

COBEE 2022 DETAILED PROGRAM SCHEDULE (Ver. 1.2)

FP = Full Paper, EA = Extended Abstract, IS = Invited Seminar, TS = Topical Session (Draft - Subject to Change)

Time	TUESDAY, JULY 26		
8:30 – 10:00	OPENING CEREMONY		
	Plenary Session		
	Santamouris, Mat		
10:00 – 10:30	COFFEE BREAK		
Start at 10:30	PARALLEL SESSIONS	TYPE	AUTHORS
	Health and Indoor Air Quality, Ventilation 1	4 FP – 4 EA	Session Chair: Behzad, Masoud
	Aerosol Transport in a Wide-Body Aircraft Cabin with Side Supply Air Outlets	FP	Mahmoud, Seif; Bennett, James; Hosni, Mohammad; Jones, Byron
	Performance Improvement of a Negative-pressurized Isolation Room for Emergency Department	FP	Wang, Fujen; Permana, Indra; Chaerasari, Citra; Rakhsit, Dibakar; Kusnandar, Kusnandar
	Indoor air quality and its health effects in offices and school buildings in Yangtze River Delta, China	FP	Chen, Jingyu; Huang, Xin; Li, Jingguang; Huang, Chen; Sun, Chanjuan
	Research on Water Endurance Performance of Filter Cartridge	FP	Lin, Zhongping; Zhang, Shuang; Zhang, Wanyi; Xu, Haoran; Li, Chenlin; Chen, Xu; He, Tailong; Zhao, Huan
	Field measurement on bedroom environment and sleep quality of the elderly in winter	EA	Yan, Yan; Lan, Li; Zhang, Haodong; Sun, Yuxiang
	Validation of Fitbit Alta HR compared with Polysomnography in monitoring sleep of young adults	EA	Zhang, Haodong; Yan, Yan; Kang, Mengyuan; Fan, Xiaojun; Wargoeki, Pawel; Lan, Li
	Effects of temperature on indoor air quality of university classroom: an intervention study in Beijing	EA	Zhao, Caixia; Zhang, Xiaojing; Wang, Mei; Xie, Jingchao
	Optimization on COVID-19 prevention and energy conservation during the stable period of pandemic	EA	Yin, Kaili; Zhang, Xiaojing; Xie, Jingchao; Hao, Ziyang; Ge, Shibo; Liu, Jiaping Hu, Tingrui; Zhang, Nan
	Building Physics, Building Envelope and Materials 1	4 FP – 4 EA	Session Chair: Qin, Menghao
	Fire risks of renewable energy technologies in buildings: Analysis of fire effluents for smoke and toxicant detection	FP	Aram, Monireh
	Evaluating Experimental Methods for Measuring the Specific Heat Capacity of Building Materials	FP	Ward, Colin; Baldwin, Christopher; Treichel, Calene; Cruickshank, Cynthia A.
	The effect of thermally massive layer placement on the transient performance of wall assemblies	FP	Ghobadi, Mehdi; Salehpour, Benyamin; Moore, Travis; Ge, Hua

	Impact of saturation water content and liquid diffusivity of wood-based materials on hygrothermal response of wood-frame wall components subjected to water penetration	FP	Wang, Lin; Ge, Hua; Lacasse, Michael; Wang, Jieying; Holcroft, Neal
	Hygrothermal criteria for design of cross-laminated timber external walls	EA	Kukk, Villu; Kers, Jaan; Kalamees, Targo; Lin, Wang; Ge, Hua
	Thermal stability of phase change material (PCM): Evaluation of indoor thermal stability and building energy for apartment building	EA	Yun, Beom Yeol; Choi, Ji Yong; Yuk, Hyeonseong; Jo, Ho Hyeon; Wi, Seunghwan; Kim, Sumin
	Evaluation of thermal properties and building energy consumption of artificial stone finishing materials containing biochar and PCM	EA	Kim, Young Uk; Yun, Beom Yeol; Choi, Ji Yong; Yuk, Hyeonseong; Wi, Seunghwan; Kim, Sumin
	Thermal performance analysis of phase change material/biochar composite for CLT application	EA	Chang, Seong Jin; Park, Jinyoung; Yeo, Su-Hwan; Park, Haedeun
	Building Renewables, Solar Buildings & Smart Grid 1	4 FP – 3 EA	Session Chair: Horvat, Miljana
	Greenhouse Gas Analysis of Solar Adsorption and Typical Residential HVAC Systems for Major Cities Across Canada	FP	McNally, Jordan; Baldwin, Chris; Cruickshank, Cynthia
	Thermal assessment of the Varennes Library building-integrated photovoltaic rooftop system	FP	Roy, Benjamin; Delisle, Véronique; Gagné, Alexandre
	Application of novel methods to compare the flexibility of residential space heating systems	FP	Gaucher-Loksts, Erin; Delisle, Véronique; Roy, Benjamin; Tamasauskas, Justin; Kim, JinHee; Yu, Jisuk; Kim, Jun-Tae
	Assessment of plant-based oils as low carbon phase change materials for building applications	FP	Nichol, Alia R; Treichel, Calene; Cruickshank, Cynthia A; Baldwin, Christopher
	Preliminary Design of Greenhouse Coverage Systems with Dynamic Solar Heat Gain Features for Operational Energy Savings	EA	Zhang, Enhe; Wang, Julian; Wang, Nan
	Research on the calculation of summer sol-air temperature in low latitude island of China	EA	Yin, Kaili; Zhang, Xiaojing; Xie, Jingchao; Hao, Ziyang; Ge, Shibo; Liu, Jiaping
	Energy Performance of Solar Thermal Collectors Coupled with Building Energy Systems Under Climate Change for Cold Climate	EA	Sokhansefat, Tahmineh; Bonyadi, Nima; Lee, Bruno
	Advanced Modeling and Building Simulations, CFD 1	6 FP	Session Chair: Tominaga, Yoshihide
	A High-efficiency and Low-cost Ground Source Heat Pump System Design for Cold-climate Application	FP	Hu, Xiaou; Yu, Yao; Miao, Rui; Megri, Ahmed
	Investigation of the Thermal Cooling Load of a Multifamily Residential Building By Different Algorithms of Heat Transfer	FP	Silva, Wesley Cecilio; Duarte, Matheus de Andrade; Oliveira, Raquel Diniz; Lima, Frederico Romagnoli Silveira
	Evaluating Design Options for Healthy Lighting in Apartment Housing Units Considering LEED, WELL, and Toronto Green Standard	FP	Peters, Terri; Nareshkumar, Abi
	Numerical Assessment of Cockpit Thermal Environment and Air Quality using Computational Fluid Dynamics	FP	Li, Xueren; Yan, Yihuan; Fang, Xiang; Tu, Jiyuan

	Evaluating the thermal performance of a hydronic radiant wall/panel by using tap water as the cooling medium	FP	Rezvanpour, Mohammad; Zamani, Vahid; Cruz-Noguez, Carlos; Chen, Yuxiang
	Research on the Dynamic Simulation Method of Air-layer Integrated Ceiling Radiant Cooling Panel	FP	Zhang, Nan; Huang, Gongsheng
	Urban Microclimate and Energy 1	4 FP – 4 EA	Session Chair: Carmeliet, Jan
	A Universal Method for Meeting a Wide-Scale Heat Demand via District Heating Networks.	FP	Strzalka, Aneta; Böhnisch, Helmut
	Developing and Calibrating a Cost-Effective Method to Determine the Window-to-Wall Ratio and Air-Conditioning Status of Existing Buildings	FP	Philip, Abraham; Pathak, Bhavya Swapneel; Gandhi, Shaily; Rawal, Rajan
	Weather Normalization of Building Cooling Energy Consumption using Specific Enthalpy	FP	Tam, Claire; Liao, Zaiyi
	Performance Analysis and Operation Optimization of Energy Bus System for Residential Community in the Downstream of Yangtze River	FP	Zhou, Yibing; Fan, Rui; Sun, Kexin; Bu, Ting; Zheng, Bin
	Outdoor overheating evaluation in Montreal using a reference year method among future time periods	EA	Zou, Jiwei; Gaur, Abhishek; Wang, Liangzhu (Leon)
	Research on Maintaining and Managing Historic Residential dwellings based on Digital Twin Technology	EA	Qian, Yuchong; LENG, Jiawei
	Testing an Outdoor Thermal Comfort Workflow for Evaluating Urban Infill Design Options	EA	Peters, Terri; Weiss, Ariel
	A Method for Generating Typical Meteorological Year with Simplified Types of Meteorological Parameters	EA	Gai, Shibo; Zhang, Xiaojing; Xie, Jingchao; Yin, Kaili
	IS: Big data analytics to inform building operations, resilience, policy and human mobility		Session Chair: Hong, Tianzhen
	Extract Typical air-conditioning behavior pattern based on large-scale online VRF system operating data	IS	Yan, Da
	Understand Human Mobility in New York City through Big Data Analysis	IS	Dong, Bing
	Applications of big data on residential properties to provide decision-support for building energy policies	IS	Qiu, Lucy
	Ecobee smart thermostat dataset to inform safe rotating power outage	IS	Hong, Tianzhen
	Workshop on Scientific and Technical Publishing		Session Chair: Stathopoulos, Ted
End at 12:00			
12:00 – 13:00	LUNCH		
Start at 13:00	PARALLEL SESSIONS	TYPE	AUTHORS
	Health and Indoor Air Quality, Ventilation 2	4 FP – 4 EA	Session Chair: Larsson, P. Lennart
	A deep learning based zero-equation turbulence model for indoor airflow simulation	FP	Calzolari, Giovanni; Liu, Wei
	Exploring CO ₂ sensor grid configurations and the implications for demand-controlled ventilation	FP	Hobson, Brodie W.; Gunay, H. Burak; Shillinglaw, Scott
	Effects of Perforation Pattern on the COVID-19 Exposure Time at Office Rooms Using Perforated Duct Diffusers	FP	Raphe, Peyman; Fellouah, Hachimi; Poncet, Sébastien; Ameer, Mohamed

	A predictive control strategy to maximize energy savings while maintaining indoor air quality in commercial buildings	FP	Wang, Xuezheng; Dong, Bing; Zhang, Jianshun
	Optimization of a Powerful Double-Intake and Rotor Squirrel Cage Fan	EA	Benchikh Le Hocine, Alla Eddine; Poncet, Sébastien; Fellouah, Hachimi
	Experimental study of particle filtration efficiency of a non-woven activated carbon fabric to improve indoor air quality	EA	Bouhanguel, Ala; Joubert, Aurélie; Subrenat, Albert; Andres, Yves
	Assessment of non-uniform flow influence on an air handling unit filters efficiency and life cycle	EA	Bouhanguel, Ala; Pavard, Gaetan; Joubert, Aurélie; Lecann, Pierre;
	Numerical investigation of air indoor quality using two ventilations systems in fitting room	EA	Abdul Hameed Khan, Mohammed; Bennia, Abderazak; Lateb, Mohamed; Fellouah, Hachimi
	Building Physics, Building Envelope and Materials 2	4 FP – 4 EA	Session Chair: Zhou, Liang (Grace)
	Towards embedded controls for advanced double skin facades	FP	Gennaro, Giovanni; Favoino, Fabio; De Michele, Giuseppe; Goia, Francesco; Perino, Marco
	Numerically Modelling the Hygrothermal Response to Air Movements in Wall to wall Junctions	FP	Delgadillo Buenrostro, Leonardo; Gosselin, Louis; Blanchet, Pierre
	Optimizing prefabrication of plumbing systems for residential buildings from remote high north communities by considering all three facets of sustainable development	FP	Suárez, Jose Luis; Gosselin, Louis; Lehoux, Nadia
	Image Processing for Future Machine Learning Algorithm Applications on Infrared Thermography of Building Envelope Systems	FP	Gertsvolf, David; Horvat, Miljana; Khademi, April; Aslam, Danesh; Berardi, Umberto
	The influence of plug-holing phenomenon on the effect of lateral mechanical smoke exhaust in tunnel fire	EA	Ji, Jie; Zhong, Wei; Wang, Zhiyong; Zhou, Yang; Zhou, Fan
	In-situ Thermal Behavior of Curtain Wall Systems in the Canadian Climate	EA	Corriveau-Peev, Paméla; Rouleau, Jean; Gosselin, Louis
	Practical Correlation for Vacuum Insulation Panel Edge Loss and Panel R-value	EA	Saber, Hamed; Yarbrough, David
	Effect of Different Window Types on Energy Rating Based on the Survey Data in China	EA	Xu, Xin; Xie, Jingchao; Hang, Zhou; Liu, Jiaping
	Building Renewables, Solar Buildings & Smart Grid 2	6 FP	Session Chair: Zuo, Wangda
	Climate Zone-Based Energy Retrofits – Residential Buildings in Canada	FP	McLeod, Rachel Maeve; Moradi, Mohsen; Aliabadi, Amir
	Preliminary Analysis of the Electricity Consumption of Residential Units in Nunavik (Quebec, Canada)	FP	Dumas, David; Gosselin, Louis
	Application of Machine Learning for Cie Standard Sky Classification	FP	Aghimien, Emmanuel Imuetinyan; Li, Danny Hin Wa; Tsang, Ernest Kin-Wai; Agbajor, Favour David
	Analysis of Thermal Response to Power Outages in Residential Sector Using a Multi-Zone Data-Driven Archetype Energy Model	FP	Abtahi, Matin; Athienitis, Andreas; Delcroix, Benoit

	Modeling of a retrofitted photovoltaic/thermal–energy storage system to enhance building energy flexibility	FP	Pelletier-De Koninck, Jean-Christophe; Athienitis, Andreas; Nouanegue, Hervé Frank; Moreau, Alain
	Building-integrated photovoltaic performance modelling: evaluation of the System Advisor Model (SAM) based on experimental data from a grid-connected rainscreen system	FP	Jazouli, Soukaina; Eisenlohr, Johannes; Wilson, Helen Rose; Kapsis, Costa
	Advanced Modeling and Building Simulations, CFD 2	6 FP	Session Chair: Poncet, Sébastien
	Feasibility study of using artificial intelligence methods to reduce building energy demand and improve thermal comfort in early stages of design	FP	Forouzandeh, Nima; Zomorodian, Zahra-Sadat; Tahsildoost, Mohamad; Shaghaghian, Zohreh
	Development and testing of a data schema for exchanging information between urban building energy models and urban microclimate models	FP	Luo, Xuan; Mortezaadeh, Mohammad; Luo, Na; Albettar, Maher; Zhang, Wann; Hong, Tianzhen; Wang, Liangzhu (Leon)
	Assessment of fast fluid dynamics with different turbulence models for simulating airflow and pollutant dispersion around buildings	FP	Dai, Ting; Liu, Sumei; Liu, Junjie; Jiang, Nan; Liu, Wei; Chen, Qingyan
	Influence of building configuration on outdoor thermal comfort in a hot and humid climate	FP	Chen, Lan; Mak, Cheuk Ming
	Impact of specific urban parameters to boost sustainable smart cities - case study in Belo Horizonte city	FP	Azevedo Jr., Isaias Carlos; Diniz Oliveira, Raquel; Spitale Jacques Poggiali, Flavia; Matschulat Ely, Daniela
	Experiments with a Street Canyon Wind Tunnel Model using PIV: Preliminary Results and Future Directions	FP	Cottingham, Kristofer; Bowden, Robert; Yang, Sun-Kyu
	Urban Microclimate and Energy 2	6 FP	Session Chair: Fedel, Michele
	Correlation between Outdoor Air Temperature and Urban Morphology: A study in a University Campus in Tianjin, China	FP	Liu, Kuixing; Guo, Chaoran; Bai, Yanyao; Lai, Dayi
	Assessing the potential of energy savings in residential buildings by city-scale cool materials application	FP	Zinzi, Michele; Falasca, Serena; Ding, Lan; Augello, Andrea; Santamouris, Mattheos
	Comparison of Outdoor Thermal Environment Optimization Strategies in Different Residential Districts of Xi'an, China in Summer	FP	Zhang, Xuefeng; Wang, Yupeng; Zhou, Dian
	Effects of urban morphology and anthropogenic heat on Microclimates in Xi'an, China	FP	Chen, Yuan; Wang, Yupeng; Zhou, Dian
	The Impacts from Vertical Climate Distribution on Energy Consumption of High-rise Urban blocks – the Case from Xi'an, China	FP	Ge, Juejun; Wang, Yupeng
	Simulation of Electricity Demand in Non-Residential Buildings Based on CityGML Data Models	FP	Köhler, Sally; Hötzel, Sarina; Schröter, Bastian
	IS: Wind Engineering, Aerodynamics and Urban Physics		Session Chair: Stathopoulos, Ted
	Dispersion of air pollution in urban environment due to wind-structure interaction	FP	Kwok, Kenny
	Characterization of wind in seaports and waterways through field measurements and CFD simulations	IS	Ricci, Alessio
	How climate changes require to design buildings differently	IS	Berardi, Umberto
	An experimental and numerical study of football stadium ventilation to reduce aerosol concentrations and COVID-19 transmission	IS	Blocken, Bert

	CFD analysis of airborne sea salt adhesion related to corrosion damage in a large sports stadium (EA- Wind Engineering, Aerodynamics and Urban Physics)	EA	Tominaga, Yoshihide
	Smart Buildings and Smart Cities (ML, AI, IoT) 1	6 FP	Session Chair: Chao, Yuan
	Developing a Window Control Algorithm Based on Reinforcement Learning for Indoor PM2.5 Mitigation	FP	An, Yuting; Xia, Tongling; You, Ruoyu; Lai, Dayi; Liu, Junjie; Chen, Chun
	Model-Free Reinforcement Learning Based Control for Radiant Floor Heating Systems	FP	Han, Xu; Malkawi, Ali
	Quantifying energy usage and savings in IoT control retrofitted Canadian small commercial buildings.	FP	Huchuk, Brent; Bahiraei, Farid; Goodman, Jared; Avadaippan, Rajendran
	Effect of Thermal Energy Meter Density and Configuration on Disaggregation Accuracy	FP	Zaeri Esfahani, Narges; Gunay, Burak; Ashouri, Araz
	Impact of Zoning Definition on Electrical Heating Systems Flexibility Potential in Residential Buildings: A Quebec Case Study	FP	Hosseini, Sayed Saeed; Vallianos, Charalampos; Agbossou, Kodjo; Athienitis, Andreas; Delcroix, Benoit; Henao, Nilson; Rao, Jiwu; Kelouwani, Souso
End at 14:30	Data-driven predictive control (DDPC) with deep neural networks for building energy savings	FP	Fontenot, Hannah; Dong, Bing; Zhou, Zhi
14:30 – 15:00	COFFEE BREAK		
Start at 15:00	PARALLEL SESSIONS	TYPE	AUTHORS
	COVID-19, Pandemic and Epidemic 1	6 FP	Session Chair: Nabi, Saleh
	Energy and occupancy analytics to improve understanding and efficiency of building operations - A case study of an office building in Northern California	FP	Luo, Na; Hong, Tianzhen
	The aftermath of COVID-19 on educational building: An energy performance aspect	FP	Run, Keovathana
	Numerical studies on impact of ventilation condition on the COVID-19 transmission in indoor environment	FP	Fang, Xiang; Yan, Yihuan; Li, Xueren; Tu, Jiyuan
	Energy performance assessment of COVID-19 building recommendations in Singapore	FP	Sultan, Zuraimi; Jia, Hongyuan; Schiavon, Stefano
	New insights on teleworkers' work-related preferences and energy-related behaviors for working remotely during the COVID-19 pandemic: An interview-based qualitative analysis	FP	Kharvari, Farzam; O'Brien, William; Arpan, Laura
	A practical-oriented approach for preventing COVID-19 transmission in naturally ventilated room	FP	Ren, Chen; Cao, Shi-Jie
	Building Physics, Building Envelope and Materials 3	6 FP	Session Chair: Rossi, Stefano
	Two-dimensional Numerical Simulation of Balcony Thermal Bridge	FP	Hou, Yifan; Chen, Guojie; Zhou, Xi; Zhang, Bin
	Hygrothermal Properties of Cladding Materials at Different Temperatures	FP	Yousefi, Youness; Tariku, Fitsum
	Experimental study on the effects of carbon nanotubes on fire risks of PMMA	FP	Zhang, Ying; Wang, Shasha; Yang, Menglin; Yuan, Bihe; Tang, Kaixuan; Li, Changwei
	Pre-And Post-Retrofit Performance Evaluation Of A Low-Rise Block Of Flats In The UK	FP	Gupta, Rajat; Howard, Alastair
	Fire smoke control and ventilative cooling of atrium in high-rise buildings	FP	Sha, Haohan; Zhang, Xin; Liang, Xiguan; Qi, Dahai

	Assessing building envelope air leakage and estimating their energy consequences in Egypt's new residential buildings	FP	Goubran, Sherif; Tarabieh, Khaled; Kamel, Basil
	Building Renewables, Solar Buildings & Smart Grid 3	6 FP	Session Chair: Horvat, Miljana
	Solar Buildings and Structural Wind Resistance in Wind Codes and Standards	FP	Alrawashdeh, Hatem; Stathopoulos, Ted
	Feasibility of using solar PV and solar thermal energy in high-rise commercial buildings	FP	Shirinbaksh, Mehrdad; Harvey, L.D. Danny
	Decarbonizing the North: Carbon & Economic Analysis of Space Heating Combined Carbon Capture & Storage	FP	Gagnon, William; Adetona, Adekunbi; Gillespie, Elaine; Goldstein, Benjamin
	Collective intelligence function in extreme weather conditions: High-resolution impact assessment of energy flexibility on building energy performance	FP	Hosseini, S. Mohammad; Moazzami, Amin; Nik, Vahid M.
	Getting from Net Zero to Zero Carbon One Step at a Time	FP	Gilbride, Theresa Lee; Louie, Edward; Aucremanne, Connor
	Green insulation panels development from industrial lignocellulosic materials reinforced cementitious composites	FP	Hasan, K M Faridul; Horváth, Péter György; Bak, Miklós; Alpár, Tibor
	Advanced Modeling and Building Simulations, CFD 3	4 FP – 4 EA	Session Chair: Dong, Bing
	Prediction of ventilation performance in urban area with CFD simulation and generative adversarial networks	FP	Zhuang, Xinwei
	Flow-Based Stress-Blended Eddy Simulation (Fb-SBES): a new hybrid framework for urban flow CFD simulations	FP	Cotteleer, Léo; Longo, Riccardo; Parente, Alessandro
	Tracing the Dependency of Water and Energy in Smart and Connected Communities through a Multi-Domain Modeling Framework	FP	Anbarasu, Saranya; Hinkelman, Kathryn; Zuo, Wangda
	Impacts of urban buildings configurations on outdoor thermal comfort during summer heatwave by CityFFD/CityBEM	FP	Yang, Senwen; Mortezaadeh, Mohammad; Zou, Jiwei; Katal, Ali; Leroyer, Sylvie; Stathopoulos, Ted; Wang, Liangzhu (Leon)
	Validation of cross-ventilation flow in a realistic building geometry	EA	Sudirman, Mutmainnah; Hooff, T. van; Gillmeier, S.; Blocken, B.
	A CFD validation study of pollutant dispersion around a generic building group: Impact of high-rise buildings on prediction accuracy	EA	Shirzadi, Mohammadreza; Tominaga, Yoshihide
	A Mobile Traverse Method to Measure Neighbourhood-Scale Microclimate	EA	Stastny, Austine; Voogt, James A.; Lao, Jiahao
	A multi-GPU based LES urban wind flow solver for real-time simulation	EA	Yang, Mingyu; Oh, Geunwoo; Choi, Jung-Il
	IS: Indoor Air Quality and Ventilation in the Age of COVID		Session Chair: Haghighat, Fariborz
	Experimental and Numerical Study of Exhaled Airflow Velocity through Human Coughs	IS	Ooka, Ryoza
	Filtration in the Age of COVID-19	IS	Siegel, Jeffrey
	Mitigating Strategies of COVID-19 Infection Transmission in Indoor Environment: Ventilation and Disinfection	IS	Cao, Shijie
	Portable Air Cleaner: Roles in Pandemic	IS	Zhai, John
	CFD Modeling of Airborne pathogen transmission of COVID19 in confined spaces under Different Ventilation Strategies	IS	Mirzaei Ahranjani, Parham

	TS: Urban climate at neighborhood scale: Part A		Session Chair: Derome, Dominique
	Vegetation and urban night ventilation as mitigation measures for heat waves in densified cities	EA	Kubilay, Aytaç; Strebel, Dominik; Rubin, Andreas; Carmeliet, Jan
	Modelling of a large canopy to assess thermal comfort in an urban park	EA	Giroux-Gauthier, Léopold; Kubilay, Aytaç; Strebel, Dominik; Herlem, Alicia; Wood, Sylvia; Carmeliet, Jan; Derome, Dominique
	Insights from novel, multiscale modelling of urban heat reduction strategies: street trees and cool materials	EA	Krayenhoff, E. Scott; Jiang, Tim; Lachapelle, Jacob; Ken, Eric; Beaudry, Anika
	Simulating contemporary and projected urban thermal climate with the urbanized WRF regional climate model	FP	Krayenhoff, E. Scott
	Mitigation urban heat island phenomenon with innovative pavement coating and watering	FP	Maxime, Frere; Martin, hendel; Simon, Pouget; Julien, Van Rompu; Laurent, Royon
	A thermal comfort modelling framework for urban neighbourhoods: tempo-spatial coupling of building energy and CFD models	FP	Aghamolaei, Reihaneh; Fallahpour, Marzieh; Zhang, Ruijun; A.Mirzaei, Parham
End at 16:30	JSPS Info Session		JSPS
WEDNESDAY, JULY 27			
8:30 – 10:00	Plenary Session		
	Clarke, Colleen Mercer		
	Persily, Andrew		
10:00 – 10:30	COFFEE BREAK		
Start at 10:30	Parallel Sessions	TYPE	AUTHORS
	Health and Indoor Air Quality, Ventilation 3	4 FP – 4 EA	Session Chair: Brideau, Sebastien
	A Stand-Alone Markov Chain Solver for Predicting Indoor Contaminant Transport Based on Measured Airflow Field	FP	Zhou, Yiding; An, Yuting; Chen, Chun
	Parametric study on vertical void configurations for improving natural ventilation in double-loaded apartments	FP	Kumar, Nikhil; Bardhan, Ronita; Kubota, Tetsu; Tominaga, Yoshihide; Shirzadi, Mohammadreza
	Electrospun nanofiber filters with minimized pressure drop for indoor air quality control: a design and fabrication approach	FP	Lin, Zhongping; Zhang, Shuang; Zhang, Wanyi; Xu, Haoran; Li, Chenlin; Chen, Xu;
	Modifying the turbulence diffusion of Markov chain model for predicting particle transport	FP	Huang, Wenjie; Chen, Chun
	Reducing aerosol particle concentration in indoor spaces with mechanical ventilation and aircleaning: Evidences and challenges	EA	Xia, Lili; Ricci, Alessio; Qin, Peng; Blocken, Bert

	Comparing Regional Deposition Characteristics of Fibrous Particles and Spherical particles in Human Upper Airways – an in silico case study	EA	Khoa, Nguyen Dang; Ito, Kazuhide
	Similarity Assessment of Substituting Air-Helium for Real Fire in BIPV Façade Fire-induced Smoke Spread	EA	Aram, Monireh; Zhang, Xin; Qi, Dahai; Ko, Yoon
	An emissions barrier stops spread of harmful emissions from a building into the indoor air	EA	Larsson, Lennart; Mattsson, Johan
	IS: Modeling Airborne Transmission during COVID-19		Session Chair: Wang, Liangzhu (Leon)
	AMCA COVID Guidance for UNDUCTED Fans – Modeling Airborne Virus Transmissions in Large Warehouses with Large Diameter Ceiling Fans	IS	Yang, Senwen; Wang, Liangzhu (Leon); Raftery, Paul; Ivanovich, Michael; Taber, Christian; Bahnfleth, William P.; Wargocki, Pawel; Pantelic, Jovan; Zou, Jiwei; Mortezaazadeh, Mohammad; Shu, Chang; Wang, Runzhong; Arnold, Scott
	Cross infection risk between two people in different temperature surroundings studied by aerosol dynamics	FP	Nielsen, Peter Vilhelm; Zhang, Chen; Frandsen, Kirstine Meyer; Jensen, Rasmus Lund; Popalzai, Najim; Hundevad, Patrick; Madsen, Simon; Luckenwald, Tonje; Li, Yuguo; Qian, Hua; Xu, Chunwen; Li, Liu
	Measurement of Inhaled Respiratory Particles When People Wear Face Masks with Various Social Distancing	FP	Deng, Zhipeng; Chen, Qingyan
	CFD Simulation and Experimental Validation of Respiratory Airflow and Particle Dispersion When Wearing Face Masks	FP	Deng, Zhipeng; Chen, Qingyan
	Inactivation of Replication-Competent SARS-CoV-2 on Common Surfaces by Disinfectants	EA	Pope, Zachary Clark; Weisend, Carla; Shah, Aditya; Ebihara, Hideki; Rizza, Stacey
	Efficiency in the lighting system to minimize waste and light pollution in an outdoor parking lot	EA	Dos Santos, Adriana Fatima Dussel; Dias, Máira Vieira
	Building Renewables, Solar Buildings & Smart Grid 4	6 FP	Session Chair: Zuo, Wangda
	Techno-environmental assessment of a green and efficient concept based on smart thermal storage interacted with low-temperature heating and high-temperature cooling system	FP	Behzadi, Amirmohammad; Nourozi, Behrouz; Sadrizadeh, Sasan
	Investigation of Controllable Multi-Inlet Semi-Transparent PV/T in Modular System with Applications to Buildings and Infrastructures	FP	Athienitis, Andreas; Bagchi, Ashutosh; Valinejadshoubi, Masoud
	Modelling the temporal carbon footprint of electricity in Quebec: application to the evaluation of dual-energy heating systems.	FP	Ott, Maxime; Lefebvre, Annie; Monfret, Danielle
	Preliminary Modelling and Analysis of an Urban-Scale Ambient-Temperature District Energy System with Solar-Thermal Integration	FP	Brunt, Nicholas; Duquette, Jean; O'Brien, William
	On-site data-driven dynamic solar gain estimation: an artificial occupancy case	FP	Zhang, Xiang; Saelens, Dirk; Roels, Staf
	RoofKIT - Circular Construction and Solar Energy Use in Practice at the Solar Decathlon Europe 21/22	FP	Wagner, Andreas; Carbonare, Nicolas; Hebel, Dirk E.
	Advanced Modeling and Building Simulations, CFD 4	6 FP	Session Chair: van Hooff, Twan

	Analysis of the distribution characteristics and influencing factors of the temperature field in typical office buildings	FP	Jin, Xu; He, Yue; Liu, Zhong Yan; Liu, Pei
	A Weight Clustering-based Pattern Recognition Method for Improving Building's Cooling Load Prediction Reliability	FP	Chen, Sihao; Wang, Liangzhu (Leon); Li, Jing; Zhou, Guang; Zhou, Xiaoqing
	Influence of climate change-driven shifting seasons on seasonal patterns of HVAC operational fault impacts	FP	Zhong, Fangliang; Calautit, John Kaiser; Wu, Yupeng
	Study on thermal comfort and energy saving potential of decoupled ceiling radiant cooling panels	FP	Liang, Yuying; Huang, Gongsheng
	Efficient Arrangement of Condenser Unit to Minimize the Heat Column Generation Effect in High-Rise Residential Buildings	FP	Harithkhan, Vatharkhan Mohamed; Nissanka, Indrajith D.; Manthilake, Inoka
	Impact of Microclimate Landscape Design Updates on Thermal Comfort in a Community Park	FP	Xiao, Jing; Yuizono, Takaya
	Urban Microclimate and Energy 3	4 FP – 4 EA	Session Chair: Berardi, Umberto
	An Investigation on the Influence of Neighbourhood Morphology on Outdoor Thermal Comfort in Toronto's Public Spaces	FP	Hasan, Javeriya; Horvat, Miljana
	An Original Urban Canopy Model to Support Urban Design/Retrofit Optimization	FP	Afshari, Afshin
	Integrated Statistical–Simulation Approach to Improve Heat-Related Health, Environmental, and Urban Energy Responses	FP	Dardir, Mohamed; Berardi, Umberto; Wilson, Jeffrey
	High Resolution Urban Climate Map Generator: The Vertical City Weather Generator (VCWG v2.1.0)	FP	Moradi, Mohsen; Aliabadi, Amir A.
	The relation between EEG signals and cognitive performance in neutral to hot environment	EA	Lang, Xiaoyue; Liu, Weiwei
	Modular Multifamily Construction: A Field Study of Energy Code Compliance and Performance Through Offsite Prefabrication	EA	Grosskopf, Kevin
	YIn0.9 M (Mn, Cu, Fe) 0.1O3-ZnO smart nano-pigments for cool-roof application: structure/performance correlations	EA	Fedel, Michele; Rosati, Andrea; Rossi, Stefano
	Study of cool roof paints with the comparison of different artificial illuminants with natural exposure	EA	Rossi, Stefano; Rosati, Andrea; Fedel, Michele; Benedetti, Luca
	TS: Building Energy Codes – Opportunities, and Challenges		Session Chair: Stylianou, Meli
	Initial Models of Existing Canadian Buildings for Building Energy Code Analysis	FP	Kirney, Chris
	Intensity-Based versus Reference Building Approach in a Code Compliance Process	FP	Gilani, Sara
	Building Energy Codes Compliance: Practices Around the World	EA	Delgado, Alison
	Resilience and Climate Change 1	6 FP	Session Chair: Zinzi, Michele
	The effect of climate change on indoor overheating in heritage apartments in Beijing and Shanghai	FP	Lei, Muxi; van Hooff, Twan; Blocken, Bert; Pereira Roders, Ana
	Intervention proposals in open spaces as contribution to urban resilience in Aracaju	FP	Barbosa Teixeira, Carla Fernanda
	A Study on Natural Disasters Predictive Model Using Periodic Natural Phenomenon Based on Non-homogenous Poisson Process	FP	Ju, Wenhui; Su, Guofeng; Oforiwa, Priscilla Obeng
	Towards resilient interconnected urban infrastructures: the nexus between energy system, urban morphology, and transportation network	FP	Javanroodi, Kavan; Perera, Amarasinghage T.D.; M. Nik, Vahid; Scartezini, Jean-Louis
	Climate Emergency: Engineering Curriculum Overhaul	FP	Gagnon, William; Liu, Michelle Charlotte; Bhargava, Sehjal; Kennington, Allie; Kang, Mary; Howard, Courtney

End at 12:00

	The implementation of digital tools for climate adaptation planning	FP	Shayesteh, Homeira; Keibach, Evelina
12:00 – 13:00	LUNCH		
Start at 13:00	PARALLEL SESSIONS	TYPE	AUTHORS
	Health and Indoor Air Quality, Ventilation 4	4 FP – 4 EA	Session Chair: Barbosa, Bruno Perazzo Pedroso
	Experimental Investigation of Indoor Air Ventilation in a small-scale aircraft cabin model	FP	Herzberg, Martin; Otto, Henning; Resagk, Christian; Cierpka, Christian
	Impact of elevated CO2 exposure due to a face mask on thermal comfort and cognitive performance in a warm environment	FP	Hurley, Rachel Frances
	Reduced-Scale Particle Image Velocimetry Measurements and Validation of Steady RANS for Air-Curtain Flows in Buildings	FP	Alanis Ruiz, Claudio; van Hooff, Twan; Blocken, Bert; van Heijst, GertJan
	Formation of Acetone concentration distribution around breathing zone and transport efficiency to olfactory epithelium cells	FP	Hoshiyama, Sara; Kuga, Kazuki; Ito, Kazuhide
	Reducing the transmission of airborne infectious diseases in multiple-bed hospital wards: a numerical study	EA	Hu, Nan; Sadeghian, Parastoo; Sadrizadeh, Sasan
	Pollutant emission characteristics and long-term hazard evaluation of organic insulation materials	EA	Wi, Seunghwan; Yang, Sungwoong; Kang, Yujin; Kim, Sumin
	Data mining approach to characterize the operating conditions of AHU for different building archetypes and climate zones	EA	Sokhansefat, Tahmineh; Bonyadi, Nima; Lee, Bruno
	Integrated Modeling of CO2 Transport from Indoor to Alveolar Region for Elucidating Human CO2 Emission Mechanism	EA	Kuga, Kazuki; Ito, Kazuhide
	Building Physics, Building Envelope and Materials 4	6 FP	Session Chair: Vinha, Juha Olavi
	A survey of the impact of acoustic environment on occupants' satisfaction in open-plan offices	FP	Kang, Shengxian; Mak, Cheuk Ming; Ou, Dayi
	Interior daylight environment of a university library in Beijing	FP	Tian, Chunyuan; Yang, Hui; Tong, Yurou; Guo, Baoxia
	Exploiting passive cooling in office with advanced automated glazing systems	FP	Botticelli, Martina; Agnoli, Stefano; Romano, Sabrina; Zinzi, Michele
	Thermal performance of green and cool roofs: a field experiment combining night ventilation	FP	Ran, Jiandong; Feng, Ya; Tang, Mingfang; Jiang, Lin; Zhong, Huizhi
	Metal-Organic Frameworks (MOFs) Based Super Hygroscopic Nanofiber Membrane for Indoor Dehumidification	FP	Ding, Dong; Qin, Menghao
	The greening of foam insulation materials considering their life cycle and effective thermal insulating properties.	FP	Berardi, Umberto
	TS: Data-driven Building operations		Session Chair: Gunay, Burak
	Disaggregating building-level occupancy into zone-level occupant counts using sensor fusion	FP	Hobson, Brodie
	Application of a hybrid machine learning model for the detection and diagnosis of multiple dependent faults	FP	Bezyan, Behrad; Zmuraneau, Radu

	Effect of submeter density and configuration on disaggregation accuracy in commercial buildings	IS	Torabi, Narges
	Causal relationships in the built environment from telework	IS	Shamsi, Haris
	Advanced Modeling and Building Simulations, CFD 5	6 FP	Session Chair: Bode, Florin
	Assessing RBFMOpt and HypE's performance based on the number of fitness functions	FP	Da Silva, Mario Alves; Garcia, Rafael de Paula; Carlo, Joyce Correna
	Numerical Analysis of Two Air Conditioning Systems for Thermal Comfort in School Classrooms in Oman: Stratum vs DX Split Systems	FP	Murad Khan, Hayder; Al-Saadi, Saleh; Al-Hashim, Alya; Al-Khatiri, Hanan
	Energy-Saving Optimization of External Wall for Residential Building for the Aged: A case from hot-summer and cold-winter zone in China	FP	He, Xingshuo; Liu, Gang; Shi, Feng
	A CFD approach to investigate the effect of the flow field on thermal and moisture transport enhancement of a small-scale MOF dehumidifier	FP	Zu, Kan; Qin, Menghao
	Parameter Uncertainty and performance gap in energy simulation of transparent building envelopes	FP	Kim, Young-Sub; Park, Cheol-Soo
	Testing Processes for Building Envelope Innovation: The Building Future Lab	FP	Trombetta, Corrado; Cavanna, Giovanni; Grillo, Evelyn; Mandaglio, Mariateresa; Musarella, Caterina Claudia; Sansotta, Sara; Milardi, Martino
	COVID-19, Pandemic and Epidemic 2	4 FP – 4 EA	Session Chair: Sun, ChanJuan
	Energy consumption patterns in a Canadian social housing building under COVID-19 lockdowns – A preview of the future?	FP	Rouleau, Jean; Gosselin, Louis
	Numerical Analysis of Effects of Ventilation Conditions on an In-duct UVGI System for Infection Control	FP	Luo, Hao; Zhong, Lexuan
	Investigating the benefits of unsolicited building maintenance requests and the impact of teleworking	FP	Campbell-Templeman, Kayle; Nojedehi, Pedram; O'Brien, Liam
	Airflow optimization to prevent transmission of COVID-19	FP	Nabi, Saleh
	SARS-CoV-2 infection dynamics integrated with mucociliary transport in human upper airway	EA	Li, Hanyu; Kuga, Kazuki; Ito, Kazuhide
	Regional deposition of inhaled nano-to-microscale particle in realistic upper respiratory tract under steady and transient breathing conditions	EA	Kizuka, Ryusei; Kuga, Kazuki; Ito, Kazuhide
	Mitigating aerosol transmission risks of SARS-CoV-2 in commercial buildings	EA	Yan, Shujie; Wang, Liangzhu (Leon); J. Birnkrant, Michael; Zhai, John; Miller, Shelly L.
	Numerical investigation of cough droplets dispersion dynamics in indoor environment: Effect of oral cavity shape	EA	Nishihara, Takumi; Kuga, Kazuki; Ito, Kazuhide
	Urban Microclimate and Energy 4	6 FP	Session Chair: Fedel, Michele
	Experimental characterization and outdoor testing of thermochromic coatings for building envelope	FP	Autretto, Giorgia; Badino, Elena; Fantucci, Stefano; Serra, Valentina; Zinzi, Michele
	Evaluation of the Equivalent Purging Flow Rate for Single-side Ventilated Model with Tracer Gas Measurements	FP	Lin, Yuanyuan; Sandberg, Mats; Cehlin, Mathias; Claesson, Leif; Wigö, Hans
	Using Wind Tunnel Measurements to Validate External Flow Simulations for Pedestrian Wind Comfort	FP	Pedro, Goncalo

	Residential Neighbourhood Assessment in the City of Abu Dhabi and the impact on Climate Change (Heat Island Effect analysis)	FP	Bande, Lindita; Ahmad, Anwar; Mohamed Howaishel Alsereidi, Kholoud Croitoru, Cristiana; Nastase, Ilinca; Bode, Florin; Sandu, Mihnea; Georgescu, Matei; Popescu, Razvan
	Air Quality Impact at Urban Scale: Bucharest Case Study	FP	Wang, Ruolin; Song, Chen; Dong, Lulu; Ma, Xusheng; Wang, Haobin; Liu, Yu; Li, Yuanchen; Wang, Qi; Wang, Yue
	Application of Low-carbon Multi-energy Complementary System in the Field of District Cooling and Heating	FP	
End at 14:30 14:30 – 15:00	Thermal Storage	5 FP – 1 EA	Session Chair: Delcroix, Benoit
	Investigation of Thermal Energy Storage Properties of Halloysite Nanotubes-based Solid-Solid Phase Change Materials	FP	Zhang, Tiantian; Chen, Zhenqian
	A systematic dynamic pinch approach for thermal energy storage and solar assisted ground source heat pump integration in buildings	FP	Hosseinnia, Seyed.Mojtaba; Sorin, Mikhail
	Economic Assessment of Bidirectional Low-Temperature District Energy Systems with Seasonal Energy Storage and Photovoltaic Thermal Hybrid Solar System	FP	Qin, Qiwei; Gosselin, Louis
	Development and evaluation of high efficiency heat exchange ventilation system applied with thermal storage material.	FP	Yang, Sungwoong; Nam, Jihee; Yun, Beom Yeol; Kim, Yong Uk; Kim, Sumin
	Application of Low-carbon Multi-energy Complimentary System in the Field of District Cooling and Heating	FP	Wang, Ruolin; Song, Chen; Dong, Lulu; Ma, Xusheng; Wang, Haobin; Liu, Yu; Li, Yuanchen; Wang, Qi; Wang, Yue
	Cooling effects on the heat transfer characteristics of a rectangular thermosyphon with PCM suspension fluid	EA	Ho, C. J.; Lin, J.F.; Chen, R.H.; Lai, Chi-Ming
14:30 – 15:00	COFFEE BREAK		
Start at 15:00	PARALLEL SESSIONS	TYPE	AUTHORS
	Health and Indoor Air Quality, Ventilation 5	4 FP – 4 EA	Session Chair: Hayati, Abolfazl
	Performance evaluation of green-rated housing developments in the warm humid and composite climates of India	FP	Gupta, Rajat; Gregg, Matt
	A quantitative framework for numerically estimating the COVID19 infection risk in a crowded indoor environment	FP	Li, ChungGang; Bale, Rahul; Fukudome, Hajime; Tsubokura, Makoto
	The impact of oxygen content in the primary air on CO and PM2.5 emission performances in a forced-draft biomass stove	FP	Deng, Mengsi; Nie, Yazhou; Yuan, Yanping; Ma, Rongjiang; Shan, Ming; Yang, Xudong
	Inverse identification of pollutant source in coupled indoor and outdoor environment	FP	Zhang, FuYao; Dai, Yuwei
	Optimization of the ultraviolet sterilization field for upper-room UVGI	EA	Jiachen, Li; Chen, Deshi; Miao, Wenda; Zhao, Jianye; Su, Chunxiao
	Noise Assessment of an Outdoor HVAC Duct Exposed to Solar Radiation for Pre-Heating of Fresh Air	EA	Dehra, Himanshu
	An IoT Scheme for Energy Efficiency, IAQ with Noise Characterization and Measurement in the Smart Building	EA	Dehra, Himanshu
Natural ventilation of toilet units in K12 school restrooms	EA	Lin, Yi-Pin; Win, Sein Lae Yi; Chung, Sung-Chin; Lai, Chi-Ming	

	Building Physics, Building Envelope and Materials 5	6 FP	Session Chair: Vinha, Juha Olavi
	Experimental Investigation of a Thick Supply-Air Window with PCM Cavity-Frame	FP	Huang, Yujian; El Mankibi, Mohamed; Cantin, Richard
	Overview of a research project of novel and rapid in-situ U-value measurements	FP	Huttunen, Petteri; Vinha, Juha
	A novel active-passive system for overheating reduction of lightweight buildings	FP	Zavrl, Eva; El Mankibi, Mohamed; Dovjak, Mateja; Stritih, Uroš
	Comparison of different methods to identify the critical orientation of wood-frame walls in assessing moisture risks	FP	Aggarwal, Chetan; Ge, Hua; Defo, Maurice; Lacasse, Michael A.
	Determination of the Effective Thermal Conductivity of Aerogel-based Coating Mortars Using Numerical Simulations- Random Packing	FP	Karim, Ali Naman; Hagentoft, Carl-Eric
	Mathematical Expressions for Prediction of the Effective Thermal Conductivity of Perfectly Packed Two-phase Mixtures	FP	Hagentoft, Carl-Eric; Karim, Ali Naman
	TS: Urban climate at neighborhood scale: Part B		Session Chair: Derome, Dominique
	Urban Physics, a new field and new responsibilities for engineers	EA	Derome, Dominique; Kubilay, Aytaç; Carmeliet, Jan
	Mitigating intensity of urban heat island by better understanding on urban morphology and anthropogenic heat dispersion	FP	Yuan, Chao; Mei, Shuo Jun; He, Wenhui; Adelia, Ayu Sukma
	Comfort assessment in cities densified with high-rise buildings	EA	Kubilay, Aytaç; Rubin, Andreas; Derome, Dominique; Carmeliet, Jan
	Numerical investigation of the impact of morphological parameters on urban ventilation in compact cities	EA	Palusci, Olga; Monti, Paolo; Cecere, Carlo; Montazeri, Hamid; Blocken, Bert
	Spatial Microclimatic Characterization of an OASIS Schoolyard	FP	Karam, Ghid; Chaniel, Maïlys; Hendel, Martin; Royon, Laurent
Thermal and Microclimatic Behaviour of Innovative Pavements for the Life Cool & Low Noise Asphalt Project	FP	Chaniel, Maïlys; Parison, Sophie; Hendel, Martin; Royon, Laurent	
	Advanced Modeling and Building Simulations, CFD 6	6 FP	Session Chair: Bode, Florin
	Wind tunnel measurements and CFD simulations of wind pressure distribution on the facades of a large educational building: validation of RANS and SAS	FP	van Hooff, Twan; Gillmeier, Stefanie; Verbruggen, Marlies
	Developing a coupled spectral-dependent radiative cooling and building energy model	FP	Yu, Xinxian; Chen, Chun
	CFD simulations of pollutant dispersion in a street canyon: Impact of ideal versus realistic source emissions	FP	Qin, Peng; Ricci, Alessio; Blocken, Bert
	Energy-saving potential of thermochromic glazing in a cold climate	FP	khaled, Khaled; Berardi, Umberto; Liao, Zaiyi
	Fast Fluid Dynamics Simulation of the Tree Canopy Drag Effect with OpenFOAM	FP	Li, Ruibin; Liu, Zhanpeng; Feng, Lu; Gao, Naiping
	Office Design Decisions and Indoor Environmental Quality: A Parametric Design and Simulation-Based Workflow	FP	Fathi, Arefeh Sadat; O'Brien, Liam
	IS: Building-integrated Renewables, Solar Buildings and Smart Grid Interaction		Session Chair: Athienitis, Andreas
	Global and Regional climate change: impact on energy consumption. The potential of mitigation and adaptation technologies	IS	Santamouris, Mat

	A new model for typical building electricity use profile generation to support renewable energy system design and smart grid integration	IS	Yan, Da
	A building energy flexibility model to facilitate integration of building-integrated solar systems with smart grids	IS	Athienitis, Andreas
	Building Renewables, Solar Buildings & Smart Grid 5	6 FP	Session Chair: Nouanegue, Hervé Frank
	Study of Energy Saving Potential of Solar Shading Devices in Various Climates	FP	Turner, Lewis; Yang, Siliang; White, Mike
	Heating Performance of a Novel Centralized Solar Heating System Coupled with a Water-water Heat Pump in Lhasa, China	FP	Zhang, Ruichao; Wang, Dengjia; Zhou, Heng; Qu, Lei; Mo, Zhelong
	Energy generation versus decrease energy consumption in buildings: cost-benefit ratio	FP	Domingos, Renata Mansuelo Alves; Pereira, Fernando Oscar Ruttkay
	Numerical Assessment of the Energy Impacts of the BIPV/T Façade Coupled with Heat Pump Technology for Domestic Hot Water Heating	FP	Nghana, Barilelo; Tariku, Fitsum; Bitsuamlak, Girma
	Modelling and Energy Management Control Study for a Net-Zero Energy Home	FP	Caputo, Diego H; Fung, Alan S; Brookson, Aidan
	Sensitivity Analysis using a Simplified Transient Heat Transfer Model to Examine How Soils with Extreme Properties Affect Single and Double Borehole Heat Exchanger Designs	FP	Kostevski, Michael John; Fung, Alan; Leong, Wey; Kerme, Esa
End at 16:30	JSPS Info Session		Session Chair: Zhai, John
Start at 18:00	BANQUET / AWARDS CEREMONY / NEW CONFERENCE ANNOUNCEMENT		
	THURSDAY, JULY 28		
8:30 – 10:00	Plenary Session Li, Yuguo Hong, Tianzhen		
10:00 – 10:30	COFFEE BREAK		
Start at 10:30	PARALLEL SESSIONS	TYPE	AUTHORS
	Health and Indoor Air Quality, Ventilation 6	6 FP	Session Chair: Fellouah, Hachimi
	Ventilation and Noise Assessment: A Multifaceted Ventilated Façade with an Airflow Window in a Net-Zero Building	FP	Dehra, Himanshu
	Controlling the Quality of Fresh Air Supply to the Central Air Conditioning Systems in Urban Areas in Sri Lanka	FP	Wijewardane, M. Anusha; Ranasinghe, R.A. Chathura Prasad; Herath, H.M.P. Dinuka
	Steps in designing an indicator for assessing window's effect on indoor thermal comfort	FP	Wang, Nan; Ghaeili, Neda; Wang, Julian
	Experimental evaluation of a CO2-based demand-controlled dual core energy recovery system	FP	Ouazia, Boualem; Arsenault, Chantal; Brhane, Sador; Nong, Gang; Mancini, Sandra; Lefebvre, Daniel

	Extended monitoring of a dual core energy recovery system in the Arctic for proven performance and resiliency	FP	Ouazia, Boualem; Arsenault, Chantal; Brhane, Sador; Nong, Gang; Mancini, Sandra; Lefebvre, Daniel
	Acoustic environment and sleep quality: Field study conducted in Shanghai City, China	FP	Xu, Xinbo; Lan, Li; Sun, Yuxiang; Lian, Zhiwei; Hou, Zhijian
	Building Physics, Building Envelope and Materials 6	6 FP	Session Chair: Kapsis, Costa
	Impacts of Building Energy Facilities In our Environment	FP	Osunsanmi, Morounfade Emmanuel
	Development and field performance evaluation of a novel passive dehumidification system	FP	Chen, Yulu; Ozaki, Akihito; Lee, Haksung
	Investigation of phase change materials on Australian residential building energy efficiency	FP	Ma, Yunlong; Masouleh, Keivan Bamdad; Omrani, Sara; Drogemuller, Robin
	Assessment of CO2 reduction effect according to the different window frames at the city-scale	FP	Choi, Younhee; Akihito, Ozaki (2); Lee, Haksung; Iqbal, Muhammad
	Identifying the pathways toward zero embodied and operational carbon emissions for the housing stock in Jordan	FP	Alasmar, Reham; Schwartz, Yair; Burman, Esfandiar
	Automated RC Model Generation for MPC Applications to Energy Flexibility Studies in Quebec Houses	FP	Vallianos, Charalampos; Hoseini, Sayed Saeed; Athienitis, Andreas; Agbossou, Kodjo; Delcroix, Benoit; Rao, Jiwu; Henao, Nilson
	Resilience and Climate Change 2	6 FP	Session Chair: Leroyer, Sylvie
	How will mechanical night ventilation affect the electricity use and the electrical peak power demand in 30 years? – A case study of a historic office building in Sweden	FP	Bakhtiari, Hossein; Sayadi, Sana; Akander, Jan; Hayati, Abolfazl; Cehlin, Mathias
	The Impact of Building Retrofitting on Thermal Resilience against Power Failure: A Case of Air-conditioned House	FP	Mirzabeigi, Shayan; Homaei, Shabnam; Razkenari, Mohamad; Hamdy, Mohamed
	Assessing the Thermal Resilience of Multiple Outage Events using a Multi-Objective Optimization Analysis	FP	Bucking, Scott; Rostami, Milad
	What is the Difference Between Reliability, Resilience, Robustness, and Vulnerability in High-performance Buildings' Thermal Performance?	FP	Rostami, Milad; Bucking, Scott
	Analysing future cooling demand for a new preschool building in central Sweden	FP	Sayadi, Sana; Akander, Jan; Hayati, Abolfazl; Cehlin, Mathias
	Ecosystem-Level Biomimicry for the Built Environment: Adopting Systems Ecology Principles for the Control of Heterogeneous Energy Systems	FP	Hinkelman, Kathryn; Zuo, Wangda; Wang, Jing; Huang, Sen; Wetter, Michael
	Building Fire Safety	6 FP	Session Chair: Nabi, Saleh
	Research on Very Early Warning Aspirating Smoke Detector deployed in massive Guan style buildings from Ming and Qing dynasties in the Palace Museum	FP	Li, Yue; Du, Haijiang; Wang, Bo; Liu, Yufeng; Liu, Jinzhou
	Experimental study on the maximum excess ceiling gas temperature of cable tray fires in utility tunnels	FP	Huang, Ping; Ye, Shenglin; Qin, Liang; Yu, Longxing
	Burning rates and thermal feedback of pool fires in a tunnel under wind effect and sidewall restriction	FP	Guo, Fangyi; Ding, Long; Ji, Jie; Gao, Zihe; Yu, Longxing
	Smoke Spreading Simulation of a High-rise Office building based on Evacuation Analysis	FP	Shu, Chang; Wang, Liangzhu (Leon)

	Feasibility Analysis of Suppressing the Stack Effect by Installing Fireproof Curtains on Interior Stairs of Existing Elderly Care Institutions	FP	Shih, ChiaYuan; Wang, ShiuanCheng; Chien, ShenWen; Su, ChungHwei; Dong, AnJie; Lin, GuanWei
	Indoor Fabric as an Adsorptive Reservoir for Volatile Organic Compounds in Wildfire Smoke: a Preliminary Study	FP	Wang, Chao; Liang, Yirui; Bergendahl, John; Liu, Shichao
	Occupant-Centric Building Design and Controls 1	6 FP	Session Chair: Brideau, Sebastien
	Evaluate the Energy Saving from Window Opening Behavior through Coupling a Deep Learning Model with EnergyPlus	FP	Pandey, Pratik Raj; Dong, Bing; Sharifi, Nina; Malsegna, Mason Kenneth
	Developing thermostat user mental models to inform better energy-saving design	FP	Tamas, Ruth; O'Brien, Liam; Santana Quintero, Mario
	An Implementation Method of Collaborative Simulation for Integrated Optimization of Lighting and Interior Design	FP	Chen, Tianyi; Wang, Lixiong; Wu, Yuting; Kong, Guangyan; Hao, Qingli; Yin, Yujun; Chen, Peng; Yu, Juan
	Research and Application of Ensemble Learning in Energy Efficiency Evaluation of Newly Constructed Buildings	FP	Kou, Yu-de; Zhao, Zhi-gang; Wang, Hao; Yuan, Ji; Ning, Ke; Chen, Jian-ping
	Generation and Analysis of Typical meteorological years for future weather data and the detection of heatwave in Copenhagen	FP	Qian, Bin; Zhang, Chen; Kvols Heiselberg, Per; Lei, Bo; Yu, Tao; Trangbæk Jønsson, Kim
	Development and implementation of a novel occupant data collection method for assessing thermal comfort in multi-occupant spaces.	FP	Athienitis, Emilios; Ouf, Mohammed
	IS: Zero emission neighborhood planning		Session Chair: Eicker, Ursula
	Building Renewables, Solar Buildings & Smart Grid 6	6 FP	Session Chair: Hachem-Vermette, Caroline
	A simulation tool for renewable energy supported buildings	FP	Kuru, Mustafa; Gökçül, Furkan; Ölmez, Burak Behlül; Eicker, Ursula; Baker, Derek; Güğül, Gül Nihal; Geçer, Kenan; Güleç, Seda
	Return on Investment and carbon savings associated with large-scale photovoltaic installations in Canada's largest five cities	FP	Teamah, Hebatallah
	Energy and exergy analyses of a centralized heating system combined solar energy and biogas	FP	Guo, Mengmeng; Chen, Yaowen; Liu, Yanfeng; Quan, Mengchen
	Energy-driven Urban Configuration Optimization based on Modified Deep Reinforcement Learning	FP	Huang, Chenyu; Zhuang, Zhi; Zhang, Yongming; Yao, Jiawei
	Small scale integrated solar-ORC system for power and heating	FP	Xu, Xin; Zhang, Lian
End at 12:00	Review and Case Studies of Thermal Energy Harvesting Opportunities in Buildings	FP	DePinto, Michael
12:00 – 13:00	LUNCH BREAK		
Start at 13:00	PARALLEL SESSIONS	TYPE	AUTHORS

Health and Indoor Air Quality, Ventilation 7	6 FP	Session Chair: Barbosa, Bruno Perazzo Pedroso
Building Integrated Photovoltaic/Thermal Collector for Arctic Residential Applications	FP	Baril, Daniel J; Ge, Hua; Athienitis, Andreas K
Mitigating the Effects of Urban Heat Island on Outdoor Thermal Comfort by Urban Geometry Reshaping: A Case Study of Mashhad's Vaez Tabasi Street	FP	Hedayatnia, Hamed; Mirhaidartouran, Sara; Van Den Bossche, Nathan
Application of a coupled CFD-multizone code on ventilation and filtration analysis for Covid-19 airborne infection control in a small office	FP	Barbosa, Bruno Perazzo Pedroso
Study on the Actual Condition of Fungal Flora in Car Air Conditioners and its Effects on the Cabin Environment	FP	Watanabe, Kensuke; Yanagi, U; Ishida, Yoshiki
A comprehensive review on contaminant transfer in membrane energy recovery ventilators	FP	Mathews, Ashwin Joseph; Annadurai, Gurubalan; Krishnan, Easwaran N.; Simonson, Carey J.
Heating of cold wall with confluent jets in large space enclosures: Application in greenhouse premises	FP	Choonya, Gasper; Larsson, Ulf; Moshfegh, Bahram
Low/Zero Carbon Emission Buildings and Communities 1	6 FP	Session Chair: Kubota, Tetsu
Quantifying Building Energy Performance Gap Using a Multi-indicator Framework	FP	Bai, Yefei; Yu, Cong; Pan, Wei
The potential assessment of carbon reduction by sharing activity rooms in Chinese Northern rural aging communities	FP	Li, Na; Luo, Xi; Luo, Fuzhou; Sun, Yongkai
Agent-based energy consumption behavior model for community multi-node building occupants	FP	Yu, Zuoxiang; Song, Cong; Liu, Yangfeng; Wang, Dengjia; Hu, Xiaoxue; Tang, Huanglong
Measurement of Power Consumption Savings Provided by a Residential Air Conditioner that Operates Continuously under Low-Load	FP	Ito, Shinichi; Yamamoto, Kazuhide; Kuwasawa, Yasuo
Embodied Carbon Assessment of Walling Technologies using Life Cycle Analysis for Housing Sector in India	FP	Nathani, Sakshi; Rawal, Rajan; Shukla, Yash; Pathak, Bhavya
Domestic Heating, Cooking and Baseload Emissions and Life Cycle Cost Analysis of Technological Solutions	FP	Ryland, Michael; He, Wei
Thermal Comfort 1	6 FP	Session Chair: Hayati, Abolfazl
Roots and mechanisms of thermal comfort expectations: from individuals' own background to adaptation and change	FP	Pistore, Lorenza; Pasut, Wilmer
The prediction accuracy of ISO and ASHRAE Predicted Mean Vote (PMV)	FP	Tartarini, Federico; Cheung, Toby; Schiavon, Stefano; Arens, Edward
Thermal comfort with contact heating system for energy savings in electric vehicles	FP	Kwak, Jiyoung; Lee, Jeongseo; Eom, Sohyeon; Chun, Chungyoon; Kim, Sanghun; Seo, Seokwon
Comparing Multiple Overheating Assessment Metrics Using Measured Data	FP	Shu, Chang; Xie, Zihan; Ji, Lili; Baril, Daniel; Wang, Lin; Bai, Xuechen; Yang, Senwen; Ge, Hua; Zmeureanu, Radu; Lacasse,

			Michael; Laouadi, Abdelaziz); Gaur, Abhishek; Wang, Liangzhu (Leon)
	Research on Skin Temperature and Thermal Comfort of Electric Vehicle Passengers under Contact Cooling System	FP	You, Jiwon; Kwun, Sohyun; Han, Jieun; Chun, Chungyoon; Park, Junseok
	Thermal comfort improvement with local contact cooling on the back of the neck	FP	Han, Jieun; Jeon, Hyojin; Noh, Changhyun; Kim, Jiwoo; Chun, Chungyoon
	Occupant-Centric Building Design and Controls 2	6 FP	Session Chair: Aliabadi, Amir A.
	A data-driven frequency domain system identification approach to define house archetypes and flexibility	FP	Maturo, Anthony; Athienitis, Andreas; Delcroix, Benoit
	Evaluating and mapping indoor thermal risk on older people in long-term care buildings under urban microclimate impacts	FP	Ji, Lili; Shu, Chang; Laouadi, Abdelaziz; Ge, Hua; Zmeureanu, Radu; Gaur, Abhishek; Lacasse, Michael; Wang, Liangzhu (Leon)
	Deep Learning Models for Future Occupancy Prediction in Residential Buildings	FP	Esrafilian-Najafabadi, Mohammad; Babahaji, Mina; Haghghat, Fariborz
	Exploring the Feasibility of An Integrated HVAC System in U.S.	FP	Li, Yuewei; Dong, Bing; Deng, Zhipeng; Zhang, Jianshun; Wang, Xuezheng; Zhang, Rui
	A low-energy wearable cooling strategy for thermal comfort and cognition	FP	Belyamani, Mohamed Amine; Hurley, Rachel; Liu, Shichao
	Developing Urban-Scale Markovian Occupancy Profiles for Residential Buildings Using Smart Thermostat Data	FP	Doma, Aya; Ouf, Mohamed
	Resilience and Climate Change 3	6 FP	Session Chair: Cao, Shi-Jie
	Exploration of Behavioral Measures to Improve Thermal Resilience in Residential Buildings during Heatwaves	FP	Niu, Lishan
	Optimizing Mechanical Ventilation Systems for Wildfire Smoke Resilience in British Columbia	FP	Dsoza, Aaron; Zhong, Lexuan
	Sustainable Eco-Cities in Monarchy of Concordia	FP	Dehra, Himanshu
	An activity-based spatial-temporal urban electricity vulnerability assessment	FP	Xia, Chen; Hu, Yuqing; Chen, Jianli
	Resilience and Climate Change: How a large-scale innovation district in Northern Italy is leading climate risk mitigation	FP	Boschi, Nadia
	Quantification of building thermal resilience against heatwaves	FP	Ji, Lili; Shu, Chang; Laouadi, Abdelaziz; Ge, Hua; Zmeureanu, Radu; Lacasse, Michael; Wang, Liangzhu (Leon)
	TS: Indoor Bioaerosols		Session Chair: Duchaine, Caroline
	Why should air filters have antiviral properties? Detachment of bioaerosols from air filters and a silver ion antiviral air filter with rapid inactivation of SARS-CoV-2	FP	LAW, C.K.; Sze-To, G.N.; LAI, Joseph H.K.
	A practical-oriented approach for preventing infection disease transmission in naturally ventilated room	IS	Ren, Chen; Cao, Shi-Jie

	Infection risk in a restaurant environment due to airborne diseases	EA	Bale, Rahul; Li, Chungang; Fukudome, Hajime; Yumino, Saori; Iida, Akiyoshi; Tsubokura, Makoto
	Carbon Dioxide at TWA-TLV limits Alters Immune Responses to Influenza A	EA	Schneberger, David; Kirychuk, Shelley; Thompson, Brooke; Zhou, Yan; Aulakh, Gurpreet; Simonson, Carey
	Bioaerosols: progresses and challenges in the study of the invisible entities that changed our world	EA	Duchaine, Caroline
End at 14:30	TS: IEA Annex 79		Session Chair: Wagner, Andreas
	Short introduction on Annex 79		Wagner, Andreas; O'Brien, Liam
	Occupants in the building design decision-making process		De Souza, Clarice Bleil
	Evaluation and re-development of occupant-centric design of an office building in Toronto		Abuimara, Tareq; O'Brien, Liam
	Occupant-centric energy modeling of a social housing building in Quebec City		Rouleau, Jean; Gosselin, Louis
	Short presentation of the book Occupant-centric simulation-aided building design: theory, application, and case studies		O'Brien, Liam
14:30 – 15:00	COFFEE BREAK		
Start at 15:00	PARALLEL SESSIONS	TYPE	AUTHORS
	IS: IEA Annex 80		Session Chair: Shady Attia
End at 14:30	Thermal Comfort 2	6 FP	Session Chair: Qin, Menghao
	Oxygen comfort evaluation method and the oxygen adaptation level for sojourners at high altitude	FP	Cao, Ruixuan; Song, Cong; Liu, Yanfeng; Wang, Dengjia
	Experimental Research on Circadian Rhythm on Thermal Comfort of Human in Awakening	FP	Cheng, Xiang; Yang, Lei; Cao, Jian; Song, Gaoju
	The New Calculation method of TCL - clothing surface temperature in thermal comfort	FP	Cárdenas Celis, Anneli Maricielo; Cárdenas Celis, André Alonso; Cárdenas Sotil, José Walter; Celis de Cárdenas, Anneli Mercedes
	Green glass space based design for the driven of energy efficiency and thermal comfort: case study in Xiong'an, China	FP	Xi, Chang; Cao, Shi-Jie
	Study on the control effect of fan coils considering both room temperature and humidity	FP	DING, Xiaoxiao; Wang, Chuang; Zhang, Weirong; An, Jingjing
	Enhancing energy flexibility of a school building using local setpoint adjustment in classrooms	FP	Morovat, Navid; Athienitis, Andreas K; Candanedo, José Agustín
End at 14:30	COVID-19, Pandemic and Epidemic 3	6 FP	Session Chair: Sun, ChanJuan
	Effect of Airflow on Distribution of Floating Aerosol in Rooms with Air Conditioners under Natural and Mechanical Ventilation	FP	Kato, Harumi; Ito, Shinichi; Kikuta, Koki; Hayashi, Motoya
	The airborne lifetime and spatial-temporal distribution of emitted particles in dental procedures	FP	Li, Xiujie; MAK, Cheuk Ming; Ai, Zhengtao; Ma, Kuen Wai; Wong, Hai Ming

	Towards an accurate CFD prediction of respiratory flow and dispersion through face mask	FP	Jia, Zhongjian; Ai, Zhengtao; Mak, Cheuk Ming
	Mapping of conflicts experienced in the environment built in front of pandemic Covid-19	FP	Silva, Heloisa Nunes e; Marcon, Lucileia; Domingos, Renata Mansuelo Alves; Sartor, Beatriz
	Transmission of COVID-19 inside a classroom space due to natural ventilation and air leakage	FP	Kotb Ali, Hassan; Goubran, Sherif
	Quantitative assessment of teleworking: a pilot study on holistic energy usage and greenhouse gas emission in Canada	FP	Simon, Sharane; O'Brien, William
	TS: Environmental Impacts of Telework		Session Chair: O'Brien, Liam
	Causal relationships in the built environment from telework	IS	Kharvari, Farzam
	Long-term field measurement of the energy impacts of telework	IS	Simon, Sharane
	Social housing energy impact of telework	IS	Rouleau, Jean
	Office building operations adaptability to partial occupancy during COVID-19	IS	Hobson, Brodie
	Extensive energy monitoring of an office building before and after COVID-19	IS	Hong, Tianzhen
	Smart Buildings and Smart Cities (ML, AI, IoT) 2	6 FP	Session Chair: Berardi, Umberto
	Agent-based Decentralized Energy Management with Distributed Intelligence for HVAC Control	FP	Hussain, Syed Asad; Jayasena, Amindha; Wang, Lan; Lee, Eric Wai Ming; Kwok Kit Yuen, Richard; Sadiq, Rehan; Hewage, Kasun
	Socio-technical challenges to operational energy management in buildings: Semi-structured interviews with two facility management companies	FP	Brackley, Connor; Nojedehi, Pedram; Darwazeh, Darwish; O'Brien, William; Ouf, Mohamed M.
	A model-based predictive control method for thermal environment in low-energy buildings	FP	Chen, Yibo; Berardi, Umberto; Liang, Er; Cui, Guoyou; Jiang, Xin
	Time-Resolved Neural Network Surrogate Models as Digital Twins	FP	Kotha, Rajeev; Lédée, François; Shamsi, Mohammad Haris; Evins, Ralph
	Sustainable Policy Design - How Policy impacts Household Waste Management: A Case-study from Shanghai	FP	Du, Wenhong; Yang, Jiami; Chen, Tianyu; Yao, Jinli; Yan, Jun; Ge, Hua; Bhuiyan, Nadia; Zhou, Fayi; Liu, Xiao; Zeng, Yong
	Fairness-aware Regression Models for Building Energy Prediction to Achieve Uniform Performance	FP	Sun, Ying; Haghghiati, Fariborz; Fung, Benjamin C. M.
	Health and Indoor Air Quality, Ventilation 8	4 FP – 4 EA	Session Chair: Fellouah, Hachimi
	Role of Ag modification on oxidation of acetone in air over CeO ₂ photocatalysts under VUV illumination	FP	Payan, Amir; Soltan, Jafar
	Integrated Method for Assessing Indoor Air Quality, Moisture Performance and Thermal Comfort Measures	FP	Heibati, Seyedmohammadreza; Maref, Wahid; Saber, Hamed H.
	Numerical Investigation of Wind-Driven Cross-Ventilation on a Low-Rise Residential Building	FP	Vandewiel, Matthew R.; Younis, Muna; Kahsay, Meseret T.; Capretz, Miriam A.M.; Bitsuamlak, Girma T.

End at 16:30

	Can local ventilation reduce fine particles dispersion caused by a coughing patient in a hospital environment?	FP	Murga Aquino, Alicia Maria; Li, Chung-Gang; Bale, Rahul; Fukudome, Hajime; Yumino, Saori; Yokono, Ryotaro; Tsubokura, Makoto
	Predicting the Removal of Ozone through Carbon-based Filters for Indoor Air Quality Applications	EA	Ghamangiz Khararoodi, Mohamad; Haghghat, Fariborz; Lee, Chang-Seo
	An Analysis of Natural Ventilation Rates in relation to Occupants' Window Opening Behavior in Residential Building	EA	Yoo, Jihyun; Park, Junseok
	Indoor radon at a university campus in Shanghai, China - a field study	EA	Ni, Haoquan; Pan, Minyi; Yin, Yanmei; Yan, Yujie; Su, Chunxiao
	Scented Chemicals in Nail Salons: Presence and Personal Exposures	EA	Jia, Chunrong; Fu, Xianqiang; Webster, Thomas; Ceballos, Diana
Time	FRIDAY, JULY 29		
8:30 – 10:00	Plenary Session Lacasse, Michael Beausoleil-Morrison, Ian		
10:00 – 10:30	COFFEE BREAK		
Start at 10:30	PARALLEL SESSIONS	TYPE	AUTHORS
	Building Mechanical System and Controls	6 FP	Session Chair: Aliabadi, Amir A.
	Economic and Environmental Evaluation of a Ground-Source Transcritical CO2 Heat pump for Space Heating and Domestic Hot Water Production	FP	Zendehboudi, Alireza; Ye, Zuliang; Carbonell, Daniel; Hafner, Armin
	Study on Development and Implementation of Cross-Laminated-Timber	FP	Ren, Honghao; Bahrami, Alireza; Cehlin, Mathias; Wallhagen, Marita
	Research on the air conditioning terminal unit performance of novel heat and humidity treatment	FP	Wang, Lincheng; Quan, Zhenhua; Zhang, Nan; Huang, Rui; Zhao, Yaohua; Hao, Limin; Liu, Yiyang; Hao, Yunfei
	Condensation and frost onset of air-to-air heat exchangers – A detailed heat transfer analysis	FP	Nourozi, Behrouz; Sadrizadeh, Sasan; Ploskic, Adnan
	Improving the operating condition of a thermoelectric system for achieving high temperature difference in indoor heating	FP	Koohi, Nima; Nasirifar, Sherwin; Behzad, Masoud
	Research on energy saving control of GSHP in a factory in Shanghai based on PSO algorithm	FP	Miao, Yurun; Xiong, Lei; Fan, Xinzhou; Yao, Ye
	Wind Engineering, Aerodynamics and Urban Physics 2	5 FP – 1 EA	Session Chair: Tominaga, Yoshihide
	Validity of Near-ground Wind Profile Assumptions Tested Using Mean Wind Velocity Time Series from Field Measurements	FP	Zhong, Jiading; Liu, Jianlin; Liang, Guoming
	Interaction between the Urban Heat Island effect and the occurrence of Heatwaves: Comparison of Days with and without Heatwaves	FP	Shu, Chang; Gaur, Abhishek; Lacasse, Michael; Wang, Liangzhu (Leon)

	Investigation methods and issues of urban microclimate in the last decade: A Review	FP	Yang, Senwen; Stathopoulos, Ted; Wang, Liangzhu (Leon)
	Data-Driven Reduced-Order Model for Urban Airflow Prediction	FP	Masoumi-Verki, Shahin; Haghghat, Fariborz; Eicker, Ursula
	A full-scale fire experiment of retail shops in large-scale transportation buildings	FP	Yang, Longlong; Liu, Songtao; Liu, Wenli; Wei, Wenbin; Ou, Chen; Liu, Shiyao
	Urban design with the wind: pedestrian-level wind field in the street canyons downstream of parallel high-rise buildings	EA	Kuo, Chien-Yuan; Win, Sein Lae Yi; Lin, Yi-Pin; Lai, Chi-Ming
	Thermal Comfort 3	4 FP – 4 EA	Session Chair: Larsson, P. Lennart
	Thermal sensitivity maps of the human body for vehicle PCS design	FP	Nastase, Ilinca; Danca, Paul; Bode, Florin; Fechete, Lucian; Croitoru, Cristina; Sandu, Mihnea
	Thermoregulation model for dynamic thermal responses in floor-cooling/heating radiation environments	FP	Liu, Yunliang; Zhou, Xiang; Luo, Maohui; Ren, Yan
	Study on the Effect of Positions and Surface Temperature of Radiant Panel on Human Thermal Comfort with Ray Tracing Method	FP	Deng, Yan; Ji, Lili; Wang, Liangzhu; Ding, Yunfei
	Field study on indoor thermal comfort of a 'ZEB ready' office building using radiant ceiling panel coupled with open-loop ground source heat pump	FP	Ye, Minzhi; Serageldin, Ahmed A.; Sato, Hideki; Nagano, Katsunori
	Determination of the optimal temperature set-point and ventilation rate for balancing energy consumption and learning performance in primary schools in Taiwan	EA	Liao, Wen-Jye; Chen, Wei-An; Hwang, Ruey-Lung
	Extension on acceptable range of temperature with stable mechanical airflow under hot-humid climate	EA	Zhou, Jinyue; Zhang, Xiaojing; Xie, Jingchao; Liu, Jiaping
	Analysis of the thermal comfort and space usability in hot-humid climate zone considering the impact of solar radiation and regional weather features	EA	Chen, Wei-An; Hwang, Ruey-Lung
	The optimum performance evaluation in the chilled water wall in hot and humid area	EA	Lee, M.C. Jeffrey; Fang, Y. M.; Mitterer, Christoph; Künzle, Hartwig. M.
	Occupant-Centric Building Design and Controls 3	6 FP	Session Chair: Zinzi, Michele
	Operation Optimization of Air Source Heat Pump coupled Electric Boiler Heating System based on TRNSYS	FP	Jin, Xu; Liu, Pei; Liu, Zhongyan; He, Yue
	Baseline estimation of heating consumption for different house archetypes through a data-driven clustering methodology	FP	Petrucci, Andrea; Athienitis, Andreas; Kloutse, Follivi Ayevide
	Deep Reinforcement Learning-based Smart Water Heater Control for Reducing Electricity Consumption and CO2 Emissions	FP	Amasyali, Kadir; Munk, Jeffrey; Kurte, Kuldeep; Zandi, Helia
	Field study on Variable Static Pressure Control via Fuzzy logic in an office building in Shanghai	FP	Xiong, Lei; Fan, Xinzhou; Yao, Ye
	Study of human moving velocity to temperature waves in displacement ventilated room	FP	Feng, Lu; Liu, Min; Li, Ruibin; Gao, Naiping
	The impact of window-opening behaviors on indoor air quality and human exposure during wildfires	FP	Guo, Xingtong; Yan, Shujie; Wang, Chao; Liu, Shichao; Wang, Liangzhu
	Health and Indoor Air Quality, Ventilation 9	6 FP	Session Chair: Ouazia, Boualem
	Application of Knowledge Representation and Reasoning Frameworks to Indoor Air Quality	FP	Delgoshaei, Parastoo; Heidarinejad, Mohammad; Persily, Andrew

	Analysis of NO2 removal efficiency in bus stop applying an air purification system using CFD	FP	Yoo, Yup; Lim, Jonghun; An, Nahyeon; Kwon, Hyukwon; Cho, Hyungtae; Kim, Junghwan
	Research Characteristics and Trends of Indoor Environmental Comfort and Occupant Behavior Based on Bibliometrics	FP	Liang, Shuxian; Lu, Yao; Lin, Youran; Xiao, Yiqiang
	U.S Commercial Building Stock Analysis of COVID-19 Mitigation Strategies	FP	CaraDonna, Christopher; Trenbath, Kim
	Dynamic View Access Assessment, a View-Based Method for Shading Form-Finding	FP	Pouyanmehr, Mina; Pilechiha, Peiman
	Lumped model vs. data-driven model for model-predictive control of indoor air quality for two school buildings	FP	Ra, Seon-Jung; Jeong, Hoon; Heo, Taewook; Park, Cheol-Soo
	Building Physics, Building Envelope and Materials 7	6 FP	Session Chair: Zhou, Liang (Grace)
	Thermal and Optical Performance of Advanced Polycarbonate Systems with Granular Aerogel and Hollow Silica Powder	FP	Merli, Francesca; Zinzi, Michele; Buratti, Cinzia; Augello, Andrea; Takeshi, Lhara
	Expanded Polypropylene as Structural and Thermal Component of Panelized Wall Systems	FP	Tam, Claire; Liao, Zaiyi; Calder, David; Dernovsek, Robert; Miller, Benjamin
	Bias correction methods for generating climate data as input to hygrothermal simulations	FP	Lu, Henry; Gaur, Abhishek; Ge, Hua; Lacasse, Michael
	Dynamic and Spectral Transmission Changes in a Glass System Coupled with Photovoltaic and Phase Change Materials Subjected to Solar Simulator Tests	FP	Čurpek, Jakub; Čekon, Miroslav; Kuruc, Michal; Slávik, Richard; Junaid, Muhammad Faisal
	Effect of Adding Interior Thermal Insulation and Brick Properties on Frost Damage of Masonry Walls	FP	Aldabibi, Mohamed; Nokken, Michelle; Ge, Hua
	Exterior Retrofitting Systems for Energy Conservation and Efficiency in Cold Climates: A Systematic Review	FP	Mirzabeigi, Shayan; Zhang, Jianshun; Razkenari, Mohamad
	IS: Building Mechanical Systems and Controls		Session Chair: Zmuraneau, Radu
	Building energy rejection in district heating system as a potential for decarbonation and reduction of heat island	EA	Charneux, Roland
	Solar-Assisted Air Source Heat Pumps: A Review with a Focus on Cold-Climate Applications	FP	Brands, Monica; Fung, Alan
End at 12:00	Feasibility Study of Wastewater Energy Transfer (WET) System for Existing Campus Building Cluster in an Urban Centre	IS	Brands, Monica; Fung, Alan
12:00 – 13:00	LUNCH BREAK		
Start at 13:00	PARALLEL SESSIONS	TYPE	AUTHORS
	Building Physics, Building Envelope and Materials 8	6 FP	Session Chair: Tariku, Fitsum
	Characterization of the Thermal Transmittance in Buildings Using Low-cost Temperature Sensors	FP	Mobaraki, Behnam; Castilla Pascual, Francisco Javier; Lozano-Galant, Fidel; Porrás Soriano, Rocío; Lozano-Galant, Jose Antonio
	The environmental impact of retrofitting heritage buildings in New Zealand	FP	Paschoalin, Rachel; Isaacs, Nigel; Chicca, Fabricio

	Thermal performance of a new ventilated concrete envelope	FP	Zhuang, Zhi; Zhao, Tian; Xiao, Yucheng
	Concept of Storm-Water Detention on Commercial Roofs to Mitigate Urban Flooding	FP	Jandaghian, Zahra; Saragosa, James; Chavez, Mauricio
	Understanding Nature Based Solutions (NBS) on Buildings to Mitigate Urban Heat Islanding (UHI)	FP	Jandaghian, Zahra; Hayes, Alexander; Gaur, Abhishek; Lu, Henry; Laouadi, Abdelaziz; Lacasse, Michael
	Heat loss and economic insulation optimization method of solar thermal storage tank in the Tibetan plateau, China	FP	Liu, Hui; Wang, Dengjia; Liu, Yanfeng; Yin, Tingqiang; Chen, Yaowen
	Health and Indoor Air Quality, Ventilation 10	6 FP	Session Chair: Ouazia, Boualem
	Air Quality Evaluation and Reconstruction Strategy of old Residential Public Areas with Direct Discharge of Cooking Smoke into Corridor	FP	Zhuang, Zhi; Chen, Qiquan; Gu, Wen; Wang, Zheng; Shu, Chang
	Improved Pressure and Airflow Control in Pressure Controlled Spaces with low leakage Ceiling Panels.	FP	Sirdeshpande, Gourish
	Effects of wood sawdust and peanut shell mixing proportions on CO and NOx emissions in co-combustion experiments	FP	Nie, Yazhou; Deng, Mengsi; Shan, Ming; Yang, Xudong
	Microbial volatile organic compound emissions from mould growth on building materials	FP	Yang, Wenping; So, Stephanie; Nong, Gang; Schebywolok, Tomi; Shah, Apoorv; Ganapathy, Gnanamurugan; Defo, Maurice
	Bedroom lights design: from the psychology and physiology	FP	Cao, Ting; Zhu, Jingwen; Lian, Zhiwei; Hou, Zhijian
	Quantifying convective heat transfer coefficients during natural ventilation in a full-scale operational building	FP	Chew, Lup Wai; Chen, Chen; Gorré, Catherine
	Building Renewables, Solar Buildings & Smart Grid 7	6 FP	Session Chair: Hachem-Vermette, Caroline
	Impacts of Collective Communication on the Energy Flexibility and Climate Resilience of Buildings in Urban Areas	FP	Nik, Vahid M.
	Grasshopper Optimization Algorithm vis-a-vis Genetic Algorithm for Energy Optimization in Conditioned Buildings with Varying Hours of Occupancy in Composite Climate of Delhi	FP	Ali, Sana Fatima; Bhattacharjee, Bishwajit; Rakshit, Dibakar
	Identification of Passive Solar Design Determinants in an Ancient Vernacular Structure located in the Composite Climate of New Delhi and its Performance Assessment based on Energy Matrices and Enviro-economics	FP	Ali, Heena Fatima; Tiwari, G. N.
	Methodology for Predictive Control of Zones with STPV Windows, Motorized Shades, and Hydronic Floor Heating for High Performance Buildings	FP	Hill, John; Athienitis, Andreas
	Modelling and predictive control of air-based BIPV/T systems for optimal HVAC integration	FP	Sigounis, Anna-Maria; Vallianos, Charalampos; Athienitis, Andreas
	Hygrothermal Modeling of Building Integrated Photovoltaics in Low-Rise Wood-Frame Construction	FP	Ye, Kai; Ge, Hua; Athienitis, Andreas
	Advanced Modeling and Building Simulations, CFD 7	4 FP – 4 EA	Session Chair: Poncet, Sébastien
	Modified Froude Modelling for Solar Roof Fire-Induced Smoke Movement	FP	Zhang, Xin; Aram, Monireh; Qi, Dahai; Wang, Liangzhu (Leon)

	CFD investigation of Thermal Energy Storage encapsulation	FP	Charles, Berville; Bode, Florin; Cristiana, Croitoru; Nastase, Ilinca
	Wind-driven Rain (WDR) Distribution on Buildings: Influential Parameters	FP	Gholamalipour, Payam; Ge, Hua; Stathopoulos, Ted
	Case study on inter-building occupancy using GIS-based movement data on campus	FP	Zhu, Mingya; Pan, Yiqun; Zeng, Fei; Wu, Zejun; Huang, Zhizhong; Kosonen, Risto
	Mapping the intervention level index of historical residence from occupant's perspective by a data-driven evaluation scheme	EA	Qian, Yuchong; LENG, Jiawei
	Study of solar roof fire-induced smoke spread using helium smoke	EA	Zhang, Xin; Aram, Monireh; Qi, Dahai; Wang, Liangzhu (Leon)
	An Efficient Numerical Approach for Simulating Airflows around an Isolated Building and Cross-ventilation Flows of a Generic Building	EA	Ding, Puxian; Zhou, Xiaoqing
	Thermal Resilience of a Zero Carbon Community Hub	EA	Good, Joel; Ozkan, Aylin
	Low/Zero Carbon Emission Buildings and Communities 2	6 FP	Session Chair: Kubota, Tetsu
	A New Approach of Energy and Carbon Management for a University Campus	FP	Yang, Lijun; Couture, Marc; Saporta, Ron
	Exploring decarbonization and clean energy pathways for disadvantaged communities in California	FP	Sun, Kaiyu; Kusumah, Patricia; Zhang, Wann; Wei, Max; Hong, Tianzhen
	Development of low-carbon affordable apartments in the hot and humid climate of Indonesia: Construction of a full-scale experimental house	FP	Alfata, Muhammad Nur Fajri; Trihamdhani, Andhang Rakhmat; Kubota, Tetsu; Asawa, Takashi
	A system dynamics model for a deep decarbonization of social housing building stock	FP	Ouyang, Tianrui; Cantin, Richard; El Mankibi, Mohamed; Michel, Pierre
	MIND' decarbonisation strategy in support of the European policy priorities. Strategic aspects for establishing the development's carbon roadmap to achieve absolute zero	FP	Boschi, Nadia
	Current Progress in District Cooling Infrastructures and their Evolution to Integrated Vapor Absorption-Compression Refrigeration Systems	FP	Hassan, Ibrahim Galal; I. Papadopoulos, Athanasios; Panos, Panos; Azizur Rahman, Mohammad; T Kadam, Sambhaji; Kyriakides, Alexios
	Building Codes and Standards	6 FP	Session Chair: Leroyer, Sylvie
	Influence of energy units in building certification system, Miljöbyggnad – A case study of a School Building in Sweden	FP	Hayati, Abolfazl; Akander, Jan
	Energy impact assessment of occupant-related assumptions of the National Building Code of Canada	FP	Abdeen, Ahmed; O'Brien, William; Gunay, Burak
	Tiered Energy Codes for Canada	FP	Zeghal, Morched; Ullah, Rizwan; Hassan, M. Rokib
	Building Climate Resilient Homes: Do Energy Efficiency and Disaster Resistance Conflict or Complement?	FP	Louie, Edward; Gilbride, Theresa; Antonopoulos, Chrissi
	Data Driven Policy Making for Building Energy Consumption Reduction of Seoul	FP	Kang, Haejin
	A comparative study on determination methods of effective area of natural smoke and heat exhaust ventilator	FP	Yin, Hang; Tan, Longfei

End at 14:30

CLOSING

Starting 14:30

TOURS (FBL, CZEBS / NGCI Labs)