

Preliminary 4th RBDCC Program

Tuesday, February 27

| | |
|-----------------|--|
| 4:00pm - 5:30pm | 3D Printing Concrete Robot & Building Enclosures Research Lab (BCERL) Tour (optional) |
| 5:30pm - 7:30pm | Research & Education Night Reception (optional) |

Wednesday, February 28

| | |
|------------------|--|
| 8:30am - 10:15am | Keynote Presentation German Residential Construction: What Can We Learn From It? <i>Opening Remarks: Dr. George Lesieutre & Prof. Kevin Parfitt</i> <i>Prof. Dr-Ing. Bohumil Kasal, Director of the Fraunhofer Institute for Wood Research, Fraunhofer Wilhelm-Klauditz-Institut, Germany</i> |
|------------------|--|

| | |
|-------------------|--------------|
| 10:15am - 10:45am | Break |
|-------------------|--------------|

10:45am - 12:15pm Conference Sessions

| TRACK 1 | TRACK 2 | TRACK 3 | TRACK 4 |
|--|--|--|---|
| SESSION 1: Residential BIM | SESSION 2 : Building Enclosures | SESSION 3: Design Considerations: Development | SESSION 4: Building Science Education |
| The Role of BIM in Designing Zero-Net Energy Homes <i>Shahryar Habibi University of Ferrara, Italy</i> | Stucco System Performance: A Review of Reported Data and Code and Standard Development <i>Theresa Weston Dupont</i> | The in Between: Between Custom Residential + Developer Housing <i>Alistair Dearie Grid Architects</i> | Building Science Education Essentials <i>Sam Taylor BuildingScience Education.net</i> |
| Software Tool for Automation in Building Energy Simulation Using Building Information Modeling (BIM) <i>Ehsan Kamel New York Institute of Technology</i> | Comparison of Measured Hygrothermal Performance of Wood Frame Walls Built with Continuous Exterior Insulation versus Walls Built with Housewrap and OSB Sheathing in Single Family Homes in a Cold Climate <i>Greg Stewart DOW</i> | Energy Code-Compliant Housing Design: A Cost and Energy Perspective <i>Regina Celi Dias Ferreira University of Alberta</i> | At the Core: Fundamental Building Science Education Matters More Than Building Type <i>Cheryn Metzger Pacific Northwest National Laboratory</i> |
| | A Scientific Approach to Understanding the Safety Features of Roofing Underlayments <i>John Johnston Dupont</i> | IRC and IBC Provisional Requirements for Different Scale Residential Building Products <i>Ryan Solnosky Penn State</i> | Building Science Education <i>Nina Baird Carnegie Mellon</i> |

| | |
|------------------|--------------|
| 12:15pm - 1:15pm | Lunch |
|------------------|--------------|

1:15pm - 2:45pm Conference Sessions

| TRACK 1 | TRACK 2 | TRACK 3 | TRACK 4 |
|---|--|---|---|
| SESSION 5: High Performance Homes | SESSION 6 : Building Enclosures | SESSION 7: Design Considerations: Senior Housing | SESSION 8: Building Science Education |
| An Exploratory Study of Three Paths to Green Homes: Energy Star Homes, LEED for Homes, & the National Green Building Standard <i>Jawanda Jackson Michigan State</i> | Experimental & Numerical Study of Moisture Movement in Sealed Attics <i>David O. Prevatt University of Florida</i> | Aging-in-Place Housing: Industry Trends in Pennsylvania <i>Dorothy Gerring Penn College</i> | One Book/Many Topics: But Are They Enough? <i>Walter Grondzik Ball State University</i> |
| Measuring Sustainability in Low-Energy Residential Buildings <i>Joshua Kniefel NIST</i> | Evaluate Compartmentalization as a Stack Effect Mitigation Strategy <i>Junting Li University of Toronto</i> | The Evolution of Housing for Smart Cities <i>Joe Colistra University of Kansas</i> | Experiential Learning Exercises to Further Understanding of Complex Building Science Principles <i>Georg Reichard Virginia Tech</i> |
| Is Green Housing Healthy Housing? Examining the Evidence <i>Sherry Ahrentzen, Elif Tural, & James Erickson University of Florida & Virginia Tech</i> | Numerical Studies on Blockage of Fire Spread and Water Curtain <i>Y.K. Woo Hong Kong Polytechnic University</i> | The Longitudinal Impact of Energy Education on Affordable Energy Efficient Multifamily Senior Housing <i>Frederick Paige & Andrew McCoy Virginia Tech</i> | Implementation of Project Based Learning in a Building Science Curriculum <i>Jamie Russell Appalachian State</i> |

Preliminary 4th RBDCC Program (continued)

| | | | |
|---|---|---|---|
| 2:45pm - 3:00pm | | Break | |
| 3:00pm - 4:30pm | | Conference Sessions | |
| TRACK 1 | TRACK 2 | TRACK 3 | TRACK 4 |
| SESSION 9: High Performance: Passive House | SESSION 10: Building Enclosures | SESSION 11: Design Considerations: Policy & Social Components | SESSION 12: Building Science Education |
| <p>Can Zero Net Carbon Buildings Scale? Passive House Data Tells the Story. <i>Laura Nettleton Thoughtful Balance</i></p> <p>Passive Building (Passive House) <i>Adam Ugliuzza Intertek</i></p> | <p>Building Envelope as an Effective Strategy for Achieving Sustainable Building Energy Efficiency <i>Joseph Iwaro University of the West Indies, Trinidad & Tobago</i></p> <p>Energy Efficient Geometrical Design Parameters of Windows in Residential Building: A comparison between hot and cold climates in the United States <i>Reza Foroughi Penn State</i></p> <p>Windows of Opportunity: Fenestration Innovations, Driven by Demand <i>Bob Dudish Marvin Windows</i></p> | <p>Housing Technology and the Contemporary Policy Context in the U.S. <i>Carlos Martin, Andrew McCoy, Frederick Paige & Sierra Latham Urban Institute</i></p> <p>Social Housing Architecture as a Generator of Social Practices <i>Gülcan Ay Istanbul Technical University</i></p> <p>Context-Specific Cultural Drivers & Barriers to Sustainable & Resilient Building Systems: Lessons from the hot and humid Tanzanian Coast <i>Esther Obonyo Penn State</i></p> | <p>Three Courses/Four Typologies: Experiences with the 2017 Race to Zero Competition <i>Walter Grondzik & Tom Collins Ball State University</i></p> <p>PSU DOE Race to Zero <i>Chris Hazel Penn State</i></p> <p>Where Do We Go From Here?</p> |
| 6:00pm - 9:00pm | | Happy Hour on the Exhibit Floor! | |

Thursday, March 1

| | | | |
|---|--|--|--|
| 8:30am - 10:15am | | Keynote Global Innovations in Residential Building: Prefabrication, Modularization & Automation | |
| Opening Remarks: <i>Dr. Patrick Fox</i> | | <i>Professor Ryan E. Smith Associate Dean of Research + Community Engagement & Director, Integrated Technology in Architecture Center (ITAC) at University of Utah, College of Architecture + Planning</i> | |
| 10:15am - 10:45am | | Break | |
| 10:45am - 12:15pm | | Conference Sessions | |
| TRACK 1 | TRACK 2 | TRACK 3 | TRACK 4 |
| SESSION 13: Designing for Resiliency | SESSION 16: HVAC | SESSION 18: Cross Laminated Timber | SESSION 16: UN Global Building Network |
| <p>Measuring Sustainability & Resilience Tradeoffs across Post-Disaster Temporary Housing <i>Lauren Badeaux & Elaina J. Sutley University of Kansas</i></p> <p>Amphibious House: A Novel Flood Mitigation Strategy <i>Anthony Graham Western Kentucky University</i></p> <p>Enhancing the Damage Prediction Capability of a Tornado Risk Assessment Tool <i>Anant Jain University of Florida Gainesville</i></p> | <p>Balancing Ventilation & Airtightness in Residential Buildings <i>Sean O'Brien & Scott Bondi Simpson, Gumpertz & Heger</i></p> <p>A Net-Zero Energy, High Performance Residential Building Testbed: Performance Comparisons Between Two Equipment Configurations <i>Brian Dougherty NIST</i></p> <p>Integrated Space & Water Heating (Combi) Systems for High-Performance Homes in Cold Climates <i>Pat Huelman University of Minnesota</i></p> | <p>Building Energy Analysis of Single Family Residential Building with Laminated Timber <i>Paulo C. Tabares-Velasco Colorado School of Mines</i></p> <p>Numerical Model of Creep Behavior for Axially Loaded CLT Panels <i>Thang Dao University of Alabama</i></p> <p>Fire Performance of CLT Adhesives in Residential Floor Applications <i>Shiling Pei Colorado School of Mines</i></p> | <p>Penn State and the UN Global Building Network <i>Tom Richard Institute of Energy & the Environment</i></p> |

Preliminary 4th RBDCC Program (continued)

| | | | |
|--|---|---|---|
| 12:15pm - 1:15pm | | Lunch | |
| 1:15pm - 2:45pm | | Conference Sessions | |
| TRACK 1 | TRACK 2 | TRACK 3 | TRACK 4 |
| SESSION 19: Energy & Resiliency Modeling | SESSION 17: Building Enclosures | SESSION 21: Cross Laminated Timber | SESSION 16: Community Impacts |
| <p>Closing the Post-Occupancy Gap in Zero Energy Housing <i>Philip Agee Virginia Tech</i></p> <p>Impact of Occupant Behavior in Data-driven Energy Use Modeling in Diverse Residential Buildings Across Multiple Climates <i>Huyen Do Iowa State</i></p> <p>Residential Building Lifespan and Community Resilience <i>Alex Ianchenko University of Washington</i></p> | <p>An Innovative Building System for High-Performance Affordable Housing <i>Pat Huelman University of Minnesota</i></p> <p>Site Quality Assurance Programs – How This Has Improved Air Barrier Installations <i>Laverne Dagleish Air Barrier Association of America</i></p> <p>Racking Testing Facility to Evaluate In-Plane Performance of Structural Insulated Panels <i>Ryan Solnosky Penn State</i></p> | <p>Cross Laminated Timber as an Alternative for Single Family Construction: A Comparative Cost Study <i>Shiling Pei Colorado School of Mines</i></p> <p>The Use of Cross-Laminated Timber for Mixed-Use Tall Wood Buildings in the US <i>Shaobo Liang North Carolina State University</i></p> <p>Cross Laminated Timber & Beetle Kill Lumber <i>Eric Holt University of Denver</i></p> | <p>The value of campus-based solar demonstration homes for students, faculty, and communities <i>Mahsa Safari Penn State</i></p> <p>Participatory Learning through the Race to Zero Competition <i>Chris Hazel Penn State</i></p> |
| 2:45pm - 3:00pm | | Break | |
| 3:00pm - 4:30pm | | Conference Sessions | |
| TRACK 1 | TRACK 2 | TRACK 3 | TRACK 4 |
| SESSION 15: Design: Small Homes | SESSION 20: Building Enclosures | SESSION 14: Materials: Concrete | SESSION 24: GreenBuild Tour |
| <p>The Big Picture on Tiny Houses <i>Matthew Lutz Norwich University School of Art and Architecture</i></p> <p>Concept Paper: MODs - Next Generation Mobile Housing <i>Anthony Jellen Dawood Engineering</i></p> | <p>Design and Performance of High R-value Walls using Mineral Wool Exterior Insulation for Residential Wood-Frame Applications <i>Antoine Habellion Roxul</i></p> <p>Impact of Positioning Phase Change Materials (PCMs) within Building Enclosures on Thermal Performance in Different Climates <i>Abdullah Abuzaid Virginia Tech</i></p> <p>Thermal Resistance Simulation of Different Conventional and Innovative Insulation Technologies <i>Xinrui Lu Penn State</i></p> | <p>3D Printing of Concrete <i>Penn State</i></p> <p>Effect of Graphene Oxide, Carbon Nanotube, and High-Alumina Natural Pozzolan Incorporation on Concrete Strength under High Temperature <i>Mehrzad Habibi Penn State</i></p> <p>Seamless Architecture: Design & Development of Functionally-Graded Green Materials for Building Construction <i>Shadi Nazarian Penn State</i></p> | <p>Tour of GreenBuild House 1394-1396 University Drive State College, PA <i>Energy Efficient Housing Research Group / Hamer Center for Community Design</i></p> |