



**THE SOUTH AFRICAN INSTITUTE  
OF  
REFRIGERATION AND AIR CONDITIONING**

**Building a future  
with SAIRAC  
Membership**

## FOUNDING

On 17 July 1951, the South African Institute of Refrigeration was founded at a meeting of refrigeration engineers and food scientists held at the Bordeaux Hotel in Cape Town. The founding membership of 41 elected Dr Guido Dreosti as the Institute's first President, an office that he held for the next 5 years and again in 1957 and in 1962.

In March 1961 the Port Elizabeth Centre of SAIR was started. T.F. Longe and L. Broderick were elected Chairman and Vice Chairman respectively. Around this time it became obvious that air conditioning had an important role to play. Members and industry were making the significant and close relationship between the two.

In July 1962 SAIR broadened its focus and the South African Institute of Refrigeration and Air Conditioning was born. As a prelude to SAIRAC's arrival, Cape Town Centre was formed in July 1961, opening the way for a national body to be created. The first Cape Town Centre committee consisted of:

L.Ginsburg (Chairman)	W.W. Boyes
C.A.Johnson (Vice Chairman)	A.P. Alder
L. Campbel	N.C. Humphries
G.Garzolini	J.P. Trautmann

The Transvaal (now Johannesburg) Centre was formed on the 25 July 1963, with Dr Denkhuis and Dr Hodgson as Chairman and Vice Chairman respectively.

The Natal (now Durban) Centre was formed officially in 1967 with R.F. March and G. Alder as Chairman and Vice Chairman respectively.

## PURPOSE

SAIRAC serves the Environmental Control Industry. The purpose of the Environmental Control Industry is to implement environmental control measures to ensure:

- The health, safety and comfort of people
- The processing and preservation of perishables
- The protection of the environment

The environmental control measures include:

- Control of airflow
- Control of air quality
- Temperature control
- Humidity control
- Noise control
- Energy control

The purpose of SAIRAC within the Environmental Control Industry is to:

- Generate, manage and disseminate **data, information** and **knowledge** related to the **science** and **technology** of Environmental Control
- Promote **professionalism** in the Environmental Control Industry

## MISSION

The mission of SAIRAC is to offer our membership the following:

- Regular Technical Meetings, in each of the Centres
- Site visits and plant tours
- Enrichment courses
- Feedback related to the revision of SANS/NCRS codes of practice
- Feedback on the HCFC phase-out programme
- The SAIRAC Technical Data Manual
- The Dreosti Memorial Lecture
- FRIGAIR exhibitions, conferences and workshops
- The creation of a culture of learning and improvement by means of:

- The recognition of the achievements of SAIRAC members, in their working environments and professional capacities, in the Environmental Control Industry
- The recognition of the achievements of students at tertiary educational institutions
- The recognition of the achievements of learners in the Industry

## **TECHNICAL MEETINGS**

Each of the geographic Centres convenes regular Technical Meetings, generally on a monthly basis. Technical Meetings provide a platform for knowledgeable persons to inform members about scientific and technological developments, as well as other topical issues, related to the Environmental Control Industry.

## **ENRICHMENT COURSES**

SAIRAC offers enrichment courses related to environmental control. Enrichment courses are presented as a series of evening lectures or as one day seminars. Courses are presented by members who have in-depth knowledge and experience in the subject presented. SAIRAC enrichment courses cover the following fields and topics:

- **Introductory lectures**  
The SI System  
Definitions and terminology
- **Air conditioning**  
Thermodynamics applicable to air conditioning  
Psychrometrics and properties of air  
Comfort and the need for air conditioning and/or ventilation  
Heat transfer  
Heat load estimating  
Applied Psychrometrics  
Fundamentals of air flow  
Air duct design  
Fans and fan performance  
Air filtration  
Air conditioning systems  
Air cooling and heating equipment  
Humidification and dehumidification  
Air distribution  
Air conditioning controls and safety devices  
Commissioning the system  
The heat pump and heat reclaim  
Fault finding and trouble shooting
- **Refrigeration**  
Thermodynamics applicable to refrigeration  
Psychrometrics and properties of air  
The simple refrigeration cycle  
The refrigeration cycle and cycle diagram  
Compressor construction, lubrication and protection  
Reciprocating compressor performance and selection  
Evaporators  
Condensers  
Expansion devices  
Refrigerants  
Compressor selection and capacity regulation  
Refrigerant piping and accessories  
Component matching and part load conditions  
Controls and safety devices  
Food preservation and storage conditions  
Cold storage equipment  
Cooling load estimating  
Fault finding and trouble shooting

- **Sound control**  
Principles of sound control in air conditioning and ventilation systems
- **Global warming and carbon footprint reduction**  
Green building seminars

SAIRAC enrichment courses do not compete with courses offered by training service providers or educational institutions.

## **TECHNICAL DATA MANUAL**

The data manual is written in the form of a disc-based website that starts with a dynamic index. This makes it very easy to find information on any topic just by clicking on the hot links. We have developed the content from the basics much like a text book. The object is not to teach refrigeration and air conditioning, rather it is to provide a rich source of reference material. Some of the information is better handled by software and where appropriate, we have included a number of software programs. Some of these are: a psychrometric chart generator, refrigerant properties, heat transfer coefficient calculator and a world locations database. The contents cover a broad range of subjects highly relevant to HVAC & R.

## **DREOSTI MEMORIAL LECTURE**

The Dreosti Memorial lecture gives honour and recognition to the outstanding academic and research achievements of the founder of SAIRAC and his exemplary service to the Institute. From time to time, SAIRAC invites a world-renowned expert in the field of air conditioning and refrigeration to present the Dreosti Memorial Lecture in each of the regional Centres. The objective with these lectures is to provide information that is not only topical and interesting, but useful and constructive to individuals working in our Industry.

Previous SAIRAC DREOSTI MEMORIAL LECTURES include:

- 1998: **“Global Warming - Considerations for the Refrigeration and Air Conditioning Industry”** presented by **Mr. Robert Heap** from the UK.
- 2001: **“Ammonia, The Natural Refrigerant for Air Conditioning and Refrigeration Beyond the 21<sup>st</sup> Century”** presented by **Prof. Wilbert (Will) Stoecker** of the USA.
- 2004: **“Carbon Dioxide as a Natural Refrigerant for the Future”** presented by **Mr. Andy Pearson** from the UK.
- 2009: **“Cutting Energy Bills with Natural Refrigerants is Not that Costly”** presented by **Ms. Monika Witt** from Germany.
- 2013 **“Can Intelligent Buildings Provide Alternative Approaches to Heating, Ventilating and Air Conditioning of Buildings”** presented by **Prof. Derek Clements-Croome**, from the UK.
- 2019 **“Issues around Cooling Systems with R290 as an alternative Refrigerant with a very low Global warming potential”** presented by **Dr. Volkmar Hasse** from Germany.
- 2024: **“Journey to a Better Place – a Refrigeration Perspective”** presented by **Dr. Andy Pearson** from UK.

## **FRIGAIR EXHIBITIONS AND CONFERENCES/WORKSHOPS**

FRIGAIR Exhibitions and FRIGAIR Conferences or Workshops take place at regular intervals. These exhibitions and conferences/workshops showcase the latest technological developments and trends related to the Environmental Control Industry.

The first FRIGAIR Exhibition and Workshop was held in 1980.

Future FRIGAIR Exhibition and Workshop will be advertised on SAIRAC website [www.sairac.co.za](http://www.sairac.co.za)

## AWARDS

### Gold Medal Award

The SAIRAC Gold Medal honours those that make outstanding contributions towards research and development in the refrigeration and air conditioning industry, both nationally and internationally.

### Meritorious Award : Silver Medal

Awarded to any person within the air conditioning or refrigeration industries whom Council wishes to honour for outstanding service to the industry.

### Exceptional Services Award : Bronze Medal

In recognition of exceptional commitment to further the aims and objectives and outstanding service to the institute.

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### Honorary Fellow Membership

The granting of Honorary Fellow Membership gives recognition to those who attained outstanding achievements in the industry.

### Life Vice President

The granting of Life Vice President status gives recognition to those that have given outstanding service to the Institute. The current Life Vice President is:

Mr. J. Ackermann

## EDUCATIONAL PRIZES

In keeping with the objective to promote education and the dissemination of knowledge in the industry, SAIRAC offers the following prizes and student grants:

- **Dreosti Prize**  
Awarded on a national basis to the author of the Best Paper presented at a SAIRAC Meeting during any calendar year and published in the SAIRAC journal. Value of prize: R 3,500
- **Centre Prize**  
Awarded by each Centre for the Best Paper of the year presented at that Centre. The recipient does not have to be a member of SAIRAC. Value of prize: R 1,000
- **SAIRAC Prize**  
Awarded on a national basis to the author of best thesis presented by a final year student studying refrigeration and air conditioning subjects at any university in South Africa. Value of prize: R 3,000
- **Best University Student Award**  
Awarded annually to the best final year student in subjects related to air conditioning and refrigeration. Value of prize: R 1,000
- **Best Student Award**  
Awarded annually to the best student studying air conditioning or refrigeration at a University of Technology or Technical College. Value of prize: R 1,000
- **Best Learner Award**  
Awarded annually by each Centre to the best learner in NQF level 2 and NQF level 3, studying air conditioning and refrigeration. Value of prize: R 1,000 for the purpose of purchasing books

## MEMBERSHIP

Membership is open to all individuals who meet the SAIRAC requirements for any of the membership grades and apply for such grade of membership by submitting the required application forms, duly completed. All applications are subject to the approval of the National Council of SAIRAC. Each application requires the payment of a joining fee and is to be proposed and seconded by two SAIRAC Corporate members. Membership remains valid, subject to payment of the required annual dues, which becomes due on the 30<sup>th</sup> June every year.

Membership of SAIRAC is categorised in the following grades:

- Student
- Associate
- Member
- Fellow
- Honorary Fellow

## **STRUCTURES**

SAIRAC is active in the following geographic Centres:

- Cape Town
- Durban
- Johannesburg
- Port Elizabeth

The affairs of SAIRAC in each centre are managed by an elected committee, consisting of the Chairman, Vice Chairman, Secretary, Treasurer and representatives of each grade of membership.

National control and management of SAIRAC is vested in a Council, headed by the President, who is elected by the Members. Council members include the Chairman of each Centre, a Vice-President, immediate Past President, Treasurer and Secretary.

## **AFFILIATION**

SAIRAC is affiliated as an international associate of:

- The American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE)
- The Institute of Refrigeration (IOR)

## **ECSA REGISTRATION**

SAIRAC is registered with the Engineering Council of South Africa

## **CONTACT DETAILS**

National Secretary  
Cape Town Secretary  
Durban Secretary  
Johannesburg Secretary  
Port Elizabeth

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