BOARD OF CERTIFICATION IN PROFESSIONAL ERGONOMICS

THE PROFESSIONAL ERGONOMIST

The Newsletter of the BCPE

Board of Certification in Professional Ergonomics • P.O. Box 2811 • Bellingham • Washington • USA • 98227-2811
Phone (888) 856-4685 • Fax (866) 266-8003 • e-mail: bcpehq@bcpe.org • http://www.bcpe.org

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A Shield in Challenging Times

Christopher Hamrick, MSIE, CPE
President, BCPE

I'm sure you're familiar with the BCPE logo. (If not, just look at the top of this page!) But have you ever stopped to ponder why it's shaped like it is? To be honest, I hadn't really given it much thought until recently. But that shape is no accident. The logo was purposefully designed to convey the concept that certification through the BCPE serves as a shield of protection.

In ancient times, the shield protected its user from arrows and other objects meant to do harm. I sincerely hope you aren't being bombarded by physical objects, but there are other situations in our modern world that warrant the need for protection. If you've caught even a glimpse of the news lately, you know that there are a lot of arrows flying. Even though these arrows are metaphorical, they can still be damaging nonetheless. The BCPE shield can help offer protection.

Most of us became certified out of our own self-interests; we want to be recognized in our field, and some of us even get a career boost in the process. I sincerely believe that the BCPE provides great *value* to certificate holders. In addition to providing *value* to certificate holders, one of the BCPE's main duties is to protect the public. (See the BCPE mission statement at http://bcpe.org/about/about.asp?i=18.) The BCPE "shield" protects the public by ensuring certificate holders have met a certain level of competence. The public – including employers, clients, and their customers – can then be given a level of assurance that the work performed by the certified ergonomist / human factors professional is conducted in a technically competent, ethical manner.

Furthermore, the BCPE's certification process recognizes that good design uses a systems approach which incorporates multiple elements. We all know examples of bad designs; a design which fails to incorporate ergonomics / human factors principles can result in a minor nuisance or it can be catastrophic. How many of those bad designs could have been prevented with input from a qualified ergonomics / human factors professional? How many lives could have been impacted for the better? So, in addition to giving those who hire ergonomics / human factors professionals confidence, the public is also offered protection – even though they may not have even heard of the word "ergonomics" before!

Some time ago (see *The Professional Ergonomist*, Volume XII, No. 1), BCPE President Sue Evans, PhD, CPE put forth the theme of the "Three V's" -- *value, visibility,* and *viability* as principles to help protect the public and serve certificate holders. A little later (*The Professional Ergonomist*, Volume XV, No. 1), BCPE President Peter Budnick, PhD, CPE added a fourth V – "*Validity*". These themes are as pertinent now as they were then. The BCPE has been busy of late ensuring these Four V's as indicators of the BCPE's success so that we can continue to be the premier ergonomics / human factors certifying body in the world. I'm sure you're aware of some of these efforts.

One factor that has been driving these activities is to ensure that the BCPE complies with the principles set forth by the National Organization for Competency Assurance (NOCA). In addition, it has been a long-term goal to achieve accreditation by the National Commission for Certifying Agencies (NCCA). (For more information, see www.noca.org.)

In fact, it is my pleasure to state that as a result of years of dedication by Kris Rightmire, Karel Jahns, and a host of BCPE directors and volunteers, the goal of NCCA accreditation has been reached! (See the announcement of this momentous milestone in this issue of *The Professional Ergonomist*.) This accreditation distinguishes the professional "certifications" from the "certificates" given by other organizations by ensuring that we meet a specific set of standards. The BCPE's continued *value* to certificate holders and the public is demonstrating we meet or exceed these standards, thereby signifying that the BCPE is *the* premier ergonomics / human factors certifying body.

One change to help us meet NCCA standards is the Continuance of Certification process (CoC). This process helps set BCPE apart by ensuring that certificate holders engage in lifelong learning – a necessary condition for professional competence in any field. Although this process does require some documentation, I am confident that the increased *value* to certificate holders is well worth the effort. (Each BCPE director has submitted their CoC, and from personal experience I can relate it's not as difficult as I imagined!)

(continued on page 2)

A Shield in Challenging Times

(continued from page 1)

Another change is the addition of a new BCPE director position: "Director at Large". David M. Copley, BEE was elected to be the first to fill this position, which is the only one not filled by a certificate holder. Rather, Mr. Copley is a member of the public which has a vested interest in ensuring that the "shield" remains strong. Because of this interest, he is able to offer a unique perspective, and he provides valuable insight and contributions to the Board as decisions regarding the BCPE's *value* are made.

You may have also heard about BCPE's recent addition of a "Certified User Experience Professional" (CUXP) designation. This designation is an option that can by chosen by a certificate holder once all certification criteria have been met. These criteria are the same as those required to achieve the CPE or CHFP designation. This designation was created from the recognition that many in our field consider themselves as practitioners of "user experience" rather than of "ergonomics" or "human factors". So, in order to remain current with the times and, consequently, the BCPE recognized that many of those who practice within the Ergonomist Formation Model (EFM) use the term "user experience" to describe the field. It was recognized that although the fundamental canon of knowledge remains the same for all three designations, certain industries or applications may use different terminology to describe what we do. So, in keeping with the times, the BCPE created the new designation as recognition of the changing vocabulary in the field. By doing so, we welcome a group of professionals into our fold and remain a *viable* organization.

These are exciting times in the field and in BCPE, and there will undoubtedly be more changes coming. Rest assured, these changes are all consistent with the Four V's – *value, visibility, viability,* and *validity*. As the challenges brought by modern times continue to present themselves, we believe certification by the BCPE will continue to provide a shield of protection to the public and to certificate holders.

CPE/CHFP Program Earns NCCA Accreditation

The BCPE is proud to announce the recent accreditation of the CPE/CHFP certification program by the National Commission for Certifying Agencies (NCCA).

The BCPE has requested this recognition be extended to the recently instituted CUXP designation based on its equivalency to the CPE and CHFP credentials.

The NCCA has been accrediting certifying programs since 1977 incorporating the highest quality standards in professional certification to ensure programs adhere to standard practices within the certification industry.

"This milestone is a culmination of years of hard work and dedication by all directors, staff and volunteers, each of whom has been instrumental in BCPE's success. This achievement would not be possible without everyone's contribution and speaks to the integrity and professionalism on which BCPE was founded while enhancing the viability and credibility of BCPE certification" said BCPE President, Chris Hamrick, CPE.

This prestigious accreditation was awarded after extensive documentation and a thorough evaluation of BCPE's policies, practices and procedures to demonstrate compliance with the NCCA's *Standards for the Accreditation of Certification Programs*. To view these standards visit http://www.noca.org/ncca.

BCPE is one of 234 programs accredited by the NCCA. The accreditation is good for a five-year period and requires ongoing compliance to maintain accreditation status.

Meet Our New Directors

David Brodie, MS, CPE

New Director
David Brodie, MS, CPE

David Brodie is director of ergonomics services for Atlas Ergonomics. Brodie, a Certified Professional Ergonomist with a Masters of Science in Kinesiology from the University of Waterloo, has been working in the field of ergonomics for nearly 17 years. Prior to his current position with Atlas, David was the director of consulting at the Ergonomics Center of North Carolina, and a Provincial Ergonomist with the Workplace Safety and Health branch of Manitoba Labour where he led the development of a provincial guideline on ergonomics.

David has worked for corporate clients throughout North America, including work in office, industrial, meat processing, transportation, and healthcare settings. David is currently the Vice Chairperson for the Ergonomics Branch of Industrial Hygiene Specialty Group, a practice specialty of the American Society of Safety Engineers (ASSE), and a Director on the Board of Certification in Professional Ergonomics (BCPE).

David Copley, BEE

New Director
David Copley, BEE

David Copley brings over 40 years field and management experience from the construction and facilities services industries. David started with N.G. Bailey the largest electrical contractor in the UK, followed by a 25-year career with Johnson Controls where he worked in a variety of roles in the UK, Europe, Middle East and the USA.

In 1998 David joined EMCOR Group, Inc. the largest specialty construction and services group in the USA. As Vice President Safety and Quality Management since 2003, David has implemented several innovative initiatives, which have resulted in EMCOR significantly outperforming the industry with a safety record nearly three times better than the national average. In addition, David has also led a unique productivity improvement strategy, contributing to EMCOR's record financial performance. This history of excellent safety, quality and productivity performance is in part why EMCOR was recently named by *FORTUNE* and *FORBES* magazine's as the "Most Admired" and "Best Managed" company in the construction and engineering industry.

David is trained in electrical engineering, with a degree

(continued on page 3)

Meet Our New Directors

(continued from page 2)

from Leeds College of Engineering & Science, England. He is a member of the chartered quality institute (UK) and is active in safety and quality institutions in the US and UK.

Elaine Wisniewski, MSE, CPE

Elaine Wisniewski has been working in the human factors/ergonomics field for over 10 years. She is currently employed at Applied Safety and Ergonomics, Inc. (ASE) in Ann Arbor, Michigan. In her role as a consultant with ASE, she participates in research, development, and evaluation of safety communication such as warnings, instructions, symbols and graphics, owner's manuals, and other safety-related publications. She is also involved in the firm's litigation services where she participates on a variety of projects involving human factors, ergonomics, and warnings.

New Director Elaine Wisniewski, MSE, CPE

She has two masters degrees, one in Industrial and Operations Engineering from the University of Michigan and another in Technical Communication from Eastern Michigan University. She is a member of the Human Factors and Ergonomics Society (HFES) where she is a member of the Safety, Product Design, and Forensics technical groups. She is also a member of the Society for Technical Communication (STC) where she is a member of the Academic group and the Illustrators and Visual Designers group. She is also a Certified Product Safety Manager (CPSM).

BCPE Adds New Designation: Certified User Experience Professional (CUXP)

James M. Kondziela, PhD, CUXP

There is a new option for you.

If you are a CPE or CHFP, you can now change your designation to **CUXP**, "**Certified User Experience Professional**." And if you are an AEP or AHFP, you may now change your designation to **AUXP**, "**Associate User Experience Professional**."

All that's required is (1) contacting the BCPE Office by letter, email, or phone and (2) paying by check or credit card the $25 administrative fee to update our records and issue a new certificate. Once complete, your new designation, CUXP or AUXP, will be displayed by your name on the www.bcpe.org website. The BCPE has *no limit* on the number of times you can change your designation, so, if you change your mind in the future, you may return to the CPE or CHFP at any time. The only rule is that you may have *only one* designation at a time; for example, you may not display your name with *both* the CUXP and CPE designations after it.

Most importantly, the BCPE has established that *the CUXP is completely equivalent in all respects to the CPE and CHFP*, and that *the AUXP is completely equivalent in all respects to the AEP and AHFP*. In other words, exactly the same rules and privileges apply to the CUXP and AUXP as exist for the CPE/CHFP and AEP/AHFP: same application, same test, same policies and procedures.

The new CUXP and AUXP designations were added as options for certificate holders at the last Board of Directors meeting, by formal motion and vote of the Board. The Board had been carefully considering this change for more than a year. The Board concluded the "User Experience" title had clearly and unequivocally emerged as an accepted and equivalent title for our certificate holders. For example, a search in monster.com yielded the following results:

Search Keyword	Job Listing
Ergonomics	338
Ergonomist	1
Human factors	743
Human factors engineering	161
Usability	2,045
User interface	4,348
User experience	8,480

*monster.com search results 5/5/08

The intent of the Board is to (1) formally recognize *User Experience* as an additional and equivalent title to *Ergonomics* and *Human Factors* for certification and (2) add real, tangible value to certification by providing certificate holders with this additional designation option throughout their professional lives.

Several BCPE Directors—including past President Arnie Lund of Microsoft—have already enthusiastically adopted the new CUXP designation for themselves.

Father/Son CPEs in the Spotlight

BCPE Editor

The Gilbreth's may have started the first family tag team in the ergonomics profession, but they certainly weren't the last. We are sure this historic duo would be impressed in modern times by the number of related individuals who are BCPE certified in the ergonomics and human factors profession. There have been four father/son teams, three husband/wife duos and one brother/sister and one sister combo whom we know about among our certified professionals. We will highlight one such team in our latest Spotlight Series.

Our first feature is Dr. Harvey Cohen **(HC)** and his son Dr. Joseph Cohen **(JC)** who work together in San Diego, CA based Error Analysis Inc. a human factors expert group providing consulting and expert witness services to attorneys, insurance companies, government, and businesses. Both hold the CPE designation.

BCPE: Harvey, your biography states that you have investigated over 7,500 accidents. How many of those involved Joe as a child?
HC: (laughs) These were all professional, but I do remember quite a few incidents involving surfing and skateboards.
JC: (laughs) Yes, I remember a few of those.
BCPE: Harvey, this has been your profession for a number of years, when did Joe get involved?
HC: Joe was interested in this profession from a very

(continued on page 4)

Father/Son CPEs in the Spotlight

(continued from page 3)

young age. At 10, Joe would come to job sites with me. He saw the accident investigation process and really grew up with it.
BCPE: Joe, do you remember it like that?
JC: Yes, but I took a different route coming in from a business perspective. I put my own twist on things. In working together we combine our backgrounds and interests very well.
BCPE: Is there a favorite project that you have collaborated on?
JC: We have been working on warning labels regarding the risk of spontaneous combustion. This is particularly meaningful to me because when I was a child we lost our home in a fire.
HC: Joe was away at the time. If he had been in the house we may have lost him. Now we have the opportunity to improve a system that can save another family from loss.
BCPE: Does your professional life spill into your personal life?
JC: Well, I have a 1 year old and I can say that we have thoroughly reviewed home childproofing systems and we are very up to date on baby/toddler product recalls. I also put good ergonomics principles to work when designing the nursery. I want to make sure there is no risk of strain for me while changing diapers and that I get through that task as quickly and efficiently as possible!
BCPE: How long have you worked together and what is the best part?
HC: About 10 years. We enjoy each other's company and can't think of anyone I would rather work with every day.
JC: Working in a business environment forces you to talk about issues or the business suffers. Working together actually forces more communication so I think our personal and business relationships are better for it.
BCPE: Gentlemen, thank you!

Harvey Cohen, PhD, CPE and Joe Cohen, PhD, CPE work side-by-side at Error Analysis, Inc.

EFM Revision Process Completed. Next Step: Exam Revision

Marvin J. Dainoff, PhD, CPE
Chair, Examination Committee

The Ergonomist Formation Model (EFM) is the core document defining our profession. Five years ago, we decided that it was necessary to update the EFM and bring it into correspondence with where the field is today. We set up a panel of senior certificate holders with whom we designed a systematic procedure to move from the existing EFM to a new one. Once this was accomplished, we worked with CASTLE Worldwide, a professional psychometric consulting firm, to design a survey methodology, which presented the revised EFM to a sample of certificate holders. Each respondent was asked to assess the importance, criticality, and frequency of each component of the revised EFM. The tabled results of the EFM survey can be found on page 11. What you will see is the content of the revised EFM along with weightings derived from the survey responses. This document is our final roadmap for designing a new examination. This design process is now underway. The weightings refer to the proportion of test items out of the total linked to each section and subsection of the EFM.

It is important to emphasize that we have a single revised EFM which replaces the original document, and that certification implies some degree of expertise in all the areas described. Thus, whether one's title reads Certified Profession Ergonomist (CPE), Certified Human Factors Professional (CHFP), or Certified User Experience Professional (CUXP) –the new designation recently approved by the Directors—the governing document and core set of requirements is the same. Thus, certificate holders who currently chose to identify themselves as CUXP have met exactly the same requirements as those with the CPE or CHFP.

Certification of Professional Ergonomists – Panel Session for International Ergonomics Association (IEA) 17th World Congress

Thomas J. Smith, PhD, CHFP
Chair, International Ergonomics Association Professional Standards and Education Standing Committee Research Associate, School of Kinesiology, University of Minnesota

A panel session has been organized for the IEA 17th World Congress (scheduled to convene in Beijing, China in August, 2009) dealing with the topic of certification of professional ergonomists. The purpose of the session is to address: (1) the current status of professional ergonomist certification programs from an international perspective, as promulgated in a number of different countries; (2) experience of selected certification programs with the IEA certifying body accreditation process; (3) future prospects for new bodies responsible for professional ergonomist certification; and (4) a discussion of possible need and options for revisions/improvements to the IEA certifying body accreditation process, that likely would improve the usability and credibility of the IEA accreditation system.

Discussants for the session all are highly qualified to address the "who", "why", and "how" of the professional ergonomist certification process. Thomas Smith (organizer and Chair for the session) is current Chair of the IEA Professional Standards and Education Standing Committee (PSE). One of the responsibilities of this committee is to accredit professional ergonomist certifying bodies worldwide who choose to apply for such IEA endorsement. Kazuo Aoki is current Chair of the Japan Ergonomics Society (JES) Committee on Certification

(continued on page 5)

Certification of Professional Ergonomists

(continued from page 4)

of Professional Ergonomists. Peter Budnick is a former President of the Board of Certification in Professional Ergonomics (BCPE) in the USA, and President and CEO of Ergoweb Inc., an internationally recognized online resource for ergonomics news and information. Ernst Koningsveld is current President of the Centre for Registration of European Ergonomists (CREE), a certifying body that serves ergonomics/human factors (E/HF) societies in 17 different western European countries. The BCPE, CREE, and JES all have received IEA accreditation. Marcelo Soares is current Chair of the IEA International Development Standing Committee, and General Chair for the 18th IEA World Congress, that will convene in 2012 in Recife, Brazil. Mr. Soares comments address the challenges facing a relatively new certifying body preparing to apply for IEA accreditation.

Of the professional ergonomist certifying bodies currently in place worldwide, two are in the USA (the BCPE and the Oxford Research Institute [ORI]), and the others are in Australia, Brazil, Canada, Japan, New Zealand, and Western Europe. The certifying bodies in Australia, Brazil, Canada, and Japan are directly associated with the E/HF professional societies in those countries. In the USA, the BCPE and ORI are independent of the Human Factors and Ergonomics Society (the professional E/HF society in the USA). As noted above, CREE serves the E/HF community in Western Europe.

Across these eight certifying bodies, a total of: (1) 3,403 professional ergonomists have been certified worldwide, throughout the history of professional ergonomist certification systems and (2) 2,640 professional ergonomists currently are registered with the different certifying bodies. In terms of certifications processed, the BCPE and the ORI in the USA, and CREE in Western Europe, have certified the greatest number of professional ergonomists.

Relative to many other professional disciplines, such as law or medicine, the per capita level of registered professional ergonomists in different countries is comparably much lower. Yet we should view the low ratio for our profession, not as a source of discouragement, but rather as a benchmark with which to measure our success in further penetrating different realms of world societies in the years to come.

Since the turn of the millennium, the IEA has promulgated a series of eight basic documents dealing with core competencies for professional ergonomists, guidelines for professional ergonomist certification, and the IEA accreditation process for certifying bodies. These documents may be accessed at: IEA>About IEA>Standing Committees>Professional Standards and Education Committee. To assist certifying bodies in navigating through these documents and preparing documentation in support of their application for IEA accreditation, the Chair of this session has prepared a compliance checklist. This checklist may be accessed at: http://www.iea.cc/upload/IEAPSE_AccreditationChecklist.pdf and contains 42 specifications that should be satisfied by a professional ergonomist certifying body for IEA accreditation.

In summary, there is growing awareness worldwide of the need for quality assurance methods and procedures regarding the training and credentials of professional ergonomists. This awareness has led to the emergence of eight certifying bodies to date, in different countries or regions that have assumed responsibility for certifying the credentials and core competencies of professional ergonomists. These efforts have obvious parallels with well-established certification systems in other professional disciplines, and it is almost certain that additional professional ergonomist certification systems will emerge in the future. The IEA certifying body accreditation service---the only such service currently available within the E/HF discipline---attempts to apply common specifications and criteria of quality assurance to the certification process employed by different certifying bodies.

Foundation for Professional Ergonomics Update

Valerie J. Rice, PhD, CPE
President, FPE

The Foundation for Professional Ergonomics (FPE) was founded by a group of senior ergonomists who formally were BCPE Directors including five past Presidents. The purpose of this independent foundation is to promote professionalism in ergonomics, which was of particular interest to Mr. Dieter Jahns, one of the primary founders of BCPE.

There are eight members on the FPE Board of Directors, including a liaison provided by the BCPE currently held by Dr. James Kondziela, PhD, CUXP. The FPE is in the process of adding a ninth member to its Board of Directors.

This year FPE activities have focused on three primary areas: Ergonomists Without Borders (EWB), student mentoring, and preparatory courses for the BCPE exam.

Ergonomists Without Borders: Two years ago, the FPE joined with the International Ergonomics Association (IEA) in offering professional consultant services to ergonomics societies and other groups in industrially developing countries (IDCs). Communicating with ergonomists in IDCs, the IEA creates an awareness of these services and disseminates information on how to access them. Hal Hendrick, PhD, CPE oversees the FPE's involvement in Ergonomists Without Borders (EWB) and the program was conceived as a result of his earlier work in IDCs. The FPE offers its services in three ways. First, when information or advice is requested from an ergonomist or ergonomics group in an IDC, the FPE will identify one or more experts in the area of the request and put that expert(s) in contact with the requesting party. Information or advice is provided at no cost to the requester. The request can range from resource information or advice on a technical or professional issue to ways of making their ergonomics society more effective. Second, if the request is for an expert to conduct a seminar or workshop on some particular ergonomics topic, the FPE will assist in identifying an expert in the area who would be willing to come to the IDC and provide the seminar or workshop at no cost other than travel/living expenses (assuming there is no other source to cover the expenses). Third, through a project committee headed by Greg Cresswell, BSc, AEP, the FPE will seek out and offer professional ergonomics assistance

(continued on page 6)

Foundation for Professional Ergonomics

(continued from page 5)

to development projects in IDCs. This is a new initiative of the Ergonomists Without Borders program.

Work conducted within the first two initiatives has involved providing resource information and expert consultancy, and in identifying keynote speakers and workshop instructors for ergonomics professional meetings. As noted, the third initiative is relatively new, but a web site is under development, as are plans to use other electronic media to make IDCs and development agencies more aware of the EWB program.

Anyone in an IDC requesting either of the above-described services should contact Hal Hendrick at hhendrick@aol.com. Hal is a past President of both the IEA and FPE, and currently heads this joint IEA-FPE project. Experts wishing to volunteer their services at no cost are encouraged to contact Hal as well. In contacting Hal, be sure to indicate your primary area(s) of ergonomics expertise.

Student Mentoring: Bob Smillie, PhD, CPE heads the Awards and Recognition Committee which has focused on establishing an FPE sponsored Intern Program which exposes interns to experiences in accordance with the various components of the Ergonomist Formation Model. These students are not necessarily human factors students, but may be students in psychology, engineering or other related fields. It is hoped the internship exposure will encourage them to pursue a career as (or further education towards becoming) an ergonomics practitioner. The first enactment of the program began with Pacific Science and Engineering, with the plan to expand this program to other companies. The BCPE recognizes the efforts of FPE in promoting the Student Mentoring/Internship Program and encourages the participants to pursue a career in ergonomics and to consider BCPE certification. Anyone interested in becoming involved with the student mentoring program should contact Bob Smillie at robert.smillie@navy.mil.

Preparatory Classes for the BCPE Exam: Each year a preparatory class is offered at the Applied Ergonomics Conference. This course first began with a three-hour class several years ago – taught by Hal Hendrick. Four years ago, Valerie Rice, PhD, CPE began teaching the course. After a year, it was modified into a four-hour course, and this year it was offered as an eight-hour course. The class for 2009 was small (eight attendees), but rated well in terms of meeting attendee needs (3.3 out of 4.0), rating the speaker (4.7 on a 5.0 scale), and recommending the course for others (100%). Anyone interested in this course should contact Valerie Rice at valerie.rice@amedd.army.mil.

The FPE is also engaged in reviewing an on-line preparatory course. The developers of this course asked FPE for a review and potential endorsement. The course is aimed at preparing ergonomists for taking the BCPE certification exam, but also can potentially serve as a good comprehensive refresher course for any ergonomist. This review is being performed under the direction of Hal Hendrick; please contact him if you have questions at hhendrick@aol.com.

From BCPE Headquarters

2008 Application and Examination Information

Applicants for BCPE certification must meet specific education and work experience requirements to qualify for the written examination. Last year, 133 applications were received by the BCPE: 71 CPE [CHFP] portfolio review applications, 15 CPE [CHFP] applications, 9 AEP [AHFP] to CPE [CHFP] applications, 15 AEP [AHFP] applications, 13 CEA applications and 10 incomplete applications.

Certification is awarded when a candidate successfully passes the written examination for designation as a CPE [CHFP], AEP [AHFP], or CEA. A summary of candidates' exam performance for 2008 appears below.

Examination	# Examinees	# Passed	% Passed
CPE/CHFP	19	18	95%
AEP/AHFP to CPE/CHFP	12	12	100%
AEP/AHFP	11	6	55%
CEA	11	5	45%

BCPE Financial Report 2008

REVENUE	
Application CPE/CHFP	$ 33,575
Application AEP/AHFP	2,600
Application CEA	2,950
Maintenance Fees	129,822
Sponsorship Donations	15,500
Late Fees	1,559
Job Bank	3,720
Interest	3,590
Miscellaneous	911
Exam Retake Fees	400
Total Revenue	**$194,627**
EXPENSES	
Salaries	$66,032
Payroll Expenses	6,961
Med. Insurance	5,338
Utilities	1,200
Telephone/Fax/Internet	2,454
Hard/Software Main/Repair	837
Casualty/Property Insurance	317
Equipment Rental/Lease	525
Office Supplies	1,306
Postage/Shipping	1,076
Copying/Printing	284
HQ Staff Travel	6,316
Business Meetings	6,023
Networking Reception	5,224
Dues/Subscriptions/Fees (NOCA, PO Box, Intuit)	2,131

(continued on page 7)

BCPE Financial Report

(continued from page 6)

Professional Consultants	1,896
Taxes	
WA Bus.& Occup/Sales/ Use Tax	8,588
Bankcard sales %	4,827
Capital Improvements	423
Miscellaneous (Calligraphy, Awards)	1,690
Info Dissemination-Marketing	3,583
Newsletter	867
Website	3,074
Standards Devel/Admin (Exam/App Eval/CoC)	12,993
Depreciation	945
Total Expenses	**$144,910**

Highlights from BCPE's 2008 Annual and 2009 MidYear Meetings

2008 Annual Meeting

- David Copley, BEE of Emcor Group was elected as BCPE's first public member of the Board of Directors.
- Suggested revisions to the BCPE Bylaws and an amended Disciplinary Policy were reviewed and adopted.
- The 2009 budget was reviewed and approved.
- Final details were completed to submit our NCCA accreditation application by September 30, 2008.
- Redesign of the BCPE logo and website were discussed.
- Strategy priorities for 2009 are: 1) exam revision, 2) CoC and 3) marketing.
- New directors, David Brodie and Elaine Wisniewski, were welcomed to the Board.
- Outgoing Directors, Peter Budnick and Mark Hoffman were presented with plaques of appreciation for their six years of service on the Board.
- Officer elections were held. Chris Hamrick was appointed as President; Jim Kondziela as Vice President; Lynda Enos as Treasurer; and Jim Rudd as Secretary.

Mark Hoffman, MA, CPE and Peter Budnick, PhD, CPE rotated off the Board of Directors in September 2008 after completing two three-year terms of service.

2009 MidYear Meeting

- A policy was established that all international exam administrations must be approved in advance by the Executive Committee.
- It was announced Bob Moritz had recently resigned from the Board of Directors after 5 years of service.
- Jim Rudd was appointed as the new web site committee chair.
- A logo design was selected for further reiteration before a final vote at one of the upcoming monthly teleconferences.
- An integrated online application submission system will be investigated.
- The new credentials, Certified User Experience Professional and Associate User Experience Professional (CUXP and AUXP), were established as fully interchangeable with the Certified Professional Ergonomist, Certified Human Factors Professional and Associate Ergonomics Professional, Associate Human Factors Professional.
- Methods to reduce meeting costs were discussed, including the possible use of Skype.
- Directorship elections were discussed. It was decided the vacant position left by Bob Moritz would not be filled in order to keep the number of Director positions at an odd number (currently eleven). It was agreed the directorship slate would be circulated by email after the midyear meeting, followed by an electronic vote.
- The next business meeting was confirmed for October 23-24, 2009 in San Antonio, TX.

Attendees at March 2009 BCPE Board of Directors MidYear Meeting in Reno, NV were: Front row from left: Bill Boyd, MS, CPE; David Copley, BEE; Lynda Enos, MS, CPE; Marvin Dainoff, PhD, CPE; Ellen Meyer Gallo, MS, CPE; and David Brodie, MS, CPE. Back row from left: Kris Rightmire, BS, Executive Administrator; Chris Hamrick, MSIE, CPE; Jim Kondziela, PhD, CUXP; Jim Rudd, PhD, CUXP; and Elaine Wisniewski, MSE, CPE.

Volunteer Thank You

The success of BCPE continues to be in large part due to our volunteers. We would like to thank and recognize everyone who has donated their time and talent to BCPE over the past year. We greatly appreciate your service to the organization and those seeking BCPE certification. If we've errantly omitted your name, please know you are appreciated very much.

Tom Albin, MS, CPE
Allison Angold-Stephens, MSc, CPE
José Carlos Banaag, MS, CPE
J. David Beattie, BASc, CHFP ret.
Barry Berson, MA, CPE
Bill Boyd, MS, CPE
David Brodie, MS, CPE
Jeremy Brooks, MSc, CHFP

(continued on page 8)

Volunteer Thank You

(continued from page 7)

Jeff Brewer, PhD, CPE
Russ Brown, PhD, CPE
Peter Budnick, PhD, CPE
Jim Callan, PhD, CPE
Cindy Ching, MHS, CPE
George Chuckrow, BA, CPE
Vincent Ciriello, ScD, CPE
Harvey Cohen, PhD, CPE
David Copley, BEE
Marv Dainoff, PhD, CPE
Bill Elliott, MS, CPE
Lynda Enos, MS, CPE
Sue Ferguson, PhD, CPE
Bob Fox, PhD, CPE
Ellen Gallo, MS, CPE
Rick Goggins, MS, CPE
Julia Greenwald, MSE, CPE
Manohita Gurram, MS, CHFP
Chris Hamrick, MSIE, CPE
Hal Hendrick, PhD, CPE
Laura Hintz, MIE, CPE
Mark Hoffman, MA, CPE
Lee Huber, BS, CPE
Andy Imada, PhD, CPE
Roger Jensen, PhD, CPE
Dan Johnson, PhD, CPE
Gene Kay, MS, CEA
Dick Kelly, PhD, CPE
David Kobus, PhD, CPE
Jim Kondziela, PhD, CUXP
Tom Lambert, MS, CPE
William Lenharth, PhD, CHFP
Mike Maddox, PhD, CHFP
Scott Malcolm, MA, CHFP
Bill Marras, PhD, CPE
Don Manes, MS, CHFP
Darren MacDonald, BScK, CPE
James McGlothlin, PhD, CPE
Tim McGlothlin, MS, CPE
Daniel McHugh, MS, CPE
Hugh McLoone, MS, CPE
Rachel Michael MSc, CPE
Jay Miller, PhD, CPE
Bob Moritz, MA, CUXP
Terry Morris, PhD, CPE
Rudolf Mortimer, PhD, CHFP
Jeanette Murphy, BS, CEA
Lee Ostrom, PhD, CPE
Mike Palmer, MS, CPE
Brian Peacock, PhD, CPE
Graciela Perez, ScD, CPE
Miguel Perez, PhD, CPE
Randy Rabourn, MSIE, CPE
Vince Racco, BSc, CPE
Wayne Rhodes, PhD, CPE
Valerie Rice, PhD, CPE
Michael Rodriguez, PhD, CHFP
Jim Rudd, PhD, CUXP
Bob Smillie, PhD, CPE
Thomas Smith, PhD, CHFP
Peregrin Spielholz, PhD, CPE
John Stevenson, PhD, CEA
Jack Stuster, PhD, CPE
Mike Welch, MS, CHFP
Elaine Wisniewski, MSE, CPE
Chuck Woolley, MSE, CPE
Vesa Vannas, MSc, CPE

Changes to the 08-09 Directory of BCPE Certificate Holders

BCPE would like to congratulate the 94 candidates who have successfully obtained certification since our last newsletter. The current number of BCPE certificants is 1,190:

- 1,039 CPEs/CHFPs/CUXPs
- 82 AEPs/AHFPs/AUXPs
- 69 CEAs

New certificate holders are:

CPEs/CHFPs
+David W. Abell, MS, CPE
**Hector M. Acosta, PhD, CHFP
**Anthony D. Andre, PhD, CPE
**Thomas J. Armstrong, PhD, CPE
**Richard W. Backs, PhD, CPE
Amy B. Baker, MSIE, CPE
**Carolyn K. Bensel, PhD, CPE
**Cheryl A. Bolstad, PhD, CPE
**^Sam F. Bradbury, MAOM, CPE
*David L. Brandenburg, MS, CPE
**Stanford A. Brubaker, MS, CPE
**Barrett S. Caldwell, PhD, CHFP
James K. Chiang, MSc, CPE
*Phillip H. Chung, PhD, CUXP
**Alan E. Diehl, PhD, CPE
**Vincent G. Duffy, PhD, CPE
Emily C. Friedman, MS, CPE
Christina A. Godin, MHK, CPE
**Anita R. Goehringer, MS, CPE
Andrew W. Gondzur, MS, CPE
Miguel Gonzalez, MHK, CPE
**Brian C. Grieser, MSE, CPE
Manohita Gurram, MS, CHFP
*Shane E. Haas, MSIE, CPE
**Anthony D. Hall, PhD, CHFP
Amit Handa, MS, CPE
Monica Lynn Haumann Jones, MHK, CPE
**^Mark A. Heidebrecht, MSE, CHFP
Alison R. Heller-Ono, MS, CPE
**Chris J. Henderson, MSIE, CPE
**Richard E. Hughes, PhD, CPE
**Dale T. Innis, BS, CPE
**Robert C. Johnson, PhD, CHFP
Hayley L. Kaye, MS, CPE
*Elizabeth A. Kihm, MS, CPE
*Michael J. Kuzel, MSE, CHFP
**Andrea M. LaComb, MSIE, CPE
**John C. Lane, PhD, CPE
*Jennifer L. Law, MS, CPE
Richard W. Lawler, MS, CPE
**Andrew D. Le Cocq, MS, CHFP
Paula J. Lewis, MS, CPE
Nadia M. Longo Preston, MS, CPE
**Beverly M. Lovelace, MS, CHFP
**Adnyana Manuaba, MS, CPE
**Mary Willa Matz, MSPH, CPE
**Denise B. McCafferty, MA, CHFP
**Pamela R. McCauley-Bush, PhD, CPE
**Sondra A. Mitchell, MS, CPE
**Timothy G. Moore, PhD, CHFP
**David A. Nigus, BS, CPE
**John M. O'Hara, PhD, CHFP

(continued on page 9)

Changes to the 08-09 Directory

(continued from page 8)

**Timothy J. O'Keefe, PhD, CHFP
Scott D. Openshaw, MS, CPE
**Byron J. Pierce, PhD, CHFP
**Wolfgang G. Pohl, MS, CPE
Jonathan P. Puleio, MS, CPE
Kavitha Raja, PhD, CHFP
**Martha J. Sanders, MS, CPE
**Richard F. Sesek, PhD, CPE
Raina J. Shah, MSE, CPE
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Dannion R. Smith, MHK, CPE
**Mireya M. Springer, BS, CPE
*Ginette C. Taylor, MSc, CHFP
**Robert J. Torres, MS, CUXP
*Timothy L. Ulrich, MS, CPE
**Brian S. Utesch, PhD, CHFP
**Thomas Varghese, MS, CPE
Muthukaruppan Viswanathan, MS, CPE
**Janet R. Wick, BS, CPE
**Ivana L. Wireman, BS, CPE
**Michael S. Wogalter, PhD, CPE
Clinton S. Young, MPH, CPE
**Stephen L. Young, PhD, CPE
**Lori A. Zinnecker, MBA, CPE

*AEPs/AHFPs transitioning to CPE/CHFP
**Via 15-year, portfolio review process
^Previously a CEA
+Reinstated

AEPs/AHFPs
Eric J. Boelhouwer, MSISE, AHFP
***Myrna C. Callison, PhD, AEP
***Dawn F. Chandler, MS, AEP
Gregory P. Cresswell, BSc, AEP
Jess D. Gilland, PhD, AEP
***Courtney G. Kersten, MSc, AHFP
***Jian Liu, MS, AEP
***Carrie R. McEwan, MS, AHFP
Prithima Mosaly, PhD, AEP
Kevin M. Perdeaux, BSc, AEP
***Tonya L. Smith-Jackson, PhD, AEP
***Richard T. Stone, PhD, AEP
Xin Wang, MS, AEP
***By exam waiver as a graduate of an IEA Federated Society's accredited ergonomics/human factors degree program

CEAs
Jill L. Kelby, BS, CEA
Heath R. Klauer, BS, CEA
Tania E. Lillak, BSc, CEA
+Barbara J. Terry, BA, CEA
Luke M. Walker, BS, CEA
+ Reinstated

The following are no longer current in their certification:
David Band
Regina Barker
Valerie Beecher
Myra Blanco
Thomas Davis
Gerhardt Deffner
Susan Dowhan
Joy Ebben
Floyd Glenn III
Majorkumar Govindaraju
Jo Hall
Tim Hallmark
Alan Happ
Christine Herring
John Humes
Bruce Hunn
Gerard Jorna
Alfred Lee
Jeffrey Lewin
Regis Magyar
Ronald Maitland
Patrick Meguire
Matthew Morrissey
Louis Myers
Herbert Nwankwo
Erik Olsen
Niall O'Brien
Mark Ominsky
Peter Picone
Jana Polzin
Bradley Prezant
Jean Scholtz
Edmundo Sierra, Jr.
Navrag Singh
Spencer Thomason
Eric Vaden
Thomas Waters
George Yamashita

Lost

BCPE has lost contact with Justin P. Hagen, BS, CPE, formerly in Ann Arbor, MI. If you know how we can reach him, please let us know.

Retired Status

BCPE offers a retired status for those certificate holders who no longer practice ergonomics/human factors, or if they do, practice no more than 15 hours per month. Originally this status was intended for those who had retired from all work, but has evolved to include those whose practice is limited to occasional work in E/HF or another profession. Retired status is awarded upon approval of the certificate holder's statement of work plus payment of a $125 lifetime fee. There are currently 56 holding the retired status. CHs who have recently opted for the retired status are:

Klaus M. Blache, PhD, CPE ret.
Walter H. Hawkins, PhD, CHFP ret.
LaVerne L. Hoag, PhD, CPE ret.
Richard J. Hornick, PhD, CPE ret.
Rodger J. Koppa, PhD, CHFP ret.
Harold H. Miller-Jacobs, PhD, CPE ret.
Bruce J. Pace, PhD, CPE ret.
James R. Reagan, BME, CPE ret.
Steven P. Rogers, PhD, CPE ret.
Roger L. Stephens, PhD, CPE ret.

In Memoriam

It is with sadness we report the passing of Michael S. Grasso, MS, CPE. Our sympathy goes out to his family and friends.

2009-2010 Industry Conferences

Usability Professionals Association Conference 2009, Portland, OR, June 8-12, 2009

International Occupational Ergonomics and Safety Conference, Dallas, TX, June 11-12

2009 Eastern Ergonomics Conference, New York, NY, June 24

Safety 2009: ASSE Professional Development Conference and Exposition, San Antonio, TX, June 28-July 1

HCI International, San Diego, CA, July 19-24

Annual Conference of the Cognitive Science Society, Amsterdam, Netherlands, July 30-August 1

Annual Conference of the American Psychological Association, Toronto, Ontario, August 6-9

Organizational Design and Management (ODAM) Symposium 2009, Beijing, China, August 9-14

American Society of Biomechanics Annual Meeting, State College, PA, August 26-29

Association of Canadian Ergonomists (ACE) 40th Annual Conference, Quebec City, Quebec, September 14-19

Human Factors and Ergonomics Society 2009 Annual Meeting, San Antonio, TX, October 19-23

National Safety Council 2009 Congress and Expo, Orlando, FL, October 23-28

National Ergonomics Conference and Exposition, Las Vegas, NV, November 17-20

Applied Ergonomics Conference and Expo, San Antonio, TX, March 22-25, 2010

American Industrial Hygiene Conference and Exposition, Denver, CO, May 22-27, 2010

Society for Information Display 2010, Seattle, WA, May 23-28, 2010

BCPE's 2009/2010 Calendar of Events

October 18, 2009	BCPE Exam in San Antonio, TX at the Annual Meeting of the Human Factors & Ergonomics Society. Postmark deadline for application: June 18, 2009.
October 20, 2009	BCPE Networking Reception, San Antonio, TX.
October 23-24, 2009	BCPE Annual Meeting, San Antonio, TX.
November 16, 2009	BCPE Exam in Las Vegas, NV at the National Ergonomics Conference & Exposition. Postmark deadline for application: July 16, 2009.
March 22, 2010	BCPE Exam in San Antonio, TX at the Applied Ergonomics Conference. Postmark deadline for application: November 23, 2009.
April 12, 2010	BCPE Exam at various locations around the U.S. and Canada. Postmark deadline for application: December 14, 2009.
May 23, 2010	BCPE Exam in Denver, CO at the American Industrial Hygiene Conference & Exposition. Postmark deadline for application: January 25, 2010.
September 26, 2010	BCPE Exam in San Francisco, CA at the Annual Meeting of the Human Factors & Ergonomics Society. Postmark deadline for application: May 26, 2010.
November 15, 2010	BCPE Exam in Las Vegas, NV at the National Ergonomics Conference & Exposition. Postmark deadline for application: July 15, 2010.

The Ergonomist Formation Model Revised

CATEGORIES and TOPICS	OBJETIVES and POINTS OF REFERENCE
A. Basic Principles of Ergonomics (13.7%) 1. Systems Concepts (6.7%)	Objective: Overall approach of Ergonomics: To recognize the integrated (systems) nature of ergonomics, the centrality of human beings, to use its breadth of coverage and the available knowledge base to adapt the environment to people. Points of Reference: Structure and dynamics of systems; general and sociotechnical systems theory; human as a system component; human system integration; integrated view of human characteristics (physical, psychological, social) in system development; systems analysis and design; cost-benefit analysis; human role in automation.
2. Design Concepts (7.0%)	Objective: Principles underlying ergonomics and design: To be able to translate general design principles, standards, guidelines and regulations into project specific requirements to which one can design. Points of Reference: Use-centered/user-centered design, ergonomic impacts on the product-design cycle, universal design, design for individuals vs. populations, aesthetics vs. functionality.
B. Core Background Relevant to Ergonomics (13.5%)	
1. Human Attributes (7.3%)	
1.1 Anthropometry and Demography	Objective: To recognize and measure the physical (anthropometric) and cultural differences between people with particular reference to health, safety, comfort and performance. Points of Reference: Anthropometry, gender, culture, developmental (childhood, aging, disabilities), and ethnic variables relevant to design decisions.
1.2 Physiology and Biomechanics	Objective: To recognize and measure the physical characteristics of people and their responses to their activities and their environments with particular reference to health, safety, comfort and performance. Points of Reference: Biomechanics, functional anatomy, and posture; energy and force production, physiological and postural adjustments to stress and workload; circadian rhythm.
1.3 Psychology	Objective: To recognize behavioral characteristics and responses, and to understand how these affect human behavior (including health performance and quality of life), and attitudes. Points of Reference: Psychophysics, perceptual and cognitive aspects of information processing, perception-action analysis (motor skills and learning, proprioception, SR compatibility), human performance/error analysis, vigilance, situation awareness, macrocognition, decision making (formal and naturalistic), impact of motivation, and human development.

(continued on page 12)

2. Environmental Context (6.2%)	
2.1 Physical Environment	Objective: To understand the human responses to attributes of the physical environment. Points of Reference: Climatic environments, perceptual environments including: visual, acoustic, tactile, proprioceptive, motion sensing, vibration and habitability.
2.2 Social Environment	Objective: To recognize the impact of social dimensions on ergonomics to achieve a good quality of life and performance. Points of Reference: Psychosocial factors, motivation and attitudes formed through group cultures and how these impact individual performances; individual and group contributory performances, distributed cognition.
2.3 Organizational Environment	Objective: To recognize the impact of organizational culture and related structure, practices, policies and procedures on ergonomics to achieve a good quality of work-life and performance. Points of Reference: The overall impact of social-technical systems on performance outcomes; macroergonomics.
C. Core Methodology: Analysis and Design of Processes and Products (25.4%)	
1. Statistics and Design of Investigations (6.2%)	Objective: To understand, select and use the appropriate methods for investigating ergonomics issues, and present data to evaluate future design solutions. To measure, collect, aggregate, manipulate and evaluate data in a reliable and valid manner. Points of Reference (Statistical and Research Methods): Descriptive and inferential statistics; correlation and regression analysis techniques, estimation and sampling; experimental design including field methodologies; non-parametric statistics, and use of confidence intervals. Points of Reference (Measurement): Reliability and validity (internal and external), physical instrumentation, and psychological measures (questionnaires, interviews, surveys, psychophysical and psychophysiological methods). Epidemiology basics.
2. Basic Process Analysis (6.5%)	Objective: To understand the major methods and procedures used in ergonomic investigations of user activities and work processes (physical and cognitive) and to know when to use them and how to interpret results. Points of Reference: Cognitive work analysis, functional analysis, task analysis, simulations, physical and cognitive model development, activity and performance analysis; subjective methods, including questionnaires, surveys, and heuristic analysis; epidemiological approaches; sampling techniques; and appropriate use of ergonomic and usability guidelines, regulations, and standards.
3. Design Methods (6.4%)	Objective: To understand the techniques and procedures used in the design process and how ergonomic input to the process can be most effectively achieved. Points of Reference: Product design cycles, design standards and specifications, design for manufacturing and maintainability, use-centered design, iterative design, prototyping and participative design. *(continued on page 13)*

4. Basic Usability (6.3%)	Objective: To understand the basic methods and procedures used to assess and evaluate usability of products, systems, and processes. Points of Reference: Heuristic analysis, usability engineering, usability testing, aesthetic assessment, universal design, user experience assessment and accessibility assessment.
D. Methods and Content Specific to Application Area	
1. Human-Machine Interaction (7.1%)	
1.1 Methods	Objective: To understand the methods used in evaluation and design of human machine interfaces (including controls, displays (physical and psychophysical attributes), workspace arrangement and seating) to reduce human error, decrease human workload, and enhance human health, comfort, safety and productivity. Points of Reference: Controls and displays design principles, specifications, and methods, workplace / workstation design, perception-action analysis, S-R compatibility assessment , functional anthropometry, biomechanical modeling of working postures, physiological methods (e.g., electromyography, goniometry), psychophysical methods, epidemiological analysis of risk factors, workplace assessment tools (e.g., NIOSH lifting guide, risk factor surveys).
1.2 Content	Objective: To understand the information available relating to evaluation and design of human machine interfaces (including controls, displays, workspace arrangement and seating) to reduce human error, decrease human workload, and enhance human health, comfort, safety and productivity. Points of Reference: Application of functional anthropometry to design, reach envelopes, controls, displays; application of postural and biomechanical modeling tools, application of workplace assessment instruments (NIOSH), application of workplace assessment instruments and physiological workload assessment data to design. Management of occupational injuries and disorders. Application of accessibility guidelines for people with disabilities. Application of appropriate ergonomic standards and guidelines on workspace design and organization (e.g., OSHA ANSI, HFES, ISO, DOD, and NASA).
2. Human-Environment Interaction (6.4%)	
2.1 Methods	Objective: To understand the methods used in evaluation and design of human-environment interfaces (including factors relating to illumination and glare, heat, cold, noise, vibration, g forces, time of day, and air quality) to reduce human error, decrease human workload, and enhance human health, safety, comfort and productivity. Points of Reference: Lighting and glare measurement, measurement of noise with respect to impacts on hearing loss and communication, and annoyance, assessment of temperature with respect to impacts on human physiological and psychological function, assessment of vibration with respect to impacts on human physiological and psychological function, techniques (metabolic, physiological, psychophysical) for assessment of physical and mental fatigue related to environmental stressors and shift work. *(continued on page 14)*

2.2 Content	Objective: To understand the information available relating to evaluation of human-environment interfaces (including illumination and glare, heat, cold, noise, vibration, and air quality) to reduce human error, decrease human workload, and enhance human health, safety, comfort and productivity. Points of Reference: Application of appropriate standards and guidelines relating to task-appropriate illumination and avoidance of glare (e.g., IIE, CIE, ANSI and DOD); hazardous levels of environmental noise as well as levels of noise which interfere with communication (e.g., OSHA, EPA, ANSI, ISO and DOD); avoidance of heat and cold stress (e.g., ASHAE, OSHA, and NIOSH); avoidance of stress related to vibration (e.g., ISO).
3. Human-Software Interaction (5.8%)	
3.1 Methods	Objective: To understand the methods used in evaluation and design of cognitive components of human-software interfaces to reduce human error, decrease human workload, optimize learning, and enhance human safety, comfort, productivity, and satisfaction. Points of Reference: Usability engineering tools, mental workload assessment tools, cognitive engineering, cognitive task analysis and design, ecological interface design, situation awareness assessment, user models.
3.2 Content	Objective: To understand the information available related to evaluation and design of cognitive components of human-software interfaces to reduce human error, decrease human workload, and enhance human safety, comfort, and productivity. Points of Reference: Application of design principles related to design of user interfaces. Includes display (visual, auditory and tactile) elements, navigation, task flow, situation awareness, mental workload, situated and distributed systems, information overload, design aesthetics, input and output devices.
4. Human-Job Interaction (5.9%)	
4.1 Methods	Objective: To understand the methods used in developing work modules and combing modules into jobs to make them intrinsically motivating, better utilize human capabilities, optimize workload, and avoid stress. Points of Reference: Task analysis, job appraisal, aptitude testing, work methods and human performance measurement (including cost-benefit analysis), work module design, needs assessment for instructional design, team assessment, reliability and error analysis.
4.2 Content	Objective: To understand the information available related to developing work modules and combing modules into jobs to make them intrinsically motivating, better utilize human capabilities, avoid stress and injury. Points of Reference: Application of design principles from literature on job appraisal, aptitude testing, work methods measurement, instructional design, knowledge acquisition, and adult learning.

(continued on page 15)

5. Human-Organization Interface (5.4%)	
5.1 Methods	Objective: To understand the methods used for macroergonomic analysis; that is, optimization of the overall structure and related process of the work system. Points of Reference: Sociotechnical systems approach to work systems design. Cooperative analysis and design of new work systems; process design and re-engineering; basics and application of work schedules; and introduction of change. Application of macroergonomic analysis and design methods [e.g., Macroergonomic Analysis of Structure (MAS), MacroErgonomic Analysis and Design (MEAD), Computer Integrated Manufacturing, Organization, and People System Design (CIMOP), High Integration of Technology, Organization, and People (HITOP) analysis, TOP-Modeler].
5.2 Content	Objective: To understand the information derived from macroergonomic analysis; that is, optimization of the overall structure and related process of the work system. Points of Reference: Application of design principles derived from sociotechnical systems approach to work systems design. Cooperative analysis and design of new work systems; process design and re-engineering; basics and application of work schedules; and introduction of change. Includes focus on training as essential component of redesign rather than add-on. Management of safety and ergonomic programs, including consideration of socio-economic conditions.
E. Application (11.8%)	To apply ergonomics skills and knowledge to human-oriented systems and products. To understand the integrative nature of applying ergonomics, the need for and structure of a specification, and the interactive and iterative nature of work in an applied research or design group, recognizing the practicalities and limitations of applying ergonomics, including the introduction of change.
F. Professional Issues (5.0%)	To understand how ergonomics affects an individual's way of life and to know how legislative actions and current economic situations affect the application of ergonomics. To understand the impact of ergonomics on people's lives, the costs and benefits accruing from ergonomics activities, the social and psychological impact of ergonomics investigations, and the professional responsibilities and requirements for the ergonomics practitioner —including professional ethics, and ability to communicate (verbally and in writing) with stakeholders.

THE PROFESSIONAL ERGONOMIST

The Newsletter of the BCPE

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Volume XVII Number 1

Editor: Rachel Michael, MSc, CPE
Associate Editor: Peregrin Spielholz, PhD, CPE
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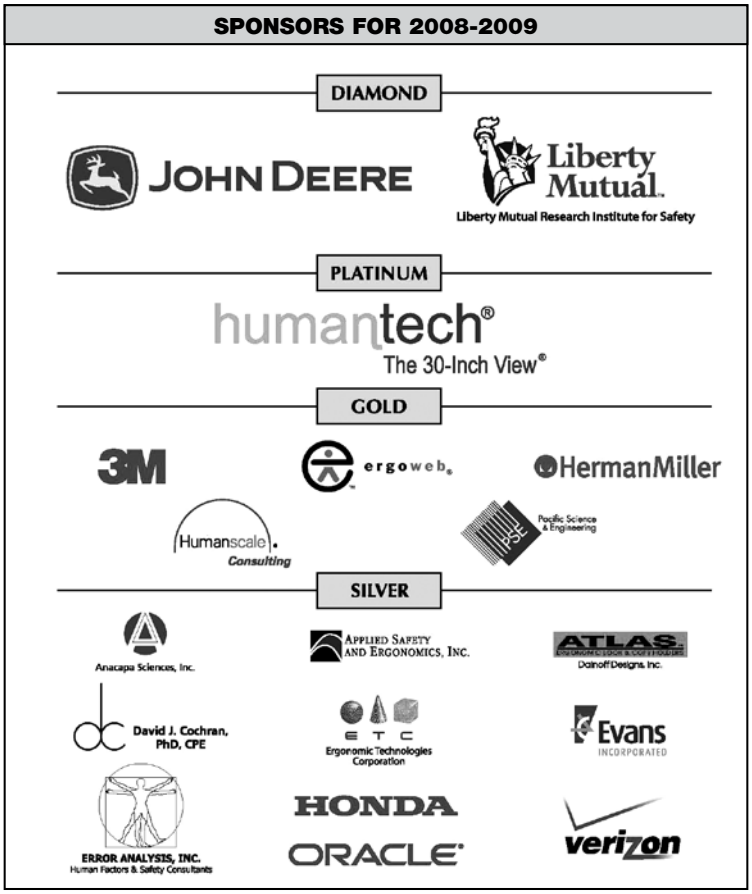
Board of Certification in
Professional Ergonomics
P.O. Box 2811
Bellingham, WA 98227-2811
USA



The BCPE would like to acknowledge and thank our 2008-09 Sponsors for their generous support and assistance with the networking reception and other strategic marketing activities.