

# Building a future with **SAIRAC** Membership



The South African  
Institute of  
Refrigeration  
and  
Air Conditioning

## 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 1962, the Institute widened its scope to include air conditioning and became the South African Institute of refrigeration and Air Conditioning (SAIRAC).

In 1961 SAIRAC started establishing Centres in the other major cities of South Africa. Port Elizabeth was established in 1961, followed by Durban in 1963 and Johannesburg in 1964.

## 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 in CD format.
- 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 are registered with the Engineering Council of South Africa for CPD purposes.

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

## **TECHNICAL DATA MANUAL IN CD FORMAT**

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**, Prof Emeritus in Architectural Engineering at Reading University, Chairs the CIBSE Natural Ventilation and Intelligent Buildings Group, Editor of the Intelligent Buildings International Journal.

## **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 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**

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

- **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 Presidents are:

Mr. J.P. Trautmann  
Mr. P. Worthington-Smith  
Mr. W.R. Scott

## 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

- **Most Diligent PE Centre Member Prize**

- **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 members. Membership remains valid, subject to payment of the required annual dues, which becomes due on the 30<sup>th</sup> June every year and is payable at the latest by the 30<sup>th</sup> September of the same year.

Membership of SAIRAC is categorized 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 and Treasurer.

Secretarial duties are performed by part-time secretaries and a national secretary.

## **AFFILIATION**

SAIRAC is affiliated as an international associate of:

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

## **ECSA REGISTRATION**

SAIRAC is registered with the Engineering Council of South Africa as a Category A Voluntary Association. SAIRAC's registration reference number is VA A0028.

## **CONTACT DETAILS**

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Website

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

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