



Housing & Building National Research Center International Conference
 Future Vision & Challenges for Urban Development
Green Smart Sustainable Building between Present & Future
(GSSB 2024)



14 -17 December 2024, Fairmont Nile City, Cairo, Egypt

| Saturday 14/12/2024 | | Hall 1 |
|---------------------|--|--|
| 17:00 pm – 18:00 pm | Pick-up Passengers by bus from HBRC, Dokki to Fairmont Hotel and Registration | |
| | Opening Cermoney and Exhibition | |
| 18:00 pm – 18:30 pm | Session Chair : | Prof. Sayed Shebl; Director of EMI Institute & Head of Organizing Committee |
| | | Welcome Notes |
| | | Prof. Dr. Mohamed Massoud, Chairman of HBRC |
| | | Eng. Sherif El-Sheerbiny Minister of Housing, Utilities and Urban Communities |
| | | H.E. Prof. Dr. Mostafa Madbouly Prime Minister |
| | | Honoring Personalities |
| 18:30 pm – 19:30 pm | Exhibition Opening | |
| 19:30 pm – 20:30 pm | Session Chair : | Prof. |
| | | Sponsor Non-Commercial Presentations |
| | | Main Sponsor -1 International Fainancial Cooperation IFC |
| | | Main Sponsor -2 |
| | | Main Sponsor -3 National Telecommunications Regulatory Authority of Egypt NTRA |
| 20:30 pm – 21:30 pm | Gala Dinner | |
| 21:30 pm – 22:00 pm | Pick-up Passengers by bus from Fairmont Hotel, go back to HBRC, Dokki | |



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| Sunday 15/12/2024 | | Hall 1 | |
|---------------------|--|---|--|
| 8:00 am – 9:00 am | Pick-up Passengers by bus from HBRC, Dokki to Fairmont Hotel and Registration | | |
| 9:00 am – 9:30 am | Session Chair : | Prof. | |
| | | Keynote Lecture - 1 | |
| | | ACI International Update: New Initiatives for Sustainable concrete | |
| | | Mr. Michael J. Paul, ACI -President | |
| 9:30 am – 10:00 am | | Keynote Lecture - 2 | |
| | | Strengthening Access to Sustainable Cooling in Response to Extreme Heat | |
| | | Dr. Yosr Allouche, Director General of the Paris-based International Institute of Refrigeration (IIR) | |
| 10:00 am - 10:45 am | Session Chair : | Prof.Tarek El-Sheikh; Director of Training and Urban Studies Institute | |
| | | Key-Note Panel Discussion - 1 | |
| | | Creative transformations for the future of urbanization and construction in cities | |
| 10:45 am- 11:30 am | Session Chair : | Dr. Yosr Allouche, Director General of the Paris-based International Institute of Refrigeration (IIR) | |
| | | Key-Note Panel Discussion - 2 | |
| | | IIR Cool Dialogue : Policy innovations and financial solutions for a sustainable MENA | |
| | | Eng. Ayman Eltalouny, UNEP | |
| | | Eng. Souhir Al-Hammami, UNEP | |
| 11:30 am –12:00 pm | Coffee Break | | |



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| Sunday 15/12/2024 (continued) | | Hall 1 | Hall 2 |
|-------------------------------|-----------------|--|--|
| 12:00 pm – 12:30 pm | Session Chair : | Prof. | |
| | | Sponsor Non-Commercial Presentations | |
| | | Platinum Sponsor - 1 | |
| | | Platinum Sponsor - 2 | |
| | | Platinum Sponsor - 3 | |
| 12:30 pm – 13:15 pm | Session Chair : | Prof. Hend Farouh, Director of Architecture Institute, HBRC | Prof. Ahmed El-Gabry, Director of Building Materials Research and Quality Control Institute, HBRC |
| | | Key-Note Panel Discussion - 3 | Workshop - 1 |
| | | Green Building Finance: Challenges & Opportunity | Use of Plastic Waste in Road Construction |
| | | Mrs. May Abd El-Hamid, CEO of Social Housing & Mortgage Finance Fund Egypt (SHMFF), The Vice President of the African Union for Real Estate Finance. | Prof. Esraa Emam Ali, Professor at Building Materials Research and Quality Control Institute, HBRC |
| | | Eng. Khalid Al Othman, President of IMAR, Engineering Consultants. | Dr. Elsayed Fahmy, Building Materials Research and Quality Control Institute, HBRC |
| | | IFC representative | |
| | | CIB representative | |
| 13:15 pm – 13:45 pm | Session Chair : | Prof. | Prof. |
| | | Launching Building Codes - 1 | Keynote Lecture - 3 |
| | | Code of Reinforced Concrete | The Urban Resilience in Madinah, Saudi Arabia |
| | | Code of High Rise Buildings | Eng. Abdulrahman Ibrahim, Chief Data and Innovation Officer, Madinah Region Development Authority, Saudi Arabia. |
| | | Prof. Ali Abdel-Rahman, Former Governrate of Giza. | |
| 13:45 pm – 14:00 pm | Break | | |



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| Sunday 15/12/2024 (continued) | | Hall 1 | Hall 2 |
|-------------------------------|--|---|--|
| 14:00 pm – 14:30 pm | Session Chair : | Prof. | Prof. |
| | | Keynote Lecture - 4 | Keynote Lecture - 5 |
| | | ICC's Global Overview: Family of Solutions and their role in advancing Sustainability and Innovation | Methodology to Design Eco-Friendly Fiber-Reinforced Concrete for 3D Printing |
| | | Eng. Mohamed Amer, the Regional Director of Operations for the MENA region with the International Code Council (ICC). | Mr. Kamal H. Khayat, Vice Chancellor for Research and Innovation at Missouri University of Science and Technology - USA. |
| 14:30 pm – 15:00 pm | Session Chair : | Prof. | Prof. |
| | | Omran Business Incubator 1 Part 1 | Keynote Lecture - 6 |
| | | Entrepreneurship as a Catalyst for a Sustainable Future: Empowering the Green Economy | Future of Wind Energy – Chances & Challenges |
| | | Prof. Mohamed Galal; Director of Innovation and Entrepreneurship Center, Al-Azhar University | Dr. Khalid Abdel-Rahman, Deputy Head- IGtH - LUH |
| 15:00 pm – 15:30 pm | Session Chair : | Prof. Amal Belal - HBRC General Trustee -Omran Business Incubator Manager | Prof. |
| | | Omran Business Incubator 1 Part 2 | Paper Session 1: Energy in Construction and Building Materials |
| | | Entrepreneurship in the Era of AI and Sustainability: Trends, Innovations, Future Opportunities and Funding | Paper (4): Design of Dry-Stacked Thermally Insulated Composite blocks for exterior walls |
| | | Dr. Mohamed Kholief; Senior Innovation Entrepreneurship Digital Transformation and Strategy Consultant | Paper (8): Enhancing Building Energy Management For Climate Resilience And Sustainability: Integrating MATLAB, IOT, And KBDSS |
| | | | Paper (12): Impact of Advanced Insulation Materials on building energy and emissions: a 2024 and 2050 perspective |
| | | | Paper (13): Adjustments of Existing Analytical Methods for Estimating the Effective Thermal Resistance of Masonry Veneer Walls |
| 15:30 pm – 16:15 pm | Lunch | | |
| 16:15 pm – 16:45 pm | Session Chair : | Prof. | Prof. |
| | | Paper Session 2: Concrete Technology | Paper Session 3: The Future of Urban Design: Trends and Challenges |
| | | Paper(1): Experimental Study on Fiber Reinforced Concrete (FRC) Beams with Spllices | Paper(26): Integrating AI tools in envisioning conceptual urban design for historical regions, case study: (the grand avenue of the pyramids of Giza) |
| | | Paper (2): Development of Fly Ash-based Geopolymer Concrete for Sustainable Infrastructure | Paper(27): Survey Of The Service Life And Management Of Sign Support Structures |
| | | Paper (23): Evaluating Sustainability Of Infrastructure Using The Envision Rating System | Paper (28): Refining housing needs estimations in Egypt: towards socioeconomic sustainability |
| | | Paper (25): Examining the Long-Term Mechanical Properties and Durability of Green Concrete with Recycled Glass as Fine Aggregate: Validation Using the Neural Network Fitting Tool | Paper(31): Key capabilities & competencies for managing sustainability and change in Egypt's AEC industry |
| 16:45 pm – 17:30 pm | Pick-up Passengers by bus from Fairmont Hotel, go back to HBRC, Dokki | | |



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| Monday 16/12/2024 | | Hall 1 | Hall 2 |
|---------------------|--|--|--|
| 8:00 am – 9:00 am | Pick-up Passengers by bus from HBRC, Dokki to Fairmont Hotel and Registration | | |
| 9:00 am – 9:30 am | Session Chair : | Prof. | |
| | | Keynote Lecture - 7 | |
| | | Optimizing ultra-high performance concrete properties through advanced Rheological design and nano-technology | |
| | | Mr. Kamal H. Khayat, Vice Chancellor for Research and Innovation at Missouri University of Science and Technology. | |
| 9:30 am – 10:00 am | Session Chair : | Prof. | |
| | | Keynote Lecture - 8 | |
| | | Future Directions in Road Safety Research | |
| | | Prof. Karim El-Basyouny, Professor & Associate Dean at The University of Alberta, Canada. | |
| 10:00 am - 10:45 am | Session Chair : | Dr. C. “Lobo” Cruz-Noguez, University of Alberta, Edmonton, Alberta, Canada | |
| | | Key-Note Panel Discussion - 4 | Workshop - 2 |
| | | Role of Technology in Civil Engineering | Green Hydrogen |
| | | Prof. Karim El-Basyouny, Professor & Associate Dean at The University of Alberta, Canada. | Eng. Mohamed El-Refai |
| | | Dr. Shay Abtahi, University of Alberta, Canada. | Dr.Yasser |
| | | Dr. Nima Shirzad-Ghaleroudkhani, University of Alberta, Canada. | |
| 10:45 am- 11:30 am | Session Chair : | Prof. Reham Mohamed Hafez, Deputy Director of the Institute of Training and Urban Studies | Prof. |
| | | Key-Note Panel Discussion - 5 | Key-Note Panel Discussion - 6 |
| | | Women Leadership in Urban Development: lessons from Practical Experience | Energy and Sustainability |
| | | Prof. Tarek El Shiekh, Director of UTI - HBRC | Dr. C. “Lobo” Cruz-Noguez, University of Alberta, Edmonton, Alberta, Canada. |
| | | Mrs. May Abd El-Hamid, CEO of Social Housing & Mortgage Finance Fund Egypt (SHMFF), The Vice President of the African Union for Real Estate Finance. | Dr. Ahmed Hammad, University of Alberta, Canda. |
| | | Prof. Ghada Farok, Vice President of Ain Shams University for Community Service and Environmental Development Affairs | Dr. Maysoun Ismaiel, University of Alberta,Canda. |
| | | Dr. Maha Fahim, Chairman of the General organization for physical Planning | Prof. Mohamed Gamal EIDin, Professor at the University of Alberta, NSERC Industrial Res. Chair, Canada Research Chair, Civil & Env. Eng. |
| | | Dr. Marwa Ahmed Soliman,General Manager of international cooperation and community participation Urban Development Fund (U.D.F) Egyptian cabinet | |
| | | Eng. Marwa Hussin,Chairman of the Sheikh Zayed Development Authority | |
| 11:30 am –12:00 pm | Coffee Break | | |



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| Monday 16/12/2024 (continued) | | Hall 1 | Hall 2 |
|-------------------------------|-----------------|---|--|
| 12:00 pm – 12:30 pm | Session Chair : | Prof. Amal Belal - HBRC General Trustee -Omran Business Incubator Manager | Prof. |
| | | Omran Business Incubator 2 Part 1 | Launching Building Codes - 2 |
| | | Entrepreneurship & Innovation :A.breakthrough for Sustainable Development | Code of Steel |
| | | Dr. Heba M. Zaki, Director of Egypt's Entrepreneurship & Innovation Center. | Prof. Sherif Mourad, Former Dean Faculty of Engineering - Cairo Univeristy. |
| 12:30 pm – 13:15 pm | Session Chair : | Prof. Amal Belal - HBRC General Trustee -Omran Business Incubator Manager | Prof. |
| | | Omran Business Incubator 2 Part 2 | Key-Note Panel Discussion - 7 |
| | | From Ideas to Impact: Success Stories in Construction, sustainability and Urban Innovation | Sustainable Urban Development through Facility Management |
| | | Eng.Abdullah El-Wakil, Teaching Assistant, Department of Chemistry, Faculty of Science, Tanta University | Prof. Manal Abdel-Hamid, Formar Construction Project Management research Institute, HBRC |
| | | Eng.Mohamed AboKelela, Co-Founder and CEO of Tilestic | Prof. Azza Serry, Architecture Research Institute HBRC |
| | | Eng.Mousa Khalil, Founder and CEO of Mouzna | |
| | | Mohamed Elzaree, Business Unit Leader for Cummins Inc. (Mind Shift) | |
| 13:15 pm – 13:45 pm | Session Chair : | Prof. Dina Sadek | Prof. |
| | | Keynote Lecture - 9 | Keynote Lecture - 10 |
| | | ACI Certification and the International Cooperation between ACI and HBRC | Application of Evolutionary Optimization Methods for Intelligent Design and Retrofit of Structures |
| | | Prof.Khalid M. ElZahaby, Professor emeritus of geotechnical engineering Former Chairman of the HBRC, HBRC Former Vice-Chairman, Egypt Green Building Council Cairo, Egypt | Prof. Ashraf El Damatty,Professor and Chair Department of Civil and Environmental Engineering Research Director, WindEEE Research Institute, University of Western Ontario, Canada |
| | | Eng. Ahmed Mhanna, ACI Director in the Middle East | |
| 13:45 pm – 14:00 pm | Break | | |



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| Monday 16/12/2024 (continued) | | Hall 1 | Hall 2 |
|-------------------------------|--|---|--|
| 14:00 pm – 14:30 pm | Session Chair : | Prof. | Prof. |
| | | Keynote Lecture - 11 | Keynote Lecture - 12 |
| | | A Move Towards Efficient and Sustainable Construction Through Machine Learning | Building a Resilient Future, one block at the time |
| | | Assoc. Prof. Hamad ElGasmy, AL Ain - UAE. | Dr. C. “Lobo” Cruz-Noguez, University of Alberta, Edmonton, Alberta, Canada. |
| 14:30 pm – 15:00 pm | Session Chair : | Prof. | Prof. |
| | | Keynote Lecture - 13 | Keynote Lecture - 14 |
| | | Innovative Materials for Sustainable Construction and Repair Solutions | Applications of Advanced Oxidation Processes for the Treatment of Persistent Contaminants: Towards Sustainability |
| | | Prof. Tamer Elmadawy, Structural Engineering AL Ain - UAE. | Prof. Mohamed Gamal ElDin, Professor at the University of Alberta, NSERC Industrial Res. Chair, Canada Research Chair, Civil & Env. Eng. |
| 15:00 pm – 15:30 pm | Session Chair : | Prof. | Prof. |
| | | Launching Building Codes - 3 | Launching Building Codes - 4 |
| | | Code of Principles of design and implementation of repair and strengthening of enforcement concrete structures | Green Buildings Guidelines |
| | | Prof. Shadia Al-Ibiary, Reinforced Concrete Institute, HBRC. | Prof. Hend Farouh, Director of Archeticture Institute, HBRC |
| 15:30 pm – 16:15 pm | Lunch | | |
| 16:15 pm – 16:45 pm | Session Chair : | Prof. | Prof. |
| | | Paper Session 4: Geotechnical Eng. And Sanitary Engineering | Paper Session - 5 |
| | | Paper (17): Numerical Analysis for Sustainable Lateral Loading Resistance for Shell Foundation | |
| | | | |
| | | | |
| 16:45 pm – 17:30 pm | Pick-up Passengers by bus from Fairmont Hotel, go back to HBRC, Dokki | | |



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| Tuesday 17/12/2024 | | Hall 1 | Hall 2 |
|---------------------|--|---|--|
| 8:00 am – 9:00 am | Pick-up Passengers by bus from HBRC, Dokki to Fairmont Hotel and Registration | | |
| 09:00 am – 9:30 am | Session Chair : | Prof. | Prof. |
| | | Keynote Lecture - 15 | Keynote Lecture - 16 |
| | | Sustainable Buildings and Infrastructure Asset Management | Urban Housing and Infrastructure – The Benefits of Sustainable, Resilient, and Robust Concrete Construction |
| | | Prof. Osama Salem, Professor and former Department Chair of Civil, Environmental, and Infrastructure Engineering, George Mason University | Mr. Michael J. Paul, ACI -President |
| 09:30 am – 10:15 am | Session Chair : | Prof. | Prof. |
| | | Launching Building Codes - 5 | WorkShop - 3 |
| | | Building Information Modeling - BIM | Simplified Procedures for the Design and Construction of Geosynthetics Reinforced walls |
| | | Prof. Manal Abd El-Hamid, Formar Construction Project Management research Institute, HBRC | Prof.Khalid M. ElZahaby, Professor emeritus of geotechnical engineering Former Chairman of the HBRC, HBRC Former Vice-Chairman, Egypt Green Building Council Cairo, Egypt |
| | | | Prof. Suzan saad salam, Professor at Soil Mechanics and Foundation Engineering Institute, HBRC |
| | | | Assoc.Prof. Hoda Hany, Assoc. Prof. at Soil Mechanics and Foundation Engineering Institute, HBRC |
| | | | Eng. John Erian, Chief Commercial Officer of Strata Soil Systems Company. |
| | | | Eng.Mina Youssef, Senior Technical Office Engineer at Goes for Trading and contracting. |
| 10:15 am - 11:00 am | Session Chair : | Prof. | Prof. |
| | | Workshop - 4 | Workshop - 5 |
| | | Behaviour of RC Elements Reinforced with Different Steel Grades According to ECP203 Requirement | Advanced Methods for water and waste water treatments |
| | | Prof. Tamer Hassan Kamal ElAfandy, Vice Director of Concrete Institute, HBRC. | Prof. Shreen Mohamed Ahmed, Professor of Sanitary and Environmental Engineering institute, HBRC |
| | | Prof. Hadad Saied Hadad, Head of Construction Technical Inspection Authority and Professor of Concrete Structure of Concrete Institute, HBRC. | Prof. Safaa Mahmoud Ragheb, Head of Sanitary and Environmental Engineering Institute, HBRC. |
| | | Assistant Prof. Eslam Mousa Ali, Concrete Institute, HBRC. | |
| 11:00 am- 11:30 am | Coffee Break | | |
| 11:30 am –12:15 pm | Session Chair : | Prof. | Prof. |
| | | Workshop - 6 | Workshop - 7 |
| | | Innovation importance of TICO for National Development | Waste -Based Coatings as Sustainable innovative solutions for Coastal Corrosion |
| | | Prof. Mona Ahmed Fanny, Building Physics and Environments Research Institute, Manger of TICO , HBRC | Prof. Ahmed Elshami, Chemistry and Building Materials Technology, HBRC. |
| | | Associate Prof. Mahmoud Mohamed Abd ElRaziK, Building physics Institute, HBRC. | Prof. Dr. Tarek El Sockary, Former Director of the Research Institute of Raw Materials, HBRC & Head of the Research Projects Management, and International Cooperation Office (GICO) |
| | | Dr. Mostafa Shohide, Reasearcher of Applied Chemistry, HBRC. | Prof. Dr. Basil Ahmed Mohamed El-Sabbagh, Raw Building Materials and Processing Technology Research Institute, HBRC. |
| | | | Prof. Medhat Sobhy El-Mahllawy, Head of Raw Building Materials and Processing Technology Research Institute, HBRC. |
| 12:15 pm – 13:00 pm | Session Chair : | Prof. | |
| | | Closing Ceremony | |
| 13:00 pm – 13:15 pm | Boxed Lunch | | |
| 13:15 pm – 14:00 pm | Pick-up Passengers by bus from Fairmont Hotel, go back to HBRC, Dokki | | |

Thanks for your contribution and we look forward to seeing you next year **December 2025**

Website: <https://www.hbrc.edu.eg/en/hbrc-conf2024>

Housing and Building National Research Center

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