



**46th Annual Conference of the
Association of Canadian
Ergonomists**

**Ergofest: Celebrating our
achievements in research and
applied ergonomics**

**October 6 - 8, 2015
Waterloo Inn Conference Centre,
Waterloo, Ontario
www.ace-ergocanada.ca**

**Workshops
October 5, 2015**

**Conference Proper
October 6-8, 2015**

**Exhibitor Showcase
October 6-7, 2015**

FINAL CONFERENCE PROGRAM



Continuing Education Credits have
been applied for, or are eligible for:

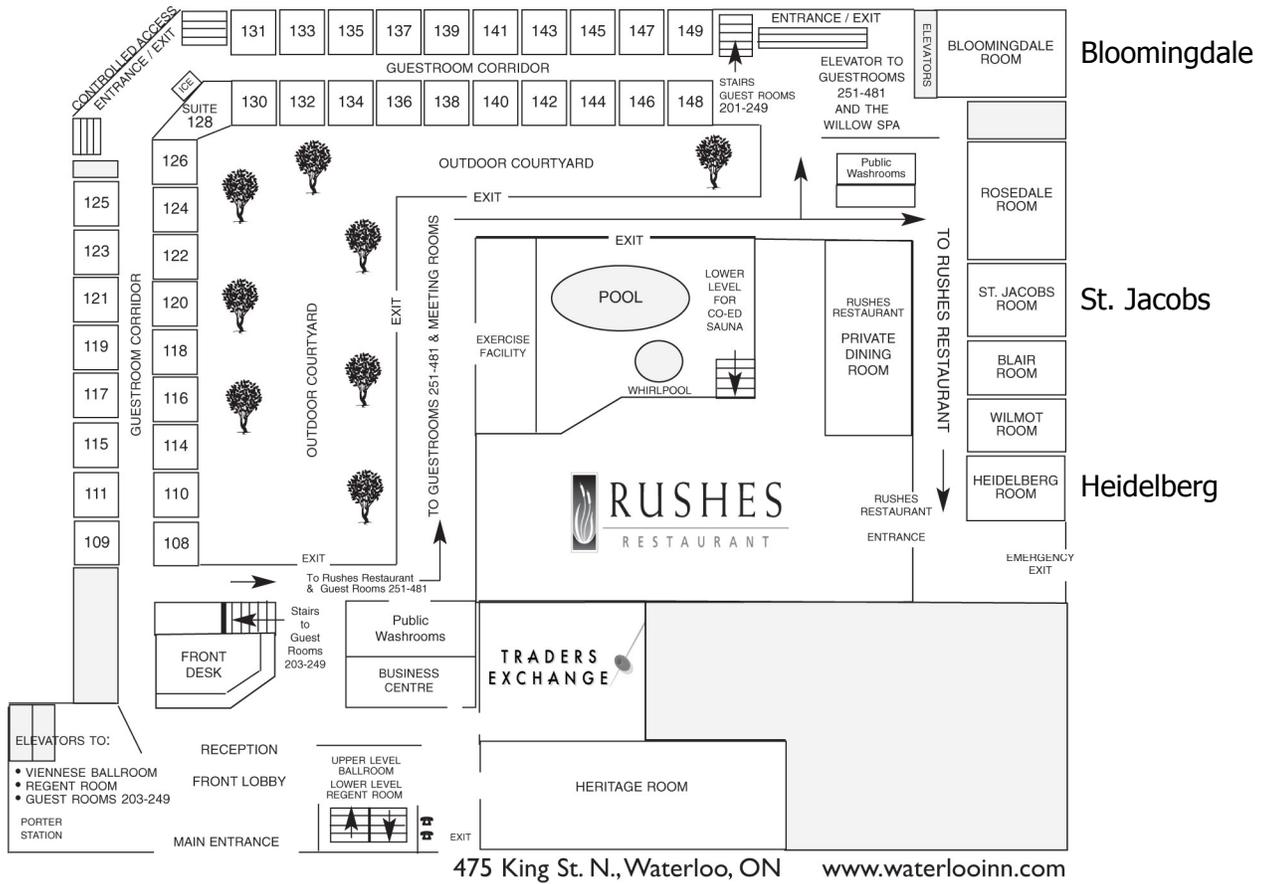
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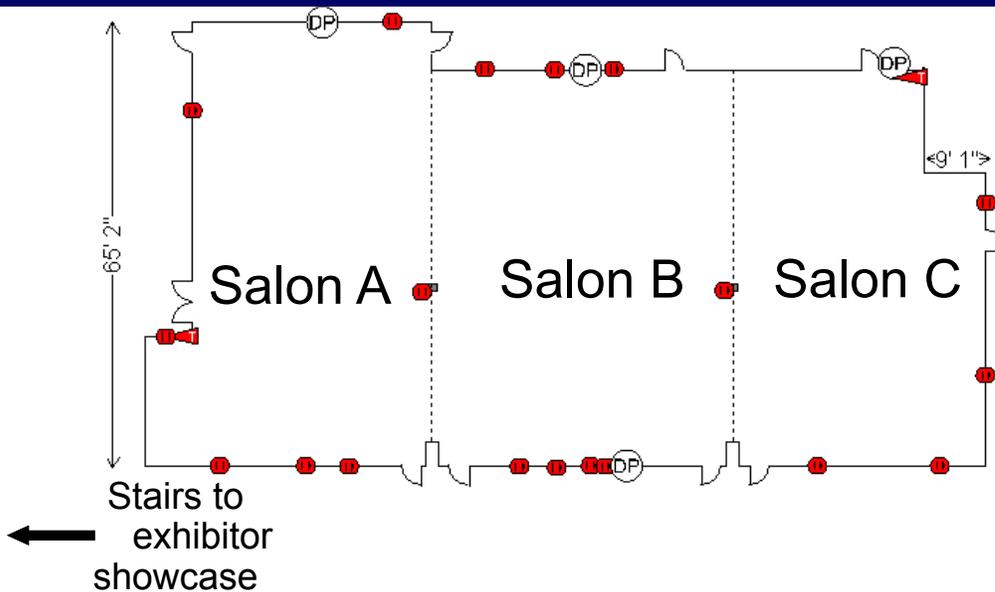
**Association of Canadian Ergonomists
Association Canadienne d'Ergonomie**

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Association canadienne d'ergonomie
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ACE 2015 Venue Floor Plan



Conference Sessions—second floor





Association of Canadian Ergonomists
Association Canadienne d'Ergonomie

A Word of Welcome from the President

On behalf of the Organizing Committee and Council for the Association of Canadian Ergonomists, I am delighted to welcome all the delegates and their guests to Waterloo, Ontario for the 46th ACE Conference. This annual event devoted to the practice of ergonomics and human factors will give participants a platform to exchange ideas, discover novel opportunities, reacquaint with colleagues, meet new friends, and broaden their knowledge.



Our technical program this year is rich and varied with five keynote speeches, seven pre-conference workshops and over 50 sessions, including papers, speaker highlights and symposia running in parallel each day. Adding to this is a diverse exhibitor showcase, which will present delegates with the latest and greatest in ergonomics tools and resources; and finally, a technical tour of the Toyota Motor Manufacturing plant which promises to offer a unique insider perspective of ergonomics, health and safety in the auto sector.

While the theme of the 2015 Conference, "Ergofest: Celebrating our achievements in research and applied ergonomics" presents an opportunity to recognize achievements in the field, it is also a nod to Oktoberfest, which is taking place immediately following the conference. Come to learn and stay to play at the largest annual Bavarian celebration outside of Germany!

Enjoy the conference and we wish you a memorable stay in Waterloo!

Rabiya Samji

Organizing Committee

Organizing Committee

Conference Chair

Karen Hoodless, M.Eng., CCPE, CPE
2015 ACE Conference Chair

Technical Chair

Carolyn G. MacGregor, PhD, CCPE

Technical Tour & Communications Coordinator

Elisha Lemoire, CCPE

Sponsor/Exhibitor Coordinator

Josie Blake, AE

Social Coordinator

Andrew Beath

ACE Operations Resource

Margo Fraser, M.Sc., CCPE

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Association of Canadian Ergonomists
Association Canadienne d'Ergonomie

Established in 1968, the Association of Canadian Ergonomists/Association Canadienne d'Ergonomie (ACE) is a bilingual, professional association with over 600 members from coast to coast who have an interest, research, or practice in the field of human factors/ergonomics.

To find out more about ACE or to become a member, visit our website:
www.ace-ergocanada.ca

Paper/panel reviewers

Technical Chair: Carolyn G. MacGregor, PhD, CCPE

Reviewers:

Mohammad Abdoli-
Eramaki

Wayne Albert,
David Andrews,
Anna Kristina Arnold,
Stephen Bao,
Nancy Black,
Jack Callaghan,

David Darvill,
Robert Dewar,
Clark Dickerson,
Jon Doan,
Margo Fraser,
Peter Keir,
Heather Khale,
John Kozey,
Carolyn MacGregor,

Linda Miller,
Patrick Neumann,
Michele Oliver,
Jim Potvin,
Jeremy Rickards,
Richard Wells,
Kristen Willms,
Kathryn Woodcock,
Geoff Wright

Keynote Speaker - Tuesday, October 6, 2015

YOUR KEYNOTE SPEAKERS!

The organising committee for the 2015 ACE conference is excited to introduce this year's keynotes. We believe that they truly embody our 46th ACE Conference theme, "Ergofest: Celebrating our achievements in research and applied ergonomics".

You'll hear about the past, present and future of ergonomics and human factors in Canada, and learn how Waterloo's tech sector incorporates ergonomics and human factors into their business practices. Keynotes will be speaking and answering questions each morning between 9:00-10:00 am, immediately following opening remarks by the conference committee (starting at 8:30 am).



A Personal Perspective on ACE and the Field of Ergonomics **Dr. Alison Smiley - Human Factors North Inc.**

Alison's experience with ACE began in 1971 and included stints as Editor of *Communique* (1973 -1977), President (1988), and Founder of the Canadian College of Professional Ergonomists (1999 -2002). She will speak briefly of some of those who started ACE (formerly HFAC) as well as about issues of the day. Moving then to her specific technical expertise, Alison will speak of the evolution she has seen of human factors in the field of transportation, from research to practice and from a focus on topics such as alcohol and drug effects on driving to concerns related to autonomous vehicles. Over the same time period she has been privileged to work in forensic human factors starting with appearing at the Commission of Inquiry into the Hinton Train Collision in 1986. Over the past 30 years this area has evolved, and lawyers and judges increasingly recognize its value in assessing human behaviour. This work has been both challenging and fascinating. Alison will close with a few thoughts on the current and future state of ergonomics in Canada.

Dr. Alison Smiley is President of Human Factors North Inc., a Toronto-based human factors engineering consulting company founded in 1982. She holds a PhD in Systems Design Engineering, specializing in Human Factors and is an adjunct professor in the Department of Mechanical and Industrial Engineering at the University of Toronto.

She is an emeritus member and past chair of the TRB Committee on Vehicle User Characteristics and serves on the Editorial Board of *Accident Analysis and Prevention*. In 1999 she became the founding chair of the Canadian College for the Certification of Professional Ergonomists. She has contributed advice on driver vision, information processing, workload and expectancy in numerous road design, reconstruction and signing projects.

She has acted as an expert witness in several hundred legal cases involving car, truck, and train accidents and given evidence in court 20 times. She has written on human factors issues for the 2015 edition of the Institute of Traffic Engineering Manual, for the 2010 U.S. Highway Safety Manual, and for several chapters of the Ontario Traffic Manual.

Keynote Speaker - Tuesday, October 6, 2015



Personal Perspectives on HFE: How did we get here and where are we going?

Dr. Ian Noy – Liberty Mutual Group

Having spent over 40 years as a human factors specialist, Ian will:

1. Provide a brief overview of his professional career
2. Discuss his involvement in ACE (formerly HFAC) – providing personal anecdotes and highlights
3. List ACE milestones achieved during his time
4. Present lessons he learned over his career
5. Offer a preamble to the IEA Presidency
6. Give key initiatives
7. Propose a definition Ergonomics/Human Factors and discuss why it is important
8. Provide reflections on the evolution of HFE
9. Explore impediments to growth
10. Chat about opportunities

Dr. Ian Noy is Vice President, Liberty Mutual Group and Director, Liberty Mutual Research Institute for Safety. He holds a doctorate degree in Industrial Engineering from the University of Toronto, specializing in human factors. He is a Board certified professional ergonomist (CPE) with over 40 years of professional research and practice experience.

Dr. Noy's R&D experience covers a broad range of areas, including traffic safety, workplace ergonomics, human-machine interface design and evaluation, human performance and training, and behavioral research. He has published over 150 scientific and technical reports, and conference and journal articles. He is a sought after keynote speaker at scientific meetings. His applied research experience spans applications in the air, on the ground, and underwater, including military R&D.

Dr. Noy is a Past President of the International Ergonomics Association (IEA). He is a Fellow of the Human Factors and Ergonomics Society (HFES), and a past president and Honorary Fellow of the Human Factors Association of Canada/Association canadienne d'ergonomie (HFAC/ACE).

Dr. Noy is a recipient of several awards, including the U.S. National Highway Traffic Safety Administration's Award for Engineering Excellence, the International Ergonomics Association Distinguished Service Award, and the Human Factors and Ergonomics Society's Distinguished International Colleague Award.

Keynote Speaker - Wednesday, October 7, 2015



User Centred Design

**Jeff Bos – Senior Design Insights Analyst
Blackberry Design Team**

Jeff's talk will cover user-centered design principles along with examples and best practices for designing usable product experiences.

Jeff Bos is a user experience researcher with over fifteen years experience working in Telecom, Defense, and Mobile. He has been a member of the BlackBerry Design team since 2006. His current role as a Senior Design Insights Analyst involves gathering user feedback, applying ergonomic principles, and synthesizing customer insights to drive product innovation. His research focus includes input device and form factor design for the next generation of mobile products.

Education:

M.A. Experimental Psychology (HCI), Carleton University (2000)

Post-Degree Diploma Interactive Multimedia, Canadore College (1997)

Honours B.A. Psychology (Behavioural Neuroscience), Nipissing University (1996)

Achievements:

Over 35 User Experience Design Patents

Over 15 Refereed Technical Reports and Publications



Association of Canadian Ergonomists
Association Canadienne d'Ergonomie

ACE 2016 Annual Conference
Niagara, Ontario - Fall 2016



Association of Canadian Ergonomists
Association Canadienne d'Ergonomie

**ACE 2017 Annual and ODAM
(Organizational Design and
Management) Joint Conference**
Banff, Alberta, July 31—August 3, 2017

Keynote Speakers - Thursday, October 8, 2015



The Evolution of Human Factors in High Tech - The Physical Workplace and Product Design **John Baker and Paul Baker – D2L**

John Baker and Paul Baker will present a fascinating account of D2L's history, their changing culture, and illustrate the company's evolving understanding of human factors in both product design and the physical workplace. Excellence in customer experience through product design is critical to developing a competitive advantage. To gain that advantage and high performance behaviours, John and Paul will describe how D2L has created a workplace that fosters creative thinking and discovery in order to drive change in product design and across their industry. The session will cover basic research, stories, client examples, and the ultimate successes to emulate and the failures to avoid. Attendees will leave the session with a deeper appreciation for the physical challenges in the high tech corporate environment as well as user interface ideas and concepts to pursue post-conference.

John Baker founded D2L (formerly Desire2Learn) in 1999 at the age of twenty-two while attending the University of Waterloo. He saw that online digital tools could open the door to entirely new and more effective models of education and create learning experiences that are personal, engaging, and inspiring. John's vision for D2L is to transform the way the world learns, improving outcomes for learners everywhere.

He was recognized in 2013 as an EY Entrepreneur of the Year within Ontario, received the Young Alumni Achievement Medal from the University of Waterloo in 2010, and was inducted into the Waterloo Region Hall of Fame as an Intrepid Entrepreneur in 2009.

A strong believer in community involvement, John devotes both his personal and business efforts to supporting young entrepreneurs who are developing and applying technology to improve society worldwide. John was appointed to the Governing Council of the Social Sciences and Humanities Research Council of Canada, is Chair of the Board of Communitech and is a board member of Canada's National Ballet School, among other organizations.

John graduated from the University of Waterloo with an Honours B.A.Sc. in Systems Design Engineering, with First Class Honours and an option in Management Sciences.

Keynote Speakers - Thursday, October 8, 2015



Paul Baker

Paul Baker is a learning design professional with over 10 years of experience at D2L. Part of the work includes managing a team to create simulated learning experiences, online courses, researching future systems, and user interface design. Working with a team of solution designers, multimedia developers, graphic designers and instructional designers we adapt our solutions to fit the learning experience desired by our clients and their learners.

Part of the work at D2L includes leading the Health and Safety Committee at D2L. A degree in Kinesiology from the University of Waterloo and ergonomic experience at Kellogg's and Cooper Standard Automotive honed the acumen necessary for creating programs, policies, and influencing safety practices at a large company like D2L.



Ergonomics Canada magazine

Watch for issue 8 of Ergonomics Canada, ACE's annual magazine for the public. Available in both hard copy and electronically, Ergonomics Canada, provides timely information on various aspects of ergonomics and human factors. The electronic issue is available via the ACE website (www.ace-ergocanada.ca). You can also download copies of past issues.

Workshop Schedule - Monday, October 5, 2015

Room	08:00 - 12:00	13:00 - 17:00
Heidelberg	Add some Statistics to Your Consulting Work - introduction to the R language for ergonomists. Stephen Bao, PhD, CCPE, CPE	
St. Jacobs		Assessing HF Capability in Organisations: Identifying new opportunities to benefit from ergonomics, Patrick Neumann, PhD, Michael Greig, PhD Student, Don Patton, CCPE
Bloomingtondale	Sustainable Office Design, Mary O'Reilly, PhD, CIH, CPE	Office ergonomics - where are we, and where should we be? Facilitator: Nancy Black, PhD

Notes

Schedule at a Glance

Time	Monday October 5 2015	Tuesday October 6 2015	Wednesday October 7 2015	Thursday October 8 2015
7:30	Registration (Front Lobby)	Registration (Front Lobby) Exhibitor Showcase	Registration (Front Lobby) Exhibitor Showcase	Registration (Front Lobby)
8:00	Workshops Add Some Statistics—S. Bao (Heidelberg) Sustainable Office Design—M. O'Reilly (Bloomingtondale)	(Regent)	(Regent)	
8:30		Welcome & Keynote Address Alison Smiley (Human Factors North) & Ian Noy (Liberty Mutual) (Salons A/B)	Opening remarks & Keynote Address Jeff Bos (Blackberry) (Salons A/B)	Opening remarks & Keynote Address John & Paul Baker (Desire2Learn) (Salons A/B)
9:00				
9:30				
10:00	A.M. Break (Rosedale)	A.M. Break & Exhibitor Showcase (Regent)	A.M. Break & Exhibitor Showcase (Regent)	A.M. Break
10:30	Morning workshops cont'd	Concurrent Paper Sessions 1, 2 & 3 (Salon A, Salon B, Salon C)	Concurrent Paper Sessions 10, 11 & 12 (Salon A, Salon B, Salon C)	Concurrent Paper Sessions 19, 20, & 21 (Salon A, Salon B, Salon C)
11:00				
11:30				
12:00	Lunch (Rosedale)	Lunch / ACE AGM (Salons A/ B) Exhibitor Showcase (Regent)	Lunch (Salons A/B) Exhibitor Showcase (Regent)	Lunch, Student Awards, Closing Address (Salons A/B)
12:30				
13:00	Afternoon workshops Add Some Statistics cont'd—S. Bao (Heidelberg) Office Ergonomics—N. Black (Bloomingtondale) Assessing HF Capability in Organisations—P. Neuman, M. Greig & D. Patton (St. Jacobs)	Concurrent Paper Sessions 4, 5 & 6 (Salon A, Salon B, Salon C)	Concurrent Paper Sessions 13, 14 & 15 (Salon A, Salon B, Salon C)	Technical Tour: Toyota Manufacturing 13:15 (departure from front lobby) tour 14:00-15:00
13:30				
14:00				
14:30				
14:45				
15:00	P.M. Break (Rosedale)	P.M. Break & Exhibitor Showcase (Regent)	P.M. Break & Exhibitor Showcase (Regent; tradeshow teardown after break)	
15:15				
15:30	Afternoon workshops cont'd	Concurrent Paper Sessions 7, 8 & 9 (Salons A, B, C)	Concurrent Paper Sessions 16, 17 & 18 (Salons A, B, C)	
16:00				
16:30				
17:00				
17:30				
18:00		Opening Reception & Exhibitor Showcase 5:30-9:00PM (Regent)	Delegate Social 6-11 PM Lion's Brewery Huether Hotel (departure from front lobby)	
18:30				
19:00	Informal social & early registration 7 pm - 10 pm (Social -Traders Lounge; Early registration - front lobby)			
19:30				

Conference Sessions

TIME	DAY 1 – TUESDAY, OCTOBER 6, 2015		
8:30 AM - 9:00 AM 9:00 AM - 10:00 AM	WELCOME ADDRESS and Exhibitor 60 second challenge (Salons A/B)		
	PLENARY Alison Smiley, PhD, CCPE, President – Human Factors North Ian Noy, PhD, CPE, VP Liberty Mutual Group; Director, Liberty Mutual Research Institute for Safety		
10:00 AM – 10:30 AM	BREAK & EXHIBITOR SHOWCASE (Regent)		
	Salon A	Salon B	Salon C
10:30 AM - 12:00 PM	<p>HIGHLIGHTS - Biomechanics Exploring interactions between force, posture and repetition on low back injury pathways: implications for prevention [<i>Chad Gooyers, Jack Callaghan</i>]</p> <p>Effect of prolonged sitting on active lumbar flexion range in men and women. [<i>Diana De Carvalho, Jack Callaghan</i>]</p> <p>Early and consistent leg movement during prolonged standing, via a standing aid to reduce the development of low back pain [<i>Maureen Riddell, Kayla Fewster, Kaitlin Gallagher, Jack Callaghan</i>]</p> <p>Lumbar spine postures are altered with fatigue in persons who develop low back pain during standing. [<i>Daniel Viggiani, Jack Callaghan</i>]</p> <p>Kinetic comparison of deep flexion postures for work related tasks. [<i>Helen Chong, Liana Tennant, Stacey Acker</i>]</p> <p>Evaluation of Repetitive Task Demands of Toronto Hydro Workers by Incorporating Time and Frequency with 3DSSPP [<i>Wenxiao Yan, Manurkhan Pathan, Ibrahim Aboud, Mohammad Abdoli-Eramaki</i>]</p>	<p>PAPERS – Mind & Body An investigation of the effects of mental fatigue during rest breaks on end point variability [<i>Michael Sonne, Nicholas La Delfa, Jeffrey Graham, Steven Bray, Jim Potvin</i>]</p> <p>The effects of motion environments on operator vigilance and postural control [<i>Nicole Bishop, Carolyn Duncan, Scott MacKinnon, Jeanette Byrne</i>]</p> <p>Laboratory Evaluation of WBV IOS application to estimate whole-body vibration exposure [<i>Wesley Killen, James Dickey, Robin Burgess-Limerick, Alison Godwin, Tammy Eger</i>]</p>	<p>PANEL: Making ergonomics training programs stick: How do we create training programs that make an impact? [<i>Panelists: Ben Amick III (IWH), Michelle Robertson (LMRIS), Brian McInnes (MOL), Glenn Cullen (PSHSA)</i>]</p>
12:00 PM– 1:30 PM	LUNCH & ACE ANNUAL GENERAL MEETING (Salons A/B) EXHIBITOR SHOWCASE (Regent)		

Conference Sessions cont'd,

TIME	DAY 1 – TUESDAY, OCTOBER 6, 2015 cont'd		
	Salon A	Salon B	Salon C
1:30 PM - 3:00 PM	<p>PAPERS – Workstations</p> <p>The effect of workstation configuration on productivity, energy expenditure and discomfort during lab-simulated light assembly work. <i>[Kristina Gruevski, Samantha Ehmke, Jack Callaghan]</i></p> <p>What are the effects of workstation configurations, devices, and occupational tasks on neck and trunk postures? <i>[Mamiko Noguchi, Alan Cudlip, Colin McKinnon, Clark Dickerson, Jack Callaghan]</i></p> <p>Investigation of accommodations required when transitioning from sitting to standing at office workstations. <i>[Maureen Riddell, Lois Sy, Surabhi Kadam, Jack Callaghan]</i></p> <p>The impact of progressive sit-stand rotation on low back posture, muscle activation, and pain development <i>[Colin McKinnon, Daniel Martel, Jack Callaghan]</i></p>	<p>PAPERS – Ergonomics & MSDs</p> <p>Is there a market for ergonomics in Ontario? <i>[Ben Amick III, Colette Severin, Dwayne Van Eerd, Sheila Hogg-Johnson, Selahadin Ibrahim]</i></p> <p>Shifting trajectories: comparing employment status musculoskeletal discomfort and total physical activity amongst active older Albertans in 2009 and 2015. <i>[Jon Doan, Taura Willoughby, Jennifer Copeland]</i></p> <p>Levelling up gaps in a MSD prevention/safety management system. <i>[Elisha Lemoire]</i></p> <p>Musculoskeletal disorders and patient falls: an inter-professional approach to reduce the incidence and severity of patient handling related musculoskeletal disorders and patient falls <i>[Anita Jorgia, Cathy Litwin, Riman Hasan, Jane Cox, Monique Pendergast, Jasna Gole, Robin Patterson]</i></p>	<p>PAPERS – Physical Demands</p> <p>Physical demands of manual scaling on the shoulders and neck of dental hygienists. <i>[Nicholas La Delfa, Diane Grondin, Jocelyn Cox, Jim Potvin, Samuel Howarth]</i></p> <p>Causes of Hip MSDs in Dental Hygienists. <i>[Rose-Ange Proteau, Denis Marchand]</i></p> <p>Work boot wear changes knee mechanics during static kneeling. <i>[Liana Tennant, David Kingston, Helen Chong, Stacey Acker]</i></p> <p>Comparing sitting and backward leaning (standing) workstations <i>[Nancy Black, Marthe Samson, Maxime Lecanelier, Annie-Pier Fortin]</i></p>
3:00 PM - 3:30 PM	BREAK & EXHIBITOR SHOWCASE (Regent)		
3:30 PM– 5:00 PM	<p>HIGHLIGHTS</p> <p>Physical demands description handbook and template – working towards a standard. <i>[Curtis VanderGriendt]</i></p> <p>Assessing people's ability to recognize lifting risk factors for low back pain and the impact of a simple educational message. <i>[Binh Ngo & Richard Wells]</i></p> <p>Streamlining NIOSH Lifting criteria: validating a client's 5kg threshold. <i>[Laura Veldhuyzen]</i></p> <p>Assessment of bricklaying concrete masonry units using one handed technique. <i>[Tiffany McKinley, E. Taylor, Usha Kurriganti, Wayne Albert]</i></p> <p>Ergonomic evaluation for right angle power tools: direct current physical demands comparison – a focus on muscle activity. <i>[Danielle Devries, Joel Cort]</i></p> <p>Kinematic comparison of three direct-current right-angle power tool tightening strategies. <i>[Christian Steingraber, Joel Cort.]</i></p>	<p>PAPERS – Low Back Pain</p> <p>The effect of standing aides on low-back posture and muscle activation patterns. <i>[Kayla Fewster, Kaitlin Gallagher, Jack Callaghan]</i></p> <p>The use of intermittent trunk flexion to alleviate low back pain during prolonged standing. <i>[Danielle Stewart, Diane Gregory]</i></p> <p>Does a passive dynamic interface at the feet alter pelvic and lumbar posture during standing? <i>[Taylor Winberg, Mamiko Noguchi, Jack Callaghan]</i></p>	<p>SYMPOSIUM – Ergonomics and Quality</p> <p>Quantifying Human Factors (HF) capabilities in an organisation – a macro-ergonomic tool for identifying new avenues for applying HF. <i>[Michael Greig, Don Patten & Patrick Neumann]</i></p> <p>Quality and ergonomics in assembly manufacturing: what's the connection?. <i>[Elisha Lemoire]</i></p> <p>Roundtable with delegates on Human Factors and Quality.</p>

Conference Sessions cont'd,

TIME	DAY 2 – WEDNESDAY, OCTOBER 7, 2015		
8:30 AM – 9:00 AM	OPENING REMARKS (Salons A/B)		
9:00 AM – 10:00 AM	PLENARY Jeff Bos, BlackBerry		
10:00 AM – 10:30 AM	BREAK & EXHIBITOR SHOWCASE (Regent)		
	Salon A	Salon B	Salon C
10:30 AM - 12:00 PM	<p>HIGHLIGHTS</p> <p>Effects of sit/stand configuration and computing equipment alter localised body discomfort in office tasks. <i>[Alan Cudlip, Jack Callaghan, Clark Dickerson]</i></p> <p>Characterization of cashier shoulder and low back muscle loading strategies. <i>[Jacquelyn Maciukiewicz, Angelica Lang, Meghan Vidt, Sylvain Grenier, Clark Dickerson.]</i></p> <p>Lessons from participatory ergonomics study aimed to reduce musculoskeletal pain among nursing staff. <i>[Deborah Alperovitch-Najenson, Dvora Sheffer, David Ezra, Leonid Kalichman]</i></p> <p>Development of medical placement process through the use of digital human model simulation. <i>[Robert Ward, Allison Stephens, Joel Cort.]</i></p> <p>Back to basics: we shouldn't assume ergonomic assessment skills but rather validate them. <i>[Amii Periera]</i></p>	<p>PAPERS – Biomechanics</p> <p>Effects of neck posture and load on the cervical spine and upper extremities. <i>[Ebram Ibrahim]</i></p> <p>Rest placement within task cycles affects muscle fatigue accumulations rates of the flexor pollicis longus muscle. <i>[Rachel Whittaker, Michael Sonne, Jim Potvin]</i></p> <p>Quantifying upper extremity postures and muscle activity during IV pole use. <i>[Victoria Breitner, Donna Murczek, Michael Holmes.]</i></p>	<p>SYMPOSIUM: Faster, Easier, Cheaper: New Tools for Ergonomic Assessment and Training</p> <p>The landscape of motion capture tools for ergonomic application: examples from caregiver ergonomics <i>[Emily King, Tara Kajaks, Tilak Dutta]</i></p> <p>Microsoft Kinect as a tool for field-based optical motion capture. <i>[Tilak Dutta, Mohammad Parahoo1, Rowa Abachi]</i></p> <p>PostureCoach: A wearable posture coaching biofeedback system <i>[Tara Kajaks, Mark Semple, Justin Weel, Felipe Orozco, Amanda Longfield, Emily King, Paul Holyoke, Tilak Dutta]</i></p> <p>SafeBack: An App for estimating compressive loading on the back. <i>[Amanda Longfield, Tara Kajaks, Felipe Orozco, Paul Holyoke, Tilak Dutta]</i></p>
12:00 PM - 1:30 PM	LUNCH (Salon A/B) & EXHIBITOR SHOWCASE (Regent)		

Conference Sessions cont'd,

TIME	DAY 2 – WEDNESDAY, OCTOBER 7, 2015 cont'd,		
	Salon A	Salon B	Salon C
1:30 PM - 3:00 PM	<p>HIGHLIGHTS</p> <p>Occupational health and safety practitioners: perspectives on research use. <i>[Dwayne Van Eerd, Trevor King, Siobhan Cardoso, Ram Saunders, Sara Macdonald, Emma Irwin]</i></p> <p>Integrating ergonomics upstream into design. <i>[Kim Meszaros]</i></p> <p>Working with suppliers to implement ergonomic guidelines. <i>[Claire Brisland]</i></p> <p>Ergonomic risk reduction working with an aging population. <i>[Claire Brisland]</i></p> <p>The Ergonomist's modern toolbox: lifting apps <i>[Rachel Mitchell]</i></p>	<p>PAPERS – Upper Extremities</p> <p>The relationship between manual arm strength and resultant shoulder moment. <i>[Nicholas La Delfa, Jim Potvin]</i></p> <p>A survey of right angle power tool use and associated postures in Canadian automotive assembly plants. <i>[Jeffrey Lidstone, Stephanie Balek, Joel Cort]</i></p> <p>Evaluating a novel tool design for the removal of chamber lids at an electrical utility company. <i>[Cale Templeton, Yass Sotoudeh-nia, Shan Lee, Mohammad Abdoli-Eramaki]</i></p> <p>Developing best practices for wrenching in variable work environments. <i>[Carrie Taylor, Wendy Lee]</i></p>	<p>SYMPOSIUM</p> <p>Understanding the impact of fatigue from a multi-disciplinary lens in occupational safety and health.</p> <p><i>Presenters: Sandra Dorman (physical exertion), Tammy Eger (chronic vibration exposure), Caleb Leduc (mental health & job stress), Alison Godwin (cognitive functioning).</i></p>
3:00 PM - 3:30 PM	BREAK & EXHIBITOR SHOWCASE (Regent)		
3:30 PM - 5:00 PM	<p>PAPERS – Lifting</p> <p>Rejected solutions on the way to a reject conveyor. <i>[Josie Blake, Carrie Taylor, Karen Hoodless, Shane Williston]</i></p> <p>Accuracy of a digital human model for the estimation of net l4/l5 spine moments during patient lifting tasks. <i>[Nadia Rego-Monteuil, Steve Fischer]</i></p> <p>Perceived affordances and kinematics for occupational lifting of children: Information for shaping a proactive ergonomic intervention amongst rural and urban childcare operators and workers. <i>[Jon Doan, Trishell Provost, Jarrod Blinch, Olu Awosoga]</i></p> <p>Manual material handling demands of disposal workers. <i>[Fred Fulton, Michelle Rae, Wayne Albert]</i></p>	<p>PAPERS – Tools/UX/Usability</p> <p>Integration of mobile office equipment into the Rapid Office Strain Assessment (ROSA). <i>[Michael Sonne, Robert Ward, Cory Thuy, David Andrews]</i></p> <p>UX meets physical ergonomics: designing a work-related pain app. <i>[Curtis VanderGriendt]</i></p> <p>Usability testing of the physical adjustment controls of a large touch-screen monitor sit-stand prototype. <i>[Cleyton Vieira de Vargas, Carolyn MacGregor]</i></p>	<p>UPDATES AND Q&A:</p> <p>Stairway Usability Safety: What ergonomists should know.</p> <p><i>Presenter: Jake Pauls.</i> <i>Moderator: Ian Noy</i></p>

Conference Sessions

TIME	DAY 3 – THURSDAY, OCTOBER 8, 2015		
8:30 AM – 9:00 AM	OPENING REMARKS (Salons A/B)		
9:00 AM – 10:00 AM	PLENARY John Baker (founder) and Paul Baker, D2L (Desire2Learn)		
10:00 AM – 10:30 AM	BREAK (Salons A/B/C foyer)		
	Salon A	Salon B	Salon C
10:30 AM – 12:00 PM	<p>HIGHLIGHTS</p> <p>Effects of driving and whole-body vibration on reaction times in truck drivers: Findings from a pilot study. <i>[Bronson Du, Pete Johnson, Hugh Davies, Philip Bigelow]</i></p> <p>Whole-body vibration (WBV) exposure: an investigation of driving method effect during railroad freight car inspection. <i>[Steve Fleming, George Page, Greg Weames]</i></p> <p>Linking head posture to line of sight measures for different helmet styles. <i>[Alison Godwin, Tammy Eger, Alexandria Tsimiklis]</i></p> <p>An investigation of predictive factors for posture selection during firefighting tasks. <i>[Tara Kajaks, Joy MacDermid]</i></p>	<p>PANEL & DISCUSSION</p> <p>Integrating Ergonomics / Human Factors into the design process: Successes, Failures and Challenges.</p> <p><i>Moderator: Patrick Neumann, Ph.D.</i></p> <p><i>Panelists: Margo Fraser, Kirsten Willms, Areta Lok, Carrie Taylor</i></p> <p>Panelists will provide overviews of experiences in integrating Ergonomics/HF into the design process. The discussion will then open to the floor to share experiences and discuss how to advance this issue in research and practice.</p>	<p>SYMPOSIUM</p> <p>Taking a Stand Against Sitting</p> <p><i>Presenters: Nicholas Niforos (The need to move), Brenda Mallat (How to change behaviour), Amy DuBreuil (RTW examples)</i></p> <p>Recently labelled as the <i>new smoking</i>, sitting consumes a large portion of our daily lives and unfortunately for many of us has become habit. This session will discuss the harmful effects of prolonged sitting, the difference between habitual and conscious movement and why breaking one's habit can often be more difficult than we think. The importance of creating dynamic work environments and modified work redesign tailored to each worker will be discussed from a return to work (RTW) perspective.</p> <p>This session combines the topics of prolonged sitting, difficulties in achieving change and the RTW strategies in a unique manner that is sure to generate discussion and enhance learning.</p>
12:00 PM - 1:30 PM	LUNCH – Student Awards and Conference Closing (Salons A/B)		

Notes

Delegate Social Events & Technical Tours

Although this conference will provide ergonomists and human factor professionals excellent educational and training opportunities, it will also offer many fun networking opportunities. We hope that you will be able to join us for the following:

ACE 2015 CONFERENCE WELCOME

Monday, October 5th from 7-10 pm

Planning on attending our workshops or arriving early for the conference? Please join us in the **Trader's Exchange Lounge, at the Waterloo Inn**, for an informal get together. It's a great time to catch up with old friends and colleagues, and to make new acquaintances! Early registration for the conference will also be available at that time. Cash bar available.

OPENING RECEPTION AND EXHIBITOR SHOWCASE

Tuesday, October 6th from 6-9 pm

After a great first day of conferencing and networking, relax and chat with our vendors in the **Regent room** (lower floor of the conference centre). This event, hosted by our vendors, includes appetizers and one free drink ticket for full conference delegates. Other participants may purchase a reception ticket via the conference registration page.

DELEGATE SOCIAL

Wednesday, October 7th from 6-11 pm

Join us at one of Waterloo's local micro-breweries for an evening of fun and networking. Located in the heart of uptown Waterloo, settle down at the **Lion Brewery (Huether Hotel)** with some food, friends, and one of 16 unique brews in a casual atmosphere featuring 5 Boston style pool tables and some retro gaming machines.

Cost: \$30 per person (includes use of pool tables and gaming machines, a wide selection of food, and transportation between the Waterloo Inn and the brewery). Tickets for this event can be purchased when you register online for the conference or at the registration desk during the conference.



Delegate Social Events & Technical Tours continued...

TECHNICAL TOUR - Toyota Motor Manufacturing, Thursday October 8th, 2pm

We are pleased to announce that we have secured a tour of the Cambridge Toyota Motor Manufacturing Canada (TMMC) facility for 2:00 p.m. on Thursday October 8, 2015, for our conference delegates!

The tour is approximately one hour in length and starts at the Visitor Centre and involves a motorized tram tour through South Weld and North Assembly, two of the most visually impressive shops. Our tour will be customized to include a focus on ergonomics, health and safety in the visitor centre prior to commencing the plant tour.

The tour can accommodate 48 people, so register early. Ticket registration will be available when you register early for the conference or during the conference for a cost of only \$5.00, which includes transportation between the Waterloo Inn and the Toyota Manufacturing facility.

Departure:

For those registered, the bus will leave the Waterloo Inn at 1:15 pm, returning after the tour.

Safety Rules:

Toyota Motor Manufacturing Canada is an active manufacturing facility. The safety of all those who enter the plant is the first priority. Along the tour, the trams will enter the Welding shop, where occasional welding sparks are present. While these sparks are not harmful, some fabrics are more easily flammable.

As a result, the following safety rules must be followed by all groups:

- No hats or scarves.
- No cameras.
- No cell phones, pagers, communication devices or mp3 players (Ipods).

Only natural fibres may be worn in the plant (wool, cotton, silk, linen etc.)

- No Polyester
- No Rayon
- No Acrylic
- No Synthetic fibre (micro fibre)

No shorts, skirts, tear-away pants, nylon pants or tops. All purses, bags, knapsacks must be left in Visitor Centre under lock & key. Safety glasses must be worn at all times. Arms and legs must be kept inside the tram at all times. No food or drinks allowed during the tour.

ACE Corporate Membership

ACE aims to promote ergonomics and to raise the standards of practice in ergonomics. Through our Corporate member program, we are building stronger links between ACE and private and public enterprise in pursuit of this mission.

Corporate members will be recognized as supporters of ergonomics in Canada. They will help ACE to achieve its goals and ACE will reciprocate with special Corporate member benefits. The program is a great step for both ACE and the field of ergonomics in Canada and we welcome the partnership opportunities it will provide!

Some of the advantages associated with Corporate membership include:

- Recognition as a supporter of ergonomics in Canada
- Visibility on the ACE Web site
- Access to the network of Canadian Ergonomists including professional consultants and researchers
- Access to national and regional conferences and workshops
- Member advertising rates for *Ergonomics Canada* magazine

For more information about Corporate membership, please contact the ACE National Office at 1-888-432-2223

Thank you to our corporate members for their support of ACE and ergonomics in Canada:

- The Global Group
- ergoCentric
- Ergotech
- Obus Forme
- Lifeform Furniture Manufacturing
- Entrac
- Trius Group of Companies

CCPE Certification Application Question & Answer session

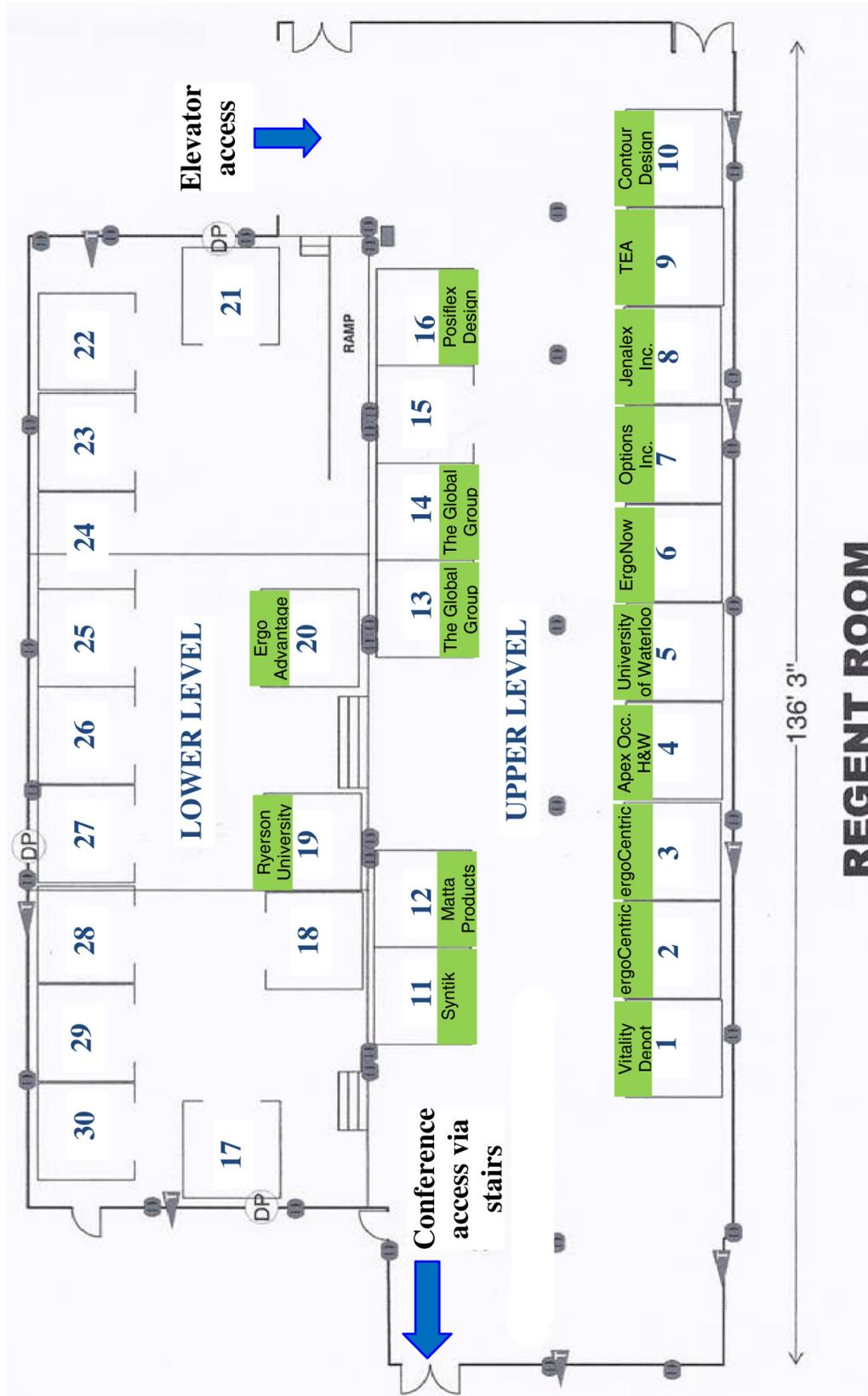
A special question and answer session on the professional certification (CCPE) application process will be held during lunch on Wednesday October 7, 2015 (12:15 pm to 1:15 pm). A separate table will be available for applicants to meet and have lunch with one or more CCCPE board members.

This session will allow potential applicants to ask questions about the specifics of the process and requirements, to assist them in completing their applications. Participants are encouraged to preview the application information available through the www.cccpe.ca web site in advance and to submit their questions ahead of time to info@cccpe.ca.

Cost: No Charge

Facilitators: CCCPE Board Members

Tradeshow floor layout — Regent room, lower level



Register on-line at www.ace-ergocanada.ca For information, call 1-888-432-2223 or 416-477-0914

Exhibitor Showcase

Join our exhibitor showcase!

ACE 2015 brings together a diverse and influential group of professionals from throughout North America whose common goal is to enhance the safety and effectiveness of people at work and at play. Involvement with this event provides high profile exposure for your people, your products and your organization. Contact info@ace-ergocanada.ca for more information!

The logo for ergoCentric, featuring the word "ergoCentric" in a blue, sans-serif font. The "C" in "Centric" is significantly larger and more prominent than the other letters.

ergoCentric

ergoCentric Seating Systems is a Privately Owned Canadian Company, with over 25 years in quality seating manufacturing. Our main focus is on health and productivity, while producing unique and modular chair designs and features. Working closely with ergonomists and health practitioners to continuously improve and refine our chair designs, ergoCentric Seating Systems offers a wide range of aesthetically pleasing task, executive, guest and stackable seating for the office environment.

www.ergocentric.com

ACE Corporate Member

Platinum Conference Sponsor



The Global Group

We believe ergonomics is an integral part of a successful workplace.

- Designing products that fit.
- Educating the architect and design community about the importance of sound ergonomics in the work place.
- Service ACE members as an ergonomic resource.
- Continuing to support ACE as the longest standing Corporate Member.
- Leadership in the development of office-related standards and guidelines.

www.globaltotaloffice.com

ACE Corporate Member

Silver Conference Sponsor

The logo for SYNETIK, featuring a stylized blue and white graphic of a person or a chair on the left, followed by the word "SYNETIK" in a bold, blue, sans-serif font. Below it, the tagline "THE ERGONOMIC SOLUTION" is written in a smaller, blue, sans-serif font.

Synetik

Founded in 2004 in Joliette, Synetik specializes in design of ergonomic equipment such as industrial and welding stools as well as industrial mat. In addition, our multi-disciplinary team is at your disposal to create your custom projects. Thanks to our innovative solutions, your workers' health and productivity will be an asset to your business.

www.synetik-di.com

ACE Corporate Member

The logo for Contour Designs, featuring the word "contour" in a black, lowercase, sans-serif font. To the right of the word is a red square with a white, stylized shape inside that resembles a mouse or a hand.

Contour Designs

Contour Design has specialized in manufacturing ergonomic input devices since 1995. Our core philosophy is to continue to provide evolutionary products that allow computer users to work on their computers for extended periods of time without the risk of physical pain or injury. Our RollerMouse products help eliminate the need to grip, or reach for, the mouse. Visit our booth to experience unrivaled comfort, control, and pinpoint accuracy with RollerMouse Red; an innovative, ergonomic mouse that sits in front of the keyboard allowing users to stay in the optimal work zone with relaxed hands and a neutral wrist posture.

www.contourdesign.com



Matta Products

Matta Products North America, Inc. has built a solid reputation based on our unique, and award winning "Compression Column" design. This, combined with a manufacturing process using recycled plastic that was destined for landfill sites, produced a high quality ergonomic and environmentally friendly product.

WorkMatta is a modular tile system that offers a variety of surface options which address safety and comfort concerns in today's workplace. From welding applications or oily areas, to static sensitive environments, WorkMatta provides a remedy that can be configured to meet your specific needs while delivering years of wear.

Matta Products has also partnered with Synetik Design to provide the very best in ergonomic seating solutions for use within industrial and commercial settings.
www.workmatta.com



Posiflex Design

Posiflex Design is an innovative company dedicated in the creation of ergonomic solutions and the prevention of musculoskeletal disorders for a majority of workers in many fields such as; laboratories, dental, beauty and industrial. Since 2002, supported by the science of ergonomics, innovation and development are still what drive us to create products like a Sit/Stand stool, specialty chairs and Free Motion elbow supports for all precision work including our new antistatic (ESD) version for the electronic field. While developing new products and business opportunities for our partners our goal remain: To reduce stress, increase productivity and safety for workers.

www.posiflexdesign.com



Vitality Depot

The Canadian owned Vitality Depot has become a leading provider to healthcare professionals across Canada by introducing truly innovative products like the Posture Medic and ErgoBack. We are committed to providing everyday reliable value while still offering unsurpassed customer service. Vitality Depot is dedicated to partnering with you today for a better tomorrow.

www.vitalitydepot.ca



University of Waterloo – Cooperative Education

Recruit skilled talent to meet your unique business needs. University of Waterloo co-op and graduating students and alumni from over 140 programs are equipped with experience to contribute to your organization's success. Waterloo is one of Canada's leading comprehensive universities, with over 35,000 students in undergraduate, masters, and doctoral programs.

www.uwaterloo.ca/ceca

Exhibitor Showcase cont...



Ergo Advantage

Ergo Advantage modular matting has the best warranty on the market. The 20 year warranty protects against wear, edges curling and connections staying together. The leg structure found on the underside of the mat distributes your weight evenly throughout the tile decreasing the fatigue of carrying your own body weight. This leg structure also allows you to run cords, wires and air hose through the underside of the mat, eliminating trip hazards while providing an anti-fatigue flooring system. The color options and modularity will enhance your 5S and 6S programs. The ESD and grit tiles will keep your employees safe from slips, and shocks while protecting your equipment and decreasing maintenance. If you are purchasing matting for your facility, this is a product that deserves consideration

www.ergoconceptsinc.com

Options Incorporated

Options Incorporated is a consulting company that provides comprehensive services in the areas of Ergonomics and Human Factors. We work with clients of all sizes to assemble solutions that improve the work environment with the goal to prevent injuries and increase productivity.

Our team excels in merging our skills and experience with corporate cultures and existing systems to enhance and support musculoskeletal disorder (MSD) prevention programs. With consulting experience across automotive assembly, manufacturing, office, technology, steel, and nuclear domains, we are able to pair knowledgeable and experienced consultants to best support your needs and work environment.

Although we customize our services to best meet our client's needs, we have standard and proven areas of services that we build from. Please drop by our booth to discuss how Options Incorporated can assemble a solution for your ergonomic challenge.

www.oiweb.com



Jenalex Ergonomic Products

Jenalex is a distributor / manufacturer of unique ergonomic lifting devices, IP65 certified, waterproof, clean room lift trolleys, battery operated lift assists, roll handling stackers.

- Tawi/ Protema Lift trolleys - lightweight and easy to use
- Easy-Squeeze tipping and turning devices for handling rolls, drums, pails, electronic parts, valves etc.
- The patented Quick-Lift Systems consists of a unique hinged arm powered by an electric lift motor. The Quick-Lift Systems is a truly ergonomic lift assist with custom designed grippers. Quick-Lift handle feels the hands movements and boosts the lifting power. Every component of the Quick-Lift systems has been designed to improve productivity and decrease the risk of injury. Every Quick-Lift and gripper are optimized to the application and how it can be handled, lifted, moved, twisted or turned.

Give Your Staff a Lift

www.jenalex.ca



Exhibitor Showcase cont...



TEA – Technologie Ergonomie Applications

TEA develops analysis tools in cooperation with INRS for workplace analysis, ergonomics assessment, biomechanics, human motion and eyetracking: - CAPTIV-L2100 software for video-based Task Analysis, - CAPTIV-L7000 system: complete range of fully wireless sensors for unobtrusive data collection (ECG, EMG, force, 3D motion and angles, etc) with recording on tetherless portable datalogger or via real-time receivers. - FOVIO remote eyetracker and Dikablis Glasses eyetracker. Visit us on our booth and at www.teaergo.com



APEX Occupation Health and Wellness

Apex is your trusted advisor for occupational health and wellness, offering knowledge-based medical and regulatory guidance and a full spectrum of high-quality employee health solutions. Working closely with clients, Apex designs and delivers services that integrate easily into company operations, engage employees for increased program participation, and provide a cost-effective return on your health and wellness investment. www.apexocc.com



Ergonow

Ergonow is Ontario's source for Ergonomic Office Products. Sue Brunet, CCPE, is a Ergonomic Consultant and Product Specialist. Please contact Sue and her team with any inquiries. We are a great resource! www.ergonow.com

RYERSON
UNIVERSITY

School of Occupational and
Public Health

Ryerson University Lifting Study

The Occupational Biomechanics, Ergonomics, and Injury Prevention Lab at Ryerson University is conducting a lifting study at the ACE conference 2015 in order to determine the best/effective lifting style and techniques used by trainers in Canada. The study investigates the difference between the perceived notions of a proper lifting techniques versus what is actually performed. The results of this study when compared with previous collected data help to examine the efficacy of lifting education taught in workplaces and its effectiveness in producing the safe lifting behavior. www.ryerson.ca

Notes

Visit Waterloo!

COME TO LEARN, BUT STAY TO PLAY!

The Kitchener-Waterloo-Cambridge area provides a wealth of activities for our delegates and their families to do outside conference hours (<http://www.explorewaterlooregion.com>). Our committee has highlighted a few places below that you must check out!

1. St. Jacobs Farmers' Market

Experience Canada's largest year-round farmer's market! Every week, 100s of vendors bring you Ontario's farm-fresh foods, crafts, imported goods and amazing ready-to-eat foods. Come to support our local farmers ranging from cheese to woodworking you'll be sure to find something to capture your interest. Open: Thursday and Saturday: 7 am - 3:30 pm. More information can be found at: <http://www.stjacobs.com/farmers-market>

2. St. Jacobs Outlets & the Village of St. Jacobs

Outlet stores near the market allow you to shop for brand names at a fraction of the cost. The outlet stores are open year-round until 9 p.m.

While in the area, also visit the quaint historical Village of St. Jacobs. Nestled next to the Conestoga River, the village provides opportunities to shop for original arts, crafts, home décor, jewellery, toys, etc. <http://www.stjacobs.com>

3. Victoria Park is a breath of fresh air in the heart of downtown Kitchener.

Providing a tranquil walk and environment, visitors can explore its many features. Get your daily exercise with the basketball courts or fill your belly with the Boathouse restaurant. More information about Victoria Park can be found at: <http://www.kitchener.ca/en/livinginkitchener/VictoriaPark.asp>

4. Ergofest meets Oktoberfest!

Kitchener is known for its involvement in a variety of Oktoberfest Events and festivities. Hosting 49 events, Kitchener Oktoberfest has something to please everyone! Stay in city for some of the festivities! <http://www.oktoberfest.ca>

5. Cambridge Butterfly Conservatory.

Check out the thousands of butterflies, insects and birds in their indoor tropical garden, complete with waterfalls and streams! Café available onsite. Open daily from 10 am to 5 pm. <http://www.cambridgebutterfly.com>

6. The Canadian Clay & Glass Gallery exhibits a variety of beautiful silica, ceramic, glass, and enamel artwork. In addition, the gift shop allows you to purchase from some of the Canadian artists featured in the gallery. Hours: Monday-Friday: 11 am to 6 pm, Saturday: 10 am to 5 pm, and Sunday: 1 to 5 pm <http://www.theclayandglass.ca>

Conference Sponsors

We would like to thank all of our sponsors for their interest and support in ACE and the 2015 conference.

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Association of Canadian Ergonomists
Association Canadienne d'Ergonomie

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