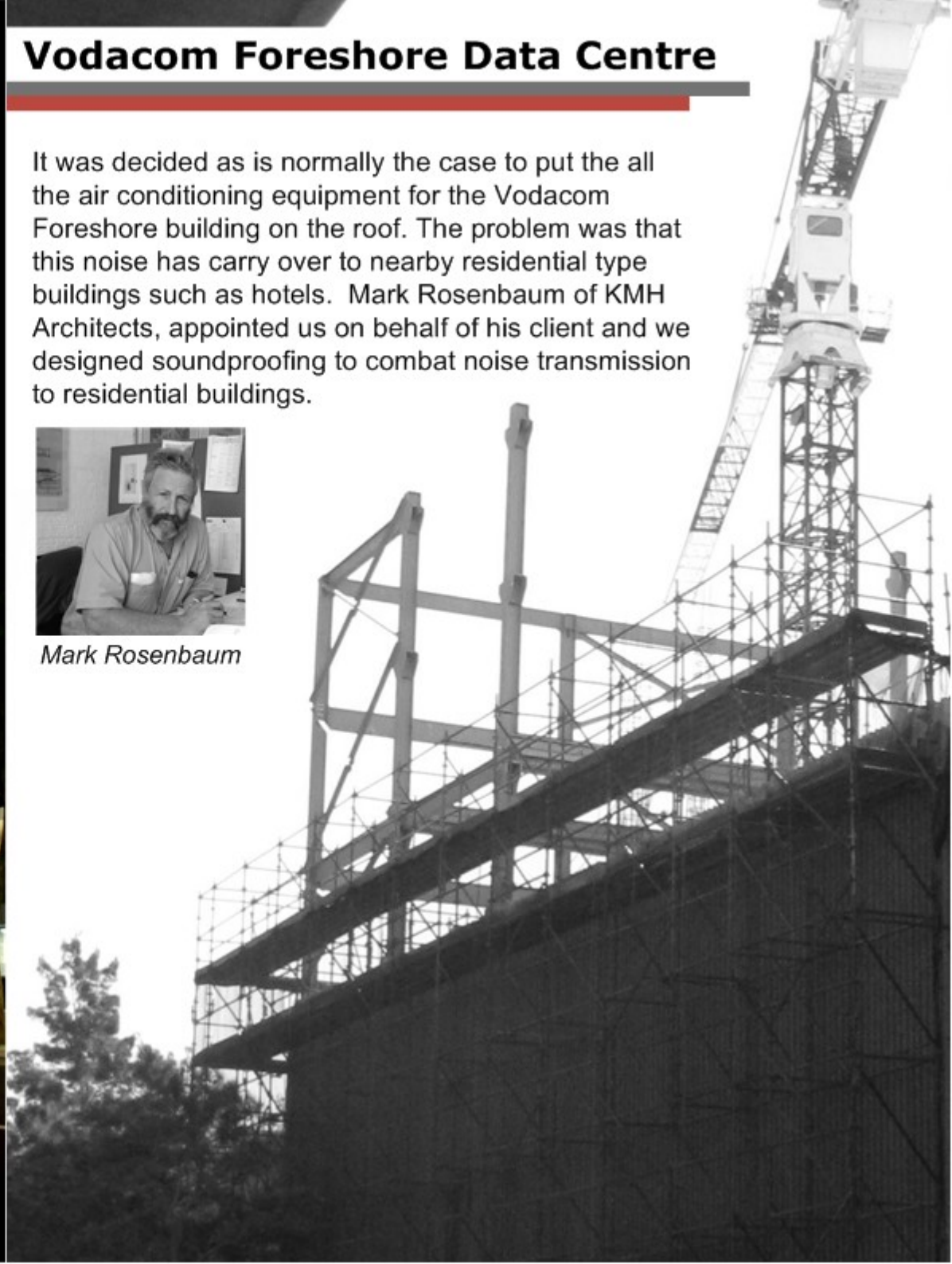


Vodacom Foreshore Data Centre

It was decided as is normally the case to put the all the air conditioning equipment for the Vodacom Foreshore building on the roof. The problem was that this noise has carry over to nearby residential type buildings such as hotels. Mark Rosenbaum of KMH Architects, appointed us on behalf of his client and we designed soundproofing to combat noise transmission to residential buildings.



Mark Rosenbaum



Khayelitsha Library



Khayelitsha Library has to accommodate more than the average number of students who use it not only as a library but as a work space and student centre. To keep the building durable and maintenance free it was necessary to have many plasterboard finishes and hard plastered surfaces which results in very poor acoustics and high noise levels. So... when we were appointed by Architects Charlotte Chamberlain and Nicky Irving we came up with a different solution for noise control.... Acoustically absorbent panels hung from the ceiling. The children call them "flying carpets". (The adults) too...



KenGen – SoundPLAN Noise Mapping Training

Kenya has as it's primary means of power generation geothermal steam and we were requested by The Kenya Electricity Generation Company (KenGen) to train the staff in noise measurement and the use of SoundPLAN© Noise Mapping software. SoundPLAN© is a noise mapping program for which we are African distributors. Timothy, Rachel and Terry visited site for five days (where we learned the new true meaning of Kenya time). We had great fun training the Kenyan personal and worked together for a very successful training exercise.





Rossing Uranium: Noise Monitoring Training Program

Rossing Uranium mine is in Namibia and about 80 km inland from Swakopmund. As part of their ongoing safety and health program they asked us to supply them with a sound level meter (a "state of the art" Norsonic Nor140) and teach them about noise and how to measure it. We had a very successful training program followed by a equally successful (if noisy) field exercise...



Timothy Tanzer with Inekela Iiyambo and Loide Ndumbe from Rossing Uranium

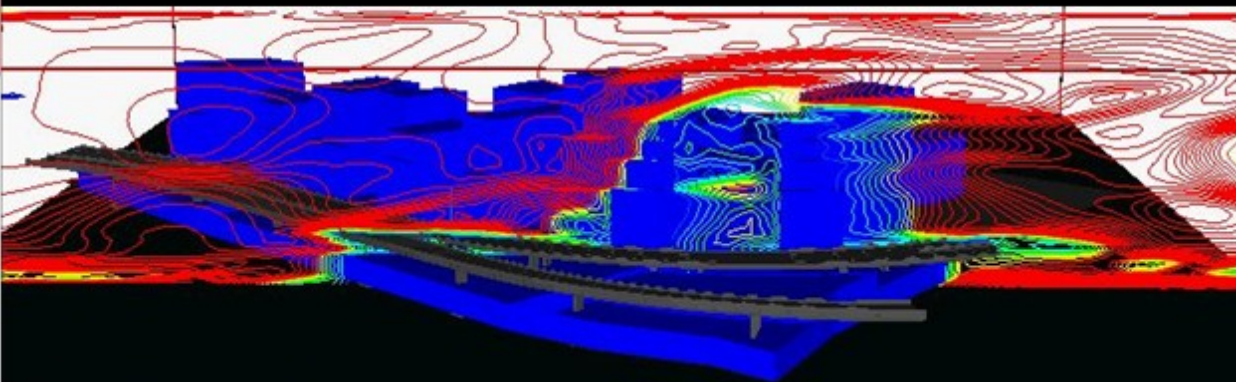
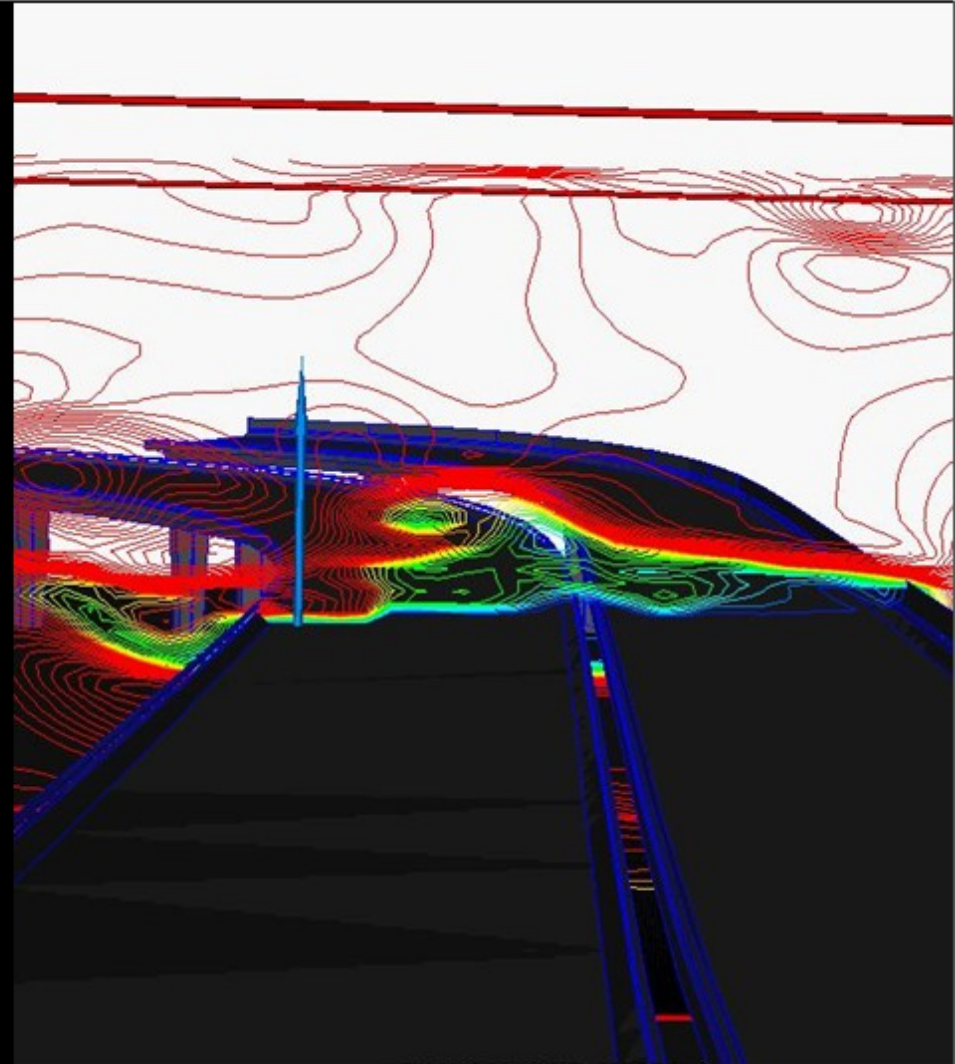


Culemborg Motor City – Pedestrian Wind Study

Until very recently, all wind studies were made using one of three techniques: Sand Erosion, whereby a model of a building is placed in a wind tunnel and the degree to which sand is eroded around the model is taken as the effective wind pattern around that model and thus the building in real life; Smoke trail monitoring, whereby a model of a building is placed in a wind tunnel and the degree to which introduced smoke flows around the model taken as the effective wind pattern around that model and thus the building in real life.

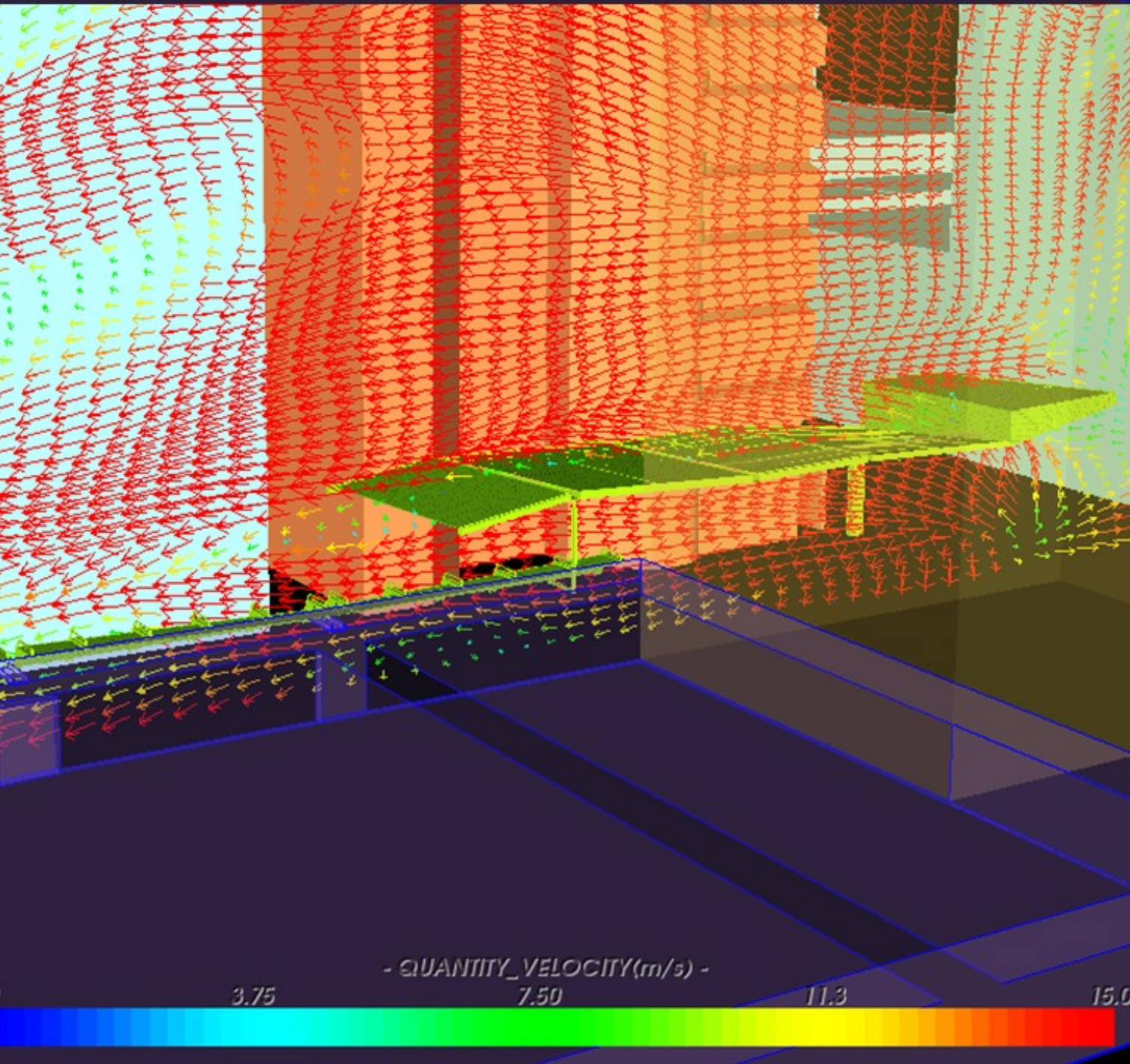
None of these techniques is accurate, even to 20% of real wind flow.

Recent developments have changed the nature of wind modelling and now allow the real-time computer generated streaming video of wind distribution around a building, taken at any section and at any elevation. The Culemborg study, commissioned by Tommy Brummer Town Planners was the first in Cape Town to be done using this method, using our super fast eight core computers and sophisticated software.





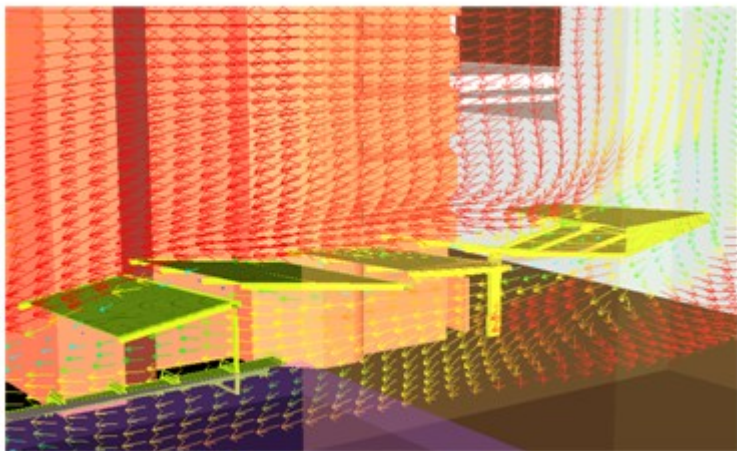
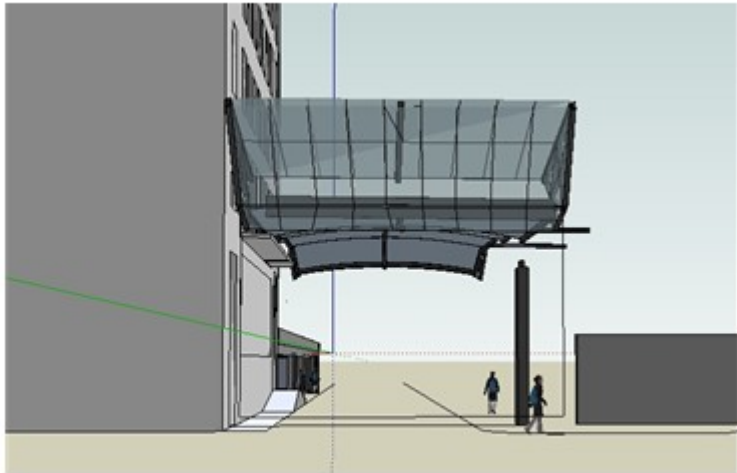
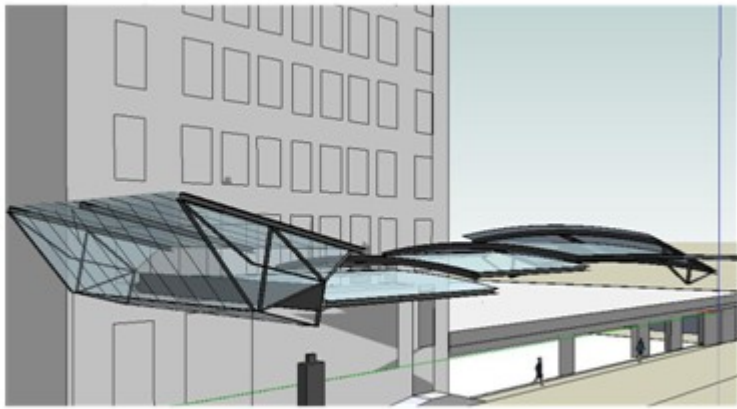
Parliament Precinct: Pedestrian Wind Study



Zainab Fakier

We were commissioned by Archescape Architects cc to do the first ever wind study of wind distribution around a government building in South Africa.... The new Lelie Street canopy

entrance to parliament buildings could have resulted the parliamentarians being blown off their feet...but, working with the architects we could evaluate various designs which were both good rain and windwise..



Current Projects – 2011 / 2012



Portside II Skyscraper (Cape Town)



Ubombo Sugar Mill – Boiler No. 8



University of Botswana – Recreation Centre



Porsche Launch Event (Cape Town)



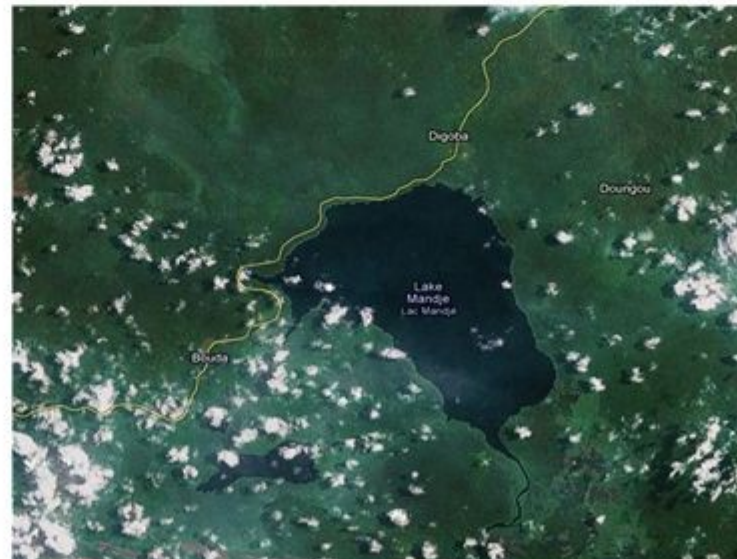
Western Cape Legislature Debating Chamber



Wembley II (Cape Town)



Mitchells Plain Hospital (Cape Town)



Sintoukola Potash Mine EIA (Republic of Congo)

