

FURTHERING EDUCATION FURTHERS THE INDUSTRY

Continuing education in building science and sustainability provides the building industry with a continuous source of educated students knowledgeable of current issues, trends, priorities, materials, analysis techniques and methods for creating sustainable, high-performance buildings. Research in building science and collaboration with industry stimulate the development of new building-design concepts, technologies and methods for creating better buildings that respond to the needs of a building industry pre-occupied with climate change, to which it makes a significant contribution.

People spend much of their lives in buildings. There are few building-science programs or concentrations in Canada. These are often mono-disciplinary, siloed in engineering or architecture departments, for example, and constrained by limited budgets. The building industry supports little research and considers research to be more specialized building design than the search for new knowledge and innovations as defined by the academic world.

Future-looking building science initiatives, taking an interdisciplinary approach to bring trainees from various disciplines together, and with a strong research component, are essential to the future success of a state-of-the-art building industry. One such initiative is the NSERC CREATE Sustainable Building Science Program (S BSP) at the University of British Columbia (UBC), in collaboration with the School of Construction and Environment at the British Columbia Institute of Technology (BCIT), and with the support of the UBC Centre for Research in Sustainability (CIRS).

CIRS was designed to be the most sustainable building in North America, is the home to individuals and groups at UBC promoting sustainability, is an

institute dedicated to education and research in sustainable building and is, in itself, a sustainable-building research site. SBSP grew from efforts to bring together UBC teachers and researchers working individually on aspects of sustainable building in various departments with little knowledge of one another.

The Centre has become an interdisciplinary program that has raised awareness of sustainable-building science at UBC and in the local community, has educated a new generation of sustainable-building scientists and has performed substantial novel research. It has brought architecture, engineering, social- and health-scientist trainees—mainly Masters and doctoral students—together to discuss sustainable-building science issues, respond to industry concerns and plan relevant research projects in an interdisciplinary environment.

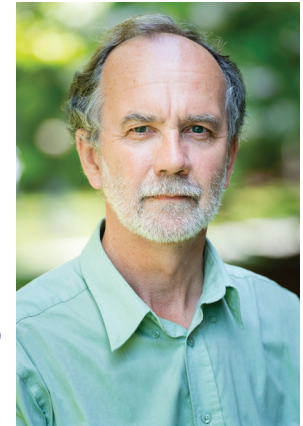
In terms of training, the centre's "topics" course brings trainees to the classroom to learn the latest trends and issues in sustainable-building design from academic and industry specialists. Its "project" course gives trainees the opportunity to apply their expertise to real-world problems sponsored by industry in small interdisciplinary groups. Trainees share research results and learn about real-world issues from researchers and industry professionals in its seminar series. It sends trainees on internships in academia, industry and government to interact with, learn from and inject their knowledge into the real world.

The centre also brings professors and trainees together to perform state-of-the-art research on diverse topics ranging from improving the performance of energy-recovery ventilators, to investigating the benefits

of the Integrated Project Delivery (IPD) approach to building design, from measuring the effects of vegetation on indoor-environmental quality, to developing sustainable wood and concrete building materials, and from developing an advanced post-occupancy-evaluation framework for sustainable buildings, to investigating the optimal acoustical and air-flow design of natural-ventilation-opening silencers.

The Sustainable Building Science Program is a six-year program that will end next summer. In its first five years, it has supported and educated over 100 trainees, many who have gone on to further their education or careers in the building industry. SBSP has led to the creation of three start-up companies, resulted in the publication of over 100 scientific articles and conference papers, and influenced the designs of many real-world sustainable-building projects. SBSP will live on at UBC in the form of the on-going CIRS research institute and BCIT building-science programs, of the on-going SBSP Sustainability Assessment of the Built Environment (SABER) research initiative focusing on the post-occupancy evaluation of sustainable buildings, and of the new Masters of Engineering Leadership in High Performance Buildings (MEL_HPB) that will start in the UBC Faculty of Applied Sciences in January, not to mention the contributions of the many well-educated trainees who have moved on the further education or to professional positions in the building industry.

The result of further education will be buildings that are more sustainable—that slow climate change, are more cost-effective and environmentally-friendly, and that promote the health and well-being, satisfaction and productivity of building occupants. •



Murray Hodgson, B.Sc., M.Sc., Ph.D., C.Eng., FASA Professor of Acoustics Director, Sustainable Building Science Program The University of British Columbia

Future-looking building-science initiatives, taking an interdisciplinary approach to bring trainees from various disciplines together, and with a strong research component, are essential to the future success of a state-of-the-art building industry.