AFEC indoor air quality and filtration masterclass · 3rd edition
Sustainable IEQ Strategies & Filtration Technologies

City air, built environments, HVAC systems and public health

Advance sustainable INDOOR AIR QUALITY in urban hubs



Instructor: Dr. IYAD AL ATTAR

Instructor · Dr. Iyad Al-Attar





Dr Iyad Al-Attar is an internationally recognised air quality and filtration specialist whose work connects scientific research, engineering practice, public health and the sustainable development of cities and buildings.

He is a Visiting Academic Fellow at Cranfield University's School of Aerospace, Transport and Manufacturing, where his work focuses on air quality and filter performance, including applications in land-based gas turbines. His current research at the University of Oxford examines how air quality can become an integral element of sustainable urban development through HVAC systems, monitoring infrastructure and human-centred design.

Dr Al-Attar serves as Indoor Air Quality Patron for Eurovent and was the first Associate Air Filtration Consultant for Eurovent Middle East. He has also been appointed a Commissioner for the International WELL Building Institute. These roles reflect his contribution to improving the way air quality is understood, monitored and managed across the built environment.

Alongside his academic and technical work, he is a prominent international communicator. He is Global Correspondent for Innovations and Technologies at *International Filtration News* and a long-standing columnist for *Climate Control Middle East*, where he examines the relationship between indoor environmental quality, health and specialised applications.

Dr Al-Attar holds a PhD in Engineering from Loughborough University, an MSc from Kuwait University and a BSc from the University of Toronto. His teaching combines scientific rigour with practical guidance for selecting, integrating and operating filtration systems in real buildings and urban environments.

Overview

As urban landscapes densify and pollution profiles grow more complex, the boundary between outdoor air quality and indoor environments has become a critical frontier for public health and well-being. This three-day masterclass provides a comprehensive exploration of the urban-indoor nexus, bridging the gap between macro-level city planning, indoor environmental quality (IEQ), and the precise mechanical engineering required to protect building occupants.

The program challenges conventional approaches to air quality governance by moving progressively from theoretical fundamentals to practical, technical execution. Participants will begin by examining the impact of urban development on atmospheric integrity before diving into the core mechanics of air filtration and system performance. The curriculum emphasizes that achieving optimally filtered air requires more than merely selecting a filter; it demands a holistic understanding of application sensitivities, monitoring mitigation strategies, and the structural mechanics of advanced media technologies, including glass fiber, polyester, and electrospun nanofibers.

By the conclusion of the masterclass, attendees will possess the strategic and technical insights necessary to navigate modern HVAC challenges. Key focus areas include interpreting ISO 16890 performance classifications, managing pressure drop and aerodynamics, and implementing best practices to mitigate bypass and preserve system integrity. The course empowers professionals to view HVAC design and filter selection not just as operational requirements, but as vital public health interventions within the built environment.

Key learning objectives

- Analyze the critical relationship between urban air quality, sustainable development, and public health outcomes.
- Master the fundamentals of air filtration mechanisms, performance metrics, and Indoor Environmental Quality (IEQ) monitoring.
- Evaluate and select appropriate filter media for diverse environments by understanding the structural nuances of varying material types.
- Optimize HVAC integration by minimizing bypass, managing air diffusion and flow dynamics, and maintaining fit-for-purpose IAQ across building envelopes throughout the entire system lifecycle.



Program

DAY 1 Welcome, introduction and urban air quality

10:00	**Registration**
10:30	**Presentation: AFEC activities, mission, and role in the HVAC industry**
11:00	*Coffee break*
11:20	**Presentation: air quality and filtration importance in the city**

DAY 2 Fundamentals, performance and public health

10:00	**Introduction to air quality monitoring and mitigation**
11:00	**Coffee break**
11:20	**IAQ measurement, monitoring, and filter performance in buildings**
12:00	*Break*
12:10	**HVAC and filter system performance and maintenance**
13:00	*Lunch*
14:15	**The nexus of urban-indoor air quality**
15:00	*Coffee Break*
15:20	**Urban development, air in the city, and public health and well-being**
16:00	*Break*
16:15	**widening the scope to IEQ: group work and review questions**
16:45	*Day 2 concludes*

DAY 3 The built environment, application sensitivities, media selection & HVAC integration

10:00	**Application sensitivities: adapting air quality and filtration strategies across diverse environments**
10:45	**Filter media types and selection: evaluating glass fiber, polyester, polypropylene, and electrospun nanofibers**
11:15	*Coffee Break*
11:30	**Strategic HVAC selection: optimizing aerodynamics, pressure drop, and ISO 16890 performance classifications**
12:00	**HVAC installation integrity: best practices for mitigating bypass and preserving atmospheric integrity**
13:00	**Program wrap-up and closing remarks**
13:15	*Masterclass concludes*

Logistics

Place:	Madrid (SPAIN)
Date:	27–29 January 2027
Places:	Limited
Language:	English

Registration fees

Full programme | 27–29 January 2027
€450 per participant.
Includes the technical masterclass on Days 2 and 3. The welcome and urban air quality programme on Day 1 is included at no additional charge.

Day 2 attendance | 28 January 2027
€350 per participant.
Includes attendance at the full technical programme on Day 2.

Registration includes: course materials, coffee breaks and lunch on Day 2.

