



EFFICIENT BUILDING DESIGN

MATERIAL & HVAC EQUIPMENT TECHNOLOGIES

Opening Ceremony

8:45–9:30 am | Jassim Al-Qatami Engineering Lecture Hall

Keynote and Paper Sessions – Thursday, October 8, 2026

Time	Paper/ Talk #	Title	Presenting Author	Room Number
Keynote Talk 1 Chair: Nesreen Ghaddar				
10:00–11:00 am	Smart Buildings That Care: Learning to Balance Energy, Comfort, and Wellbeing		Dolaana Khovalyg	Jassim Al-Qatami Engineering Lecture Hall
Session 1 - Smart Buildings and Systems Chair: Dany Abou Jaoude				
11:15–11:40 am	1110	AI-Driven Microgrid and HVAC Optimization for Climate-Resilient Buildings in the Mediterranean Context	Haytham Dbouk	Jassim Al-Qatami Engineering Lecture Hall
11:40 am–12:05 pm	1124	Smart Control-Driven Optimization of Affordable Net-Zero Energy Houses in the Harsh Hot Climate of Saudi Arabia	Alaa Alaidroos	
12:05–12:30 pm	1140	Grid-Integrated MPC for Residential Cooling in Kuwait: Energy–Cost–Comfort Trade-offs Under Dynamic Tariffs	Ammar Bahman	
12:30–12:55 pm	1147	Hybrid Renewable and Passive Strategies for Meeting Future Building Electrical and Thermal Energy Requirements in Lebanese Climate	Zina El Horr	
Keynote Talk 2 Chair: Joseph Zeaiter				
2:30–3:30 pm	Digital Solutions for Smart and Energy-efficient Buildings		Muhyiddine Jradi	Jassim Al-Qatami Engineering Lecture Hall
Session 2 - Sustainable Building Design Chair: Walid Saad Co-Chair: Alissar Yehia				
3:45–4:10 pm	1111	Beyond Refrigerant Phase-Out: Integrating Embodied Carbon into Lifecycle Decisions for HVAC Equipment Replacement	Ibrahim Kronfol	Jassim Al-Qatami Engineering Lecture Hall
4:10–4:35 pm	1108	Natural Shading vs. Artificial Shading: A Comparative Review on Cooling Energy Use in Hot-Arid Climates	Hajir Labeeb	
4:35–5:00 pm	1116	Dynamic Response of Hybrid Coupled Walls with Eccentric and Concentric Bracing	Adnan Masri	
5:00–5:25 pm	1128	Assessing Proactive and Sustainable Waste Management Practices: A Methodological Framework for Lebanese Construction Sites	Hussein Saab	
5:25–6:00 pm	1136	Effect of Air-Side Membrane Surface Hydrophobicity on the Frost Limits of a Liquid-to-Air Membrane Energy Exchanger (LAMEE)	Amirreza Mahmoudi	
Session 3 - Building Performance and HVAC Equipment Ayman Bishara Co-Chair: Theresa Honein				
3:45–4:10 pm	1144	Façade Performance Standards and Frameworks: A Global Comparison of Regulatory and Assessment Approaches	Marie Belle Georges	Ramez S. Rizk Conference Room
4:10–4:35 pm	1113	Economic Evaluation of Sustainable HVAC Integration in Hospitals: A Theoretical Framework to Optimize Costs and Improve Healthcare Quality	Mohannad Alarqan	
4:35–5:00 pm	1107	Building Envelope Airtightness for Indoor Humidity Management in Hot-Humid Climatic Conditions in Saudi Arabia	Anas Alhadidi	
5:00–5:25 pm	1145	Overheating Mitigation System Analysis for Multi-Glazed Units in a Hot-Arid Climate	Amr Akl	

Keynote and Paper Sessions - Friday, October 9, 2026

Time	Paper/ Talk #	Title	Presenting Author	Room Number
Keynote Talk 3 Chair: Nesreen Ghaddar				
9:00–10:00 am	Bridging Multi-Scale Exergy Optimization and Innovation in Heating and Cooling		Assaad Zoughaib	Jassim Al-Qatami Engineering Lecture Hall
Urban Energy Planning and City Resilience Moderator: Nesreen Ghaddar				
10:15–10:25 am	Sustainable Energy Planning and Retrofitting in Danish Communities and Districts		Muhyiddine Jradi	Jassim Al-Qatami Engineering Lecture Hall
10:25–10:35 am	The Role of District Heating and Cooling Together with the Envelope Renovation in Reducing Energy City Consumption		Assaad Zoughaib	
10:35–10:45 am	Building Integrated Photovoltaic Systems Impact on Increasing Electricity Independence of Buildings and Reducing Reliance on Main Grid in Urban Settings		Majd Olleik	
10:45–10:55 am	Urban Energy Planning: A Changing Perspective in Building Design		Mohamad Takkoush	
10:55–11:25 am	Q&A			
Keynote Talk 4 Chair: Michel Hayek				
11:45 am–12:45 pm	The Role of Heat Pump Energy Flexibility in the Energy Transition		Alessia Arteconi	Jassim Al-Qatami Engineering Lecture Hall
Session 4 - Indoor Air Quality and Thermal Comfort Chair: Samir Mustapha			Co-Chair: Soha Talih	
2:00–2:25 pm	1135	MLP Surrogate for Spatially Resolved Thermal Comfort Prediction in a Ventilated Office	Afif El Bsat	Jassim Al-Qatami Engineering Lecture Hall
2:25–2:50 pm	1112	Design of an Algae Photobioreactor for Indoor Air Treatment Applications	Fatima Harkous	
2:50–3:15 pm	1115	Beyond Energy Savings: Cost-Optimized Retrofit Strategies for Passive Thermal Comfort and Survivability in Legacy Housing	Alex Nwosu	
3:15–3:40 pm	1105	Energy-Efficient Humidity Control in Pharmaceutical HVAC Systems	Tadros Awad	
Session 5 – Urban Energy Chair: Samir Traboulsi Co-Chair: Wael Itani				
2:00–2:25 pm	1114	Advancing Climate-Responsive Building Design in Hot Regions: Optimizing Local Materials for Sustainable Performance and Energy Efficiency in East Africa	Andrew Amanyire	Ramez S. Rizk Conference Room
2:25–2:50 pm	1149	Hygrothermal Robustness of CLT Envelope Constructions in a Warming Climate	Ayman Bishara	
2:50–3:15 pm	1123	From Single Buildings to Districts: Energy Retrofitting of a Danish Urban District	Muhyiddine Jradi	
3:15–3:40 pm	1148	A Comparative Study of Direct, Indirect and Hybrid Evaporative Cooling Approaches for Industrial Facilities in Hot and Humid Climates	Hadi Maamoun	
Industrial Session Chair: Hassan Sultan Co-Chair: Mohamad Takkoush				
4:00–4:15 pm	VAV Testing & Selection		KBE	Jassim Al-Qatami Engineering Lecture Hall
4:15–4:30 pm	From Vision to Performance: Driving Sustainable Construction at Nesma and Partners		Nesma	
4:30–4:45 pm	TBA		DAR	
4:45–5:00 pm	Academic-Industry Relationships Towards Energy Transition & Sustainable Cooling: Open Educational Platform to Industry Challenges		Sermed	
5:00–5:15 pm	Testing Air Handling Units as They Are Built: The Application-Specific and Whole Map Approach		AHRI	
5:15–5:30 pm	Synergizing Solar PV and Pumped Storage Hydro: A Case Study for Lebanon’s Resilience		FTC Qatar	
5:30–5:45 pm	Sustainable Preinsulated PP-R & PP-RCT System for Chilled Water Networks and Data Centers		Interplast	
5:45–6:00 pm	Q&A			