

The South African Institute  
of Refrigeration and Air  
Conditioning

2013 DREOSTI MEMORIAL LECTURE



**SAIRAC**

[www.sairac.co.za](http://www.sairac.co.za)

CAN INTELLIGENT BUILDINGS PROVIDE  
ALTERNATIVE APPROACHES TO HEATING,  
VENTILATING & AIR CONDITIONING OF  
BUILDINGS

Presented by  
PROF. DEREK CLEMENTS-CROOME

## DATES AND VENUES

### JOHANNESBURG TUESDAY 4TH JUNE 2013

Time: 6.00pm for 6.30pm  
Venue: **THE RAND CLUB**  
Main Dining Hall  
33 Loveday Street, Corner Fox Street,  
JOHANNESBURG.  
Enquiries: Vicky Jeremiah:  
072- 430 8636 / 011-392 6630

### DURBAN THURSDAY 6TH JUNE 2013

Time: 5.30pm for 6.00pm  
Venue: **DURBAN COUNTRY CLUB**  
Masabalala Yengwe Road, .  
(Old NMR Ave).  
DURBAN.  
Enquiries: Taryn Ching:  
082-376 7007 / 031-564 0801

### PORT ELIZABETH MONDAY 10TH JUNE 2013

Time: 6.00pm for 6.30pm  
Venue: **LITTLE WALMER GOLF ESTATE**  
Cnr 10th Ave & River Road,  
Walmer,  
PORT ELIZABETH.  
Enquiries: Celia Blignault:  
083-320 3386 / 041-453 4407

### CAPE TOWN WEDNESDAY 12TH JUNE 2013

Time: 6.00pm for 6.30pm  
Venue: **RATANGA JUNCTION OFFICER'S CLUB**  
Century Boulevard,  
Century City,  
CAPE TOWN.  
Enquiries: Geno Demaio:  
082-559 7584 / 021-975 7707

**TO ATTEND KINDLY COMPLETE THE ENTRY FORM BELOW AND RETURN TO:**

**SAIRAC NATIONAL SECRETARY Marlene Gamble**  
EMAIL: [nationalsecretary@sairac.co.za](mailto:nationalsecretary@sairac.co.za) OR FAX: 086 531 3340

Name: \_\_\_\_\_ No of Persons Attending: \_\_\_\_\_

Contact Number: ( \_\_\_\_\_ ) \_\_\_\_\_ Cell Number: \_\_\_\_\_

Email: \_\_\_\_\_

MARK WITH AN X WHICH MEETING YOU WILL ATTEND

Johannesburg

Durban

Port Elizabeth

Cape Town

There is no entry fee and a cash bar will be available



*Dr Guido Dreosti*

**Founding President of SAIRAC  
Died 7 September 1997 at the  
age of 92**

At the inaugural meeting of the South African Institute of Refrigeration held at Hotel Bordeaux in Cape Town on 17 July 1951, Dr. Dreosti was elected the Founding President. The initial membership was 41 with Dr. Dreosti being allotted membership number 1. He was President for the first five years and again in 1957/58 and 1962/63.

In 1962 the Institute widened its scope to include air conditioning and became the South African Institute of Refrigeration and Air Conditioning (SAIRAC). Since 1951 until October 2012, 3933 persons have joined SAIRAC.

Dr. Dreosti was a true scientist and had a wide range of interests pertaining to the food industry, particularly fish and fruit and its preservation by means of refrigeration. His qualifications had an engineering flavour to them and culminated with a doctorate in engineering physics from the University of Utrecht in Holland in 1930.

Mile stones in his career include:

- Research into the pre-cooling of fruit for the South African export industry from 1930 – 1940.
- Director of the Fishing Research Institute, Cape Town.
- Technical adviser to the PPECB. (Perishable Products Export Control Board)
- Research Professor at UCT (University of Cape Town)

Dr. Dreosti published over 300 papers on subjects in the fields of refrigeration, dehydration, canning etc. He made a lasting and valuable impact on mankind and left the world a better place.

SAIRAC launched the Dreosti Lecture in 1998 in memory of and to honour the outstanding achievements and leadership of its founder.

The Dreosti lecture exemplifies the objective of SAIRAC to promote the unrestricted dissemination of knowledge and information.

## **CAN INTELLIGENT BUILDINGS PROVIDE ALTERNATIVE APPROACHES TO HEATING, VENTILATING AND AIR CONDITIONING OF BUILDINGS ?**



Building services consume energy and require careful maintenance if they are to be continuously reliable. Compared to the building fabric their lifetime is comparatively short. However they make buildings habitable for people to work and live in them by providing air and water at suitable temperatures besides light, power and a host of other utilities for the occupants. The heating, ventilation and airconditioning are a major consideration because they provide heating and cooling for human needs. With the pressures to design new and refurbish old buildings to be sustainable and also healthy we need to consider alternatives to the traditional approaches to systems provision.

Technology is advancing more and more rapidly but cannot provide all the answers. Throughout history people from all cultures throughout the world have discovered ingenious ways of dealing with the rigours of climate whether hot, humid or very cold. Then there is Nature. The marvels of the plant and animal worlds give ceaseless wonder and can stimulate us to think more laterally. By reviewing the thinking behind vernacular styles and being prepared to learn from Nature we can design more naturally responsive buildings. Organic architecture is known but let us adopt this approach together with appropriate technology to the buildings and systems as a whole to achieve sustainable intelligent architecture for people and society.

This lecture will review the lessons from the past, consider the present and the drivers which will lead us into the future. Sustainable building or architectural engineering relies on natural systems such as earth cooling for example but also the advancing nano technologies are pivotal as their impact on materials hence the facades of buildings is generating things like digital walls which interact with the occupants who in turn will probably wear wireless sensors in their clothing. Then we have to remember that the environment we create affects the health of occupants and this in turn has an impact on their productivity so the latest evidence for this will be presented. It is important to share this knowledge with clients as well as consultants, contractors, facilities managers and academics who teach the next generation in the spirit of the pioneering work of Dreosti whose memory this lecture salutes.

Derek Clements-Croome is Professor Emeritus in architectural engineering at Reading University. He was founder of the MSc Intelligent Buildings Course at the University of Reading and has carried out many research projects in this field funded by Government. He is experienced in sustainable healthy buildings research and education nationally and internationally and has sat on UK research panels for EPSRC and ESRC.

He chairs the CIBSE Natural Ventilation and Intelligent Buildings Groups and also sits on the CIBSE Schools Group. He was Vice-President of CIBSE 2007—2009 and also holds bronze and silver medal awards.

He is Editor for the Intelligent Buildings International Journal published by Taylor and Francis. He has written many papers and written and edited several books including *Creating the Productive Workplace* 2nd edition 2006 and *Intelligent Buildings 2004* (also in Chinese) which has a second edition being published in 2013..

He was a principal contributor to the BCO Report on *The Challenges for the Office Sector Over the Next Decade and Beyond* led by Volterra issued at the BCO Conference in Geneva in May 2011. He serves on the BCO Research Committee and Technical Affairs Committee besides having been the Board. He is a member of the UK Green Building Council.

His international work is mainly in China and Finland where he works in cooperation with the Ministry of Construction in Beijing and has also been an adviser on intelligent buildings for two years 2005–06 sitting on the Strategy Review Board on Science and Technology for the Government in Taiwan.

He has been a visiting professor at several universities and at present is a Visiting Professor at Xian University of Architecture and Engineering, Hong Kong Polytechnic University and London South Bank University.

He works closely with industry and has developed the SuBET master planning tool with Dr Husam Al-Waer at Dundee University and Hilsen Moran.

In his spare time he studies music principally the violin and viola.