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# Foresight

## ***The Changing Climate and Its Impact on Human Health***

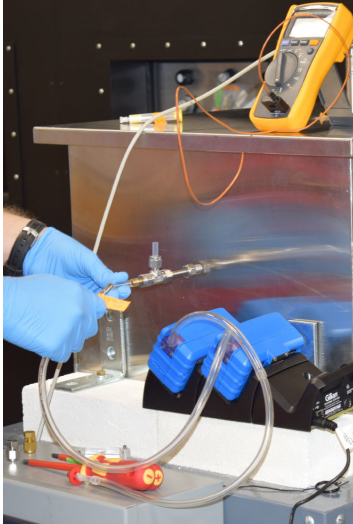


[Chemical Insights Research Institute \(CIRI\)](#) of [UL Research Institutes](#) is leading research on weather changes and disasters and how they are affecting human health. Just this past month, air quality index alerts in parts of the eastern and central U.S. reached all-time highs, warning of poor air quality related to the spread of Canadian wildfire smoke.

Evidence is compelling that climate and weather-related events are having a tremendous impact on human health and the built environment. As most of the U.S. is experiencing warmer temperatures, increases in weather-related disasters such as wildfires, flooding, and extreme storms are occurring. Human health is being affected with rises of heat-related illness, cardiovascular disease, asthma and allergy related illness, and stress-related disorders.

This month we share three key CIRI initiatives relating to understanding these impacts.

## ***CIRI's Research on Extreme Heat and Its Impact on Indoor Air***



More extreme weather is causing our built environment to experience prolonged power outages, periods of extreme heat and humidity, material damage and exposure to harsh cleaners and chemicals used to disinfect or clean up after disasters. CIRI's current research is showing that higher temperatures can increase chemical emissions from building materials, thus degrading the indoor air quality. Chemical emissions from common indoor flooring types were found to increase over 300% with temperature changes from 25°C to 35°C, with the addition of new chemical emissions never seen before. Predicted indoor chemical levels, in some cases, exceeded guidelines for a healthy indoor environment. Read about the initial research in the Summary Report, "[Extreme Weather Impact on Indoor Material Emissions](#)".

## ***CIRI Publishes Proceedings of SOT Symposium on the Health Effects of Wildfires***



At the Society of Toxicology's (SOT's) 62<sup>th</sup> Annual Meeting, CIRI convened an expert panel to discuss available research findings on the health impact of wildfire smoke. Participants included Dr. Marilyn Black of CIRI, Dr. Jackie Goodrich of University of Michigan, Dr. Alesia Jung of Exponent Inc, Dr. Miriam Calkins of CDC/NIOSH and Dr. Jim Zhang of Duke University. Most research to date has been conducted on wildfire specific incidences and health impacts on first responders. According to our expert panelists, there is a knowledge gap regarding the impact of wildland urban interface (WUI) fire exposures and related health outcomes, although 46 million homes and 99 million people are vulnerable to these catastrophic events. Given the unknowns of WUI fires, greater efforts to understand how urban fuel sources such as plastics may contribute to higher levels of toxic chemical exposures during WUI fires is a public health priority. Alongside chemical exposure

concerns, panelists highlighted significant differences in health outcomes between structural and wildland firefighters, which may aid our understanding of how WUI exposures may affect the general population.

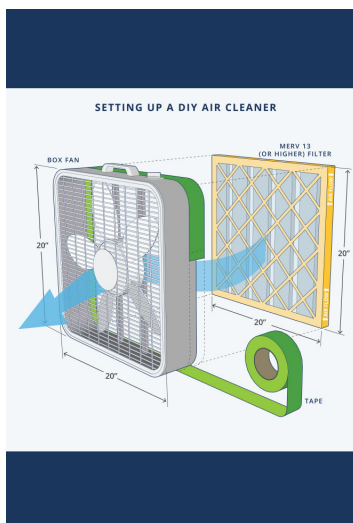
Read the complete, "[Proceedings of The Future of Fire Safety: Exploring the Intersection of Wildfires](#)," to learn about novel research findings on the impact of wildfires in places where people live and work, and health effects.

## ***CIRI Convenes a Panel on Climate Changes and Impacts on the Built Environment***



At the national conference of the American Institute of Architects, CIRI convened an expert panel to discuss "Scientists Perspectives on Climate Impacts." Featuring Dr. Marilyn Black of CIRI, Holley Henderson of CIRI, Birgitte Messerschmidt of the National Fire Protection Association, and Dr. W. Elliott Horner of UL Environment & Sustainability. The scientists discussed new research that can impact future building design for healthier spaces as the climate changes. The presentation can be viewed at "[Research Scientists Perspectives on Climate Impacts for Building Environment & Materials](#)."

## ***CIRI Shares Research into Climate Change and Resiliency for Health***



This month's air quality alerts from wildfire smoke impacting some of the central and eastern U.S. sparked us to send out a news alert featuring creative resources to protect air quality from smoke. Please see our latest [news alert](#) that features information on DIY air cleaners for your home or building and other actionable resources to protect health.

Our ongoing research into wildfires and the WUI is addressing chemical and particle pollution exposure and options for developing healthier and more resilient buildings and communities. To explore more see the new expansion of our [Wildfires and the Wildland Urban Interface Webpage](#). Keep an eye out for upcoming press releases, news alerts, and additions to our extensive [Resource Library](#).

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## Publications and Events

### Recent Publications



- Summit Proceedings, "[Proceedings of The Future of Fire Safety: Exploring the Intersection of Wildfires and Human Health](#)"
- Technical Brief, "[A Strategic Research Initiative for the Optimization of a Textile Fire Barrier Without Flame Retardants for Upholstered Furniture](#)"
- Summary Report, "[Extreme Weather Impact on Indoor Material Emissions](#)"
- News Alert, "[Creative Resources That Can Protect Air Quality Against Wildfire Smoke](#)"
- AIHA Synergist Blog, "[New Guidance for 3D Printing at Colleges and Universities](#)"

### Upcoming Events



- [CSHEMA Annual Conference](#), July 22 – 26, 2023, "CIRI + CSHEMA = 3D Printer Safety Guidance for Your Campus"
- [ASID GATHER 2023](#), August 13 - 15, 2023
  - "Understanding WUI and How to Protect Our Homes"
  - "Forever Chemicals: What Designers Need to Know"
  - "Reducing Fire and Chemical Risks to Safeguard Human Health"
- [ACS Fall Meeting](#), August 13 – 17, 2023, "Utilizing Cheminformatics to Determine Primary and Secondhand Vaping Exposure and Health Risks"
- [ISES 2023 Annual Meeting](#), August 27 – 31, 2023
  - "Exposure to metal-containing aerosols emitted from material extrusion 3D printing with thermoplastic and composite materials"
  - "Associations between Personal Apparent Temperature Exposures and Asthma"

- Symptoms in Children with Asthma”
  - “Characterization of Potential Exposure and Inhalation Risks During Firsthand and Secondhand Vaping”
- [Greenbuild 2023](#), September 26 – 29, 2023
  - “Resiliency for Health”
  - “The Latest Science on WUI Fires and the Built Environment”



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