AIA Materials Matter Healthy People: Materials Science + Human Health
Session 2 write-up, by Louisa Gaylord

The second installment of AIA Seattle's Materials Matter series focused on how buildings can impact its occupants. By the year 2036, over 900 billion square feet of new and rebuilt architecture will be constructed all over the world – with 87% of our time spent indoors, it's important to understand how our built environment affects our health. Buildings in the United States account for about 38% of global carbon emissions and 73% of global electricity consumption, so leading the sustainable building industry by example will show how to responsibly balance community, health and the environment.

Materials have an entire lifespan, from factory to building to demolition debris, and the ramifications of the process can have wide-spread effects. Materials high in volatile organic compounds (VOC) can have health consequences for not just the building's occupants, but for the material manufacturers, installers, the neighborhoods located near the chemical producers on the supply chain, the demolition contractors and the ecosystem after the materials have broken down. The EPA mandates testing for only a fraction of the chemicals found in building materials, and new ones are being development every year before the long-term health impacts are fully known.

Sustainable buildings and practices actively improve peoples' health – either by minimizing the chemical impacts, encouraging healthy behavior or reducing health and psychological risks. It's not a coincidence that LEED and Living Building Challenge certifications address building materials, occupant health and indoor environmental quality, and have a "red list" of hazardous VOC to avoid. Today there are healthy, sustainable materials that are high performing and don't cost more than the alternative. If a supply manufacturer doesn't have a product without a particular "red listed" chemical, ask if they're willing to create something new; illustrating a demand and marketability for such products will go a long way towards changing the industry's standard practices.

During his presentation, Dr. David Kallman explained the importance of the precautionary principle in green building: "Insist on toxicity information for all your building materials and choose the least toxic option, even if other options seem equally acceptable," he said. "Consider the full range of impacts across the entire life cycle of a material, which doesn't end when a building is demolished." Chemicals take varying amounts of time to break down into emissions, anywhere from a few hours (like paints and sealants) to several years.

Dr. Kallman also talked about how our knowledge of VOC impacts on our health are constantly changing. Some things we are certain of, like the effects of lead paint, and can easily avoid. The unknown elements are indications that the building's materials are effecting people, such as a possible link between rising rates of asthma and the quality of indoor air. "There are some ideas about the health results but it's not well understood," says Dr. Kallman. "There are health effects that we haven't recognized or studied yet, and don't know exactly how they impact human health and wellbeing."

What is certain is that the amount of time that we spend indoors isn't going to dramatically change anytime soon, and that our buildings can directly impact our health, either positively or negatively. Building industry professionals can use their collective power to embrace sustainable materials that contribute to good health for their entire life cycle. Choosing responsible materials needs to become a new industry standard practice, and you have the power to drive that market change.