



An Intensive **3**-day Training Course

Air Balancing of HVAC System

Improvement of Energy Efficiency of HVAC Equipment



Developing Potential. Delivering Success.

CLASSROOM DATES

Date	Venue	Fee
16-18 July 2025	Sandton	R 8,999

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Why Choose this Training Course?

The purpose of an air distribution system of HVAC is to transfer the required conditioned air to meet the necessary space comfort level. The components of the system are selected to supply the minimum required air under standard conditions. These conditions may be shifted over time. The process of air balancing HVAC systems help to maintain space comfort level under different real conditions with minimum energy consumption and maximum reliability. Therefore, this process should be performed perfectly to obtain the best performance of HVAC systems with minimum cost and maximum reliability.

This Air Balancing of HVAC System training course will help the participants to clearly understand the procedures of the process of air balancing HVAC systems. The design and selection of air distribution systems will be reviewed in this course. This Air Balancing of HVAC System training course will cover the best procedures of testing and adjusting HVAC setting and how to analyze the balancing results to find out the system problems. The training course will discuss how to improve the energy efficiency of HVAC systems based on the air balancing results . Also, several case studies will be studied in this course.

This Luthando Skills training course will highlight:

- Benefits of Process Air Balancing HVAC Systems
- Air Volumetric Measurement Methods
- Air Balancing Procedures for Air Distribution Systems
- Improvements of energy efficiency of HVAC systems
- Diagnosis HVAC system problems based on process of air balancing results.

What are the Goals?

By the end of this Air Balancing of HVAC System training course, participants will learn to:

- Understand design of air distribution and ventilation systems.
- Recognize different instruments for air balancing procedures.
- Understand air balancing procedures for different HVAC systems.
- Diagnosis and solving HVAC system problems.
- Apply the process air balancing HVAC on many relevant case studies

Who is this Training Course for?

This Luthando Skills training course will be effective for people involved in residential and commercial buildings and industrial, hospitals and pharmaceutical companies. This Air Balancing of HVAC System training course is proper to a wide range of professionals but will greatly benefit:

- HVAC Engineers
- HVAC Consultants
- HVAC Contractors
- Energy Engineers
- End Users Engineers
- Energy Improvement Consultants

How will this Training Course be Presented?

This Air Balancing of HVAC System training course will be delivered along workshop principles with presentation, video clips, multimedia illustrations and interactive worked examples. Group discussions will be followed to enhance the skills of the participants. Relevant case studies will be provided and discussed.

Organisational Impact

The organization will benefit from this training course by:

- Improving plant reliability by enhancing the staff skills
- Improving organization staff comfort levels
- Avoiding unhealthy environment in all areas of plant
- Helping diagnosis and solving many problems of HVAC systems
- Improving the energy efficiency of the HVAC systems
- Reducing operating cost of HVAC systems

Personal Impact

On completion of the course, delegates will receive a broad-base knowledge of Air Balancing for HVAC. They will be able to:

- Enhance their basic knowledge related to air distribution and ventilation systems.

- Identify different instruments used to balance the air flow through HVAC systems.
- Understand the best practice for air balancing procedures.
- Develop good plan to perform the air balancing process.
- Identify the air leakage locations.
- Acquire skills necessary to write professional air balancing report.

Daily Agenda

Day One:

Air Distribution and Ventilation Systems

- Benefits of Air Balancing Process.
- Indoor Air Quality and Outdoor Air Requirements.
- Duct Classification, Shapes and Sizing
- System Component Design Velocities
- Air Distribution and Air Outlet Types and Selection
- Fans Selection
- Ventilation Natural and Mechanical

Air Balance Procedures Common to All Systems

- Design Considerations and Balancing Tolerances
- Preliminary Air Balancing Procedures
- Air Balancing Principles
- Methods of Air Volumetric Measurements
- Instruments for Air Balancing
- Velocity Pressure Measuring
- Estimation of Air Volume
- Air Density Corrections
- System Problems and Energy Loss

Day Two:

Balancing Constant Volume Systems

- Balancing Low Pressure Systems
- Proportionally Balancing
- Multizone (Mz) Systems
- Dual Duct Systems
- Induction Systems

Balancing Variable Air Volume Systems

- Variable Air Volume Systems (VAV)
- Classification of VAV Systems
- Balancing Pressure Independent Systems
- Balancing Pressure Dependent Systems
- Combination Systems
- Guidelines for VAV Troubleshooting.

Day Three:

Case Studies

- Air Balancing Process of Laboratory Fume Hoods
- Air Balancing Process of Cleanrooms
- Air Balancing Process of Return and Toilet Exhaust Systems
- Setting Outside Air
- Testing Economizer Operation
- Leakage and Energy Efficiency of HVAC
- Contents of Air Balancing Report