

Ergonomic Challenge: Pentagon & Leased Facilities for 60,000 Workers

Brian Higgins, PhD, PE
Special Assistant, Environment & Safety
Defense Facilities Directorate
March 25, 2009



Topics

- Pentagon Reservation Insights
- Ergonomic History
- Organizations Providing Assistance
- Awareness – Communications
- Councils, Committees & Teams
- Ergonomic Activities
- Future

Pentagon Reservation Insights



Ergonomic History - 1

- 1940s Pentagon & Navy Annex built
Open bays, stand-alone furniture, typewriters
- 1980s Space divided, systems furniture, desktops
- 1990 GSA -> DoD, Revolving Fund for Renovation
- 1997 \$1.2 B Renovation began on 1st of 5 Wedges
New furniture cost estimate of \$100+ Million
- 1998 Army Offered Expertise of Ergo Workgroup
- 2000 PenRen & CHPPM: Keyboard Tray Criteria
- 2001 WHS Safety Plan: Ergonomic Chapter
- 2003 SECDEF Mishap Reduction Initiative

Ergonomic History - 2

- 2004 CHPPM Evaluation: Wedge 1 Army furniture
- 2005 Renovation: Universal Space Plan
Furniture Kit of Parts
BRAC decision: 9,200 tenants to Ft. Belvoir
- 2006 Ergonomic Seating Specs: 13,000+ chairs
- 2008 3-D Safety-Stress Management Training
BRAC Site Selection - Mark Center Design
- 2011 Finish Renovation (25,000), BRAC (6,400)
- 2012 Demolish Navy Annex, Land to Cemetery
- Future Facilities Component - Best Practices

Organizations Providing Assistance

- Military Services, Defense Agencies & Field Activities
- WHS Defense Facilities Directorate & IH Contractors
- Pentagon Renovation & Construction Program Office
- DiLorenzo TRICARE Health Clinic:
 - Civilian Employee Health Service
 - Employee Assistance Program
 - Fit to Win/Wellness
- DoD Computer/Electronics Accommodation Program
- US Army CHPPM Ergonomics Program
- DoD Ergonomics Working Group

Awareness - Communications

- Councils, Committees & Teams
- Building Circulars
- Posters, Fact Sheets
- InfoNet Screens
- Newsletters:
 - WHS “The Pipeline”
 - “IT Connect”
 - “The Renovator”
- Health Fairs
- EWG NEWS

Councils, Committees & Teams

- Pentagon Governance Structure:
 - Building Councils
 - Civilian Employees Occupational Health Committee
 - Safety, Environment & Fire Protection Committee
 - Corridor Committee
 - Parking & Transportation Working Group
- Renovation Integrated Project Teams (IPTs):
 - Sustainability & Environment
 - Standards & Design Integration
 - Relocation Planning & Furniture
 - Commissioning

Keyboard & Mouse Pad Specifications (2000)

- 4,027 Workstations (Wedge 1 & Swing Space)
 - 8 page specs
 - Warehouse review of candidate trays
- Provide universal keyboard tray & mouse pad with:
 - Adjustable height: knob-free lifting & positioning
 - Lockable tilt adjustment: rubber knob, round or cylindrical
 - Retractable sliding mouse pad (“banana board”)
 - Removable palm supports for keyboard & mouse pad

Contact: John Pentikis, CHPPM

Evaluation of Wedge 1 Chairs (2004)

- CHPPM assessed workstations & chairs in two renovated Army offices
- 30+ people symptomatic for WMSD injury
- Recommendations:
 - Provide appropriate chairs for prolonged computer work
 - Use administrative controls: 50 min/hour, minibreaks
 - Track symptomatic workers
- Army replaced chairs – no further problems

Evaluator: Captain Colleen Daniels, CHPPM

Universal Space Plan (2005)

- USP: Based on organizational structure & workspace standards to achieve high overall space use
- Smart Walls:
 - Furniture panels form USP partitions, 66” high or to ceiling
 - Surface mounted electrical & IT services
 - Universal rail for overhead shelves or storage bins
 - Change space without altering utilities or wall location
- Furniture Kit of Parts:
 - 45 pieces that define standard workspaces, 45-130 sq ft
 - 70+ configurations based on DoD standards
 - Free-standing “non-handed” units
- All concerned evaluated 6 model workstations

Contact: Brian Higgins, WHS

Furniture Kit of Parts



Wedges 3-5 Task Chair Evaluation (2006)

- Phase 1: 12 Manufacturers: 2 chair models each
- Phase 2: PenRen: blind down-selection: 10 Chairs
- Phase 3: Tenants: informed selection:

<u>Tenant</u>	<u># Chairs</u>	<u>Selection</u>
OSD	3,557	Steelcase Leap
Joint Staff	1,400	Herman Miller Mira
Army	1,526	KI Impulse
Navy	1,773	Knoll RPM
Air Force, Marines	<u>5,317</u>	Herman Miller Aeron 2
Total	13,573	

Task Chair Ergonomic Evaluation - 1



Task Chair Ergonomic Evaluation - 2

Rank	Chair	Lumbar	Seat pan	Seat height	Controls	Ave	Weighted Ave
1	6B	1	1	2	1	1.3	1.4
2	11A	2	1	1	1	1.3	1.6
3	3A	1	1	2	2	1.5	1.7
4	5A	2	1	1	2	1.5	1.8
5	12A	1	1.5	1	3	1.6	1.8
6	2B	3	1	1	1	1.5	1.9
6	10A	2	2	1	1	1.5	1.9
6	11B	3	1	1	1	1.5	1.9
7	Total:	1	3	2	1	1.8	2.0
Etc.	22	Models					

6th Accessibility Forum



Accessibility Forum



Date: Monday, December 3, 2007

Time: 1:00 PM – 3:00 PM

Place: Pentagon Library & Conference
Center, Room # B-6 (Basement)

Forum to discuss Pentagon Reservation
accessibility for people with disabilities.

Presentations:

- *Wedge-by-Wedge Renovation*
 - Construction Progress
 - Access During Renovation
 - Accessible Design Features
 - Fire & Life Safety
- *Pentagon Memorial Construction*
- *Reservation-Wide Construction*
 - Pentagon Library & Conference Center
 - ADA Ramp on River Terrace
 - Center Courtyard Café
- *North Rotary Road Relocation*
- *Legacy Space Update*
- *Building Evacuation*

Accessibility Tours:

Personal tours of construction sites will be scheduled upon request. Additional information will be provided at the forum.



Your participation is very important to us.

E-mail inquiries: georgine.glatz@whs.mil



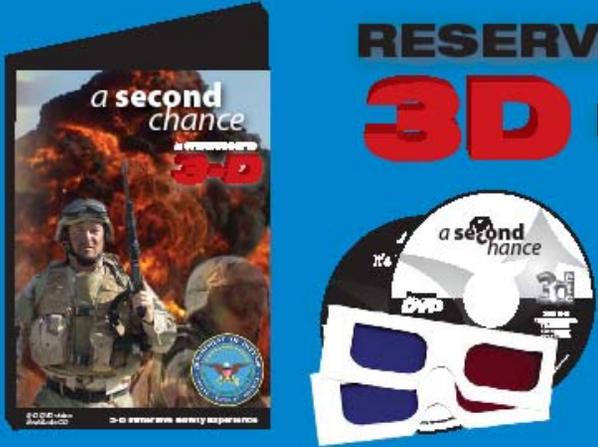
This Forum is sponsored by The Pentagon Accessibility Task Force; Washington Headquarters Services; Pentagon Renovation & Construction Program Office and Defense Facilities Directorate; DOD Office of Diversity Management and Equal Opportunity; and Pentagon Force Protection Agency.

Mobility for Wounded Warriors

Spirit of Hope Awards, Pentagon, 28 Oct 08



Immersive 3-D Safety Training & Relaxation Focusing Techniques



**RESERVE YOUR
3D DVD now!**

...and your seat in one of the first ever safety training programs filmed in 3D!

The image shows a DVD cover for "a second chance" featuring a soldier in a combat uniform against a fiery background. Next to it is a 3D DVD disc and a pair of white 3D glasses.

In February 2008, WHS will offer a unique 3-D safety experience to Pentagon employees. 1 500 people will see "A Second Chance," an all-new training video filmed at the Pentagon under the SECDEF Mishap Reduction Initiative. This immersive training uses relaxation and focusing techniques, 3-D audio and video technology to enhance awareness of safe choices in your office, shop, home, and vehicle. "A Second Chance" makes interactive training more interesting and effective.

To participate in this program, please contact:

LaWanda Cooper - DFD-ETSD, 5E320 | 703-692-3391 | lawanda.cooper.ctr@whs.mil

Brian Higgins, DFD-DO, 5E442 | 703-697-5066 | brian.higgins@whs.mil

*The 3-D experience will be shown as a part of a one-hour class that will begin in February 2008. Every class participant will receive a copy of the 3-D video on DVD to take home and share with friends and family.

"3-D Experiential Training is one of the most interesting and effective ways to experience a safety class."

brought to you by:



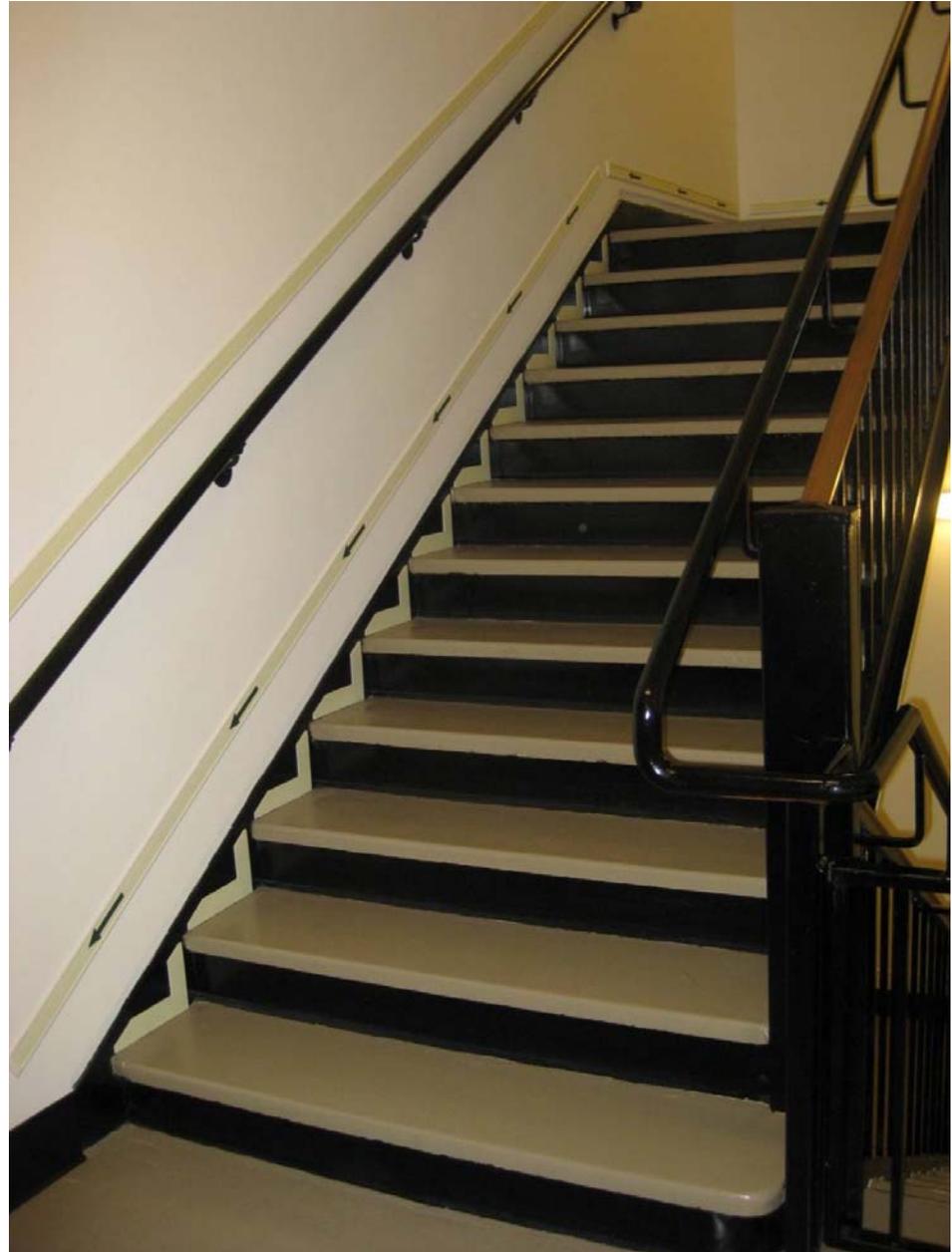
for more information on this program
log onto: www.3-detc.com/secondchance

Prevent Slips, Trips & Falls

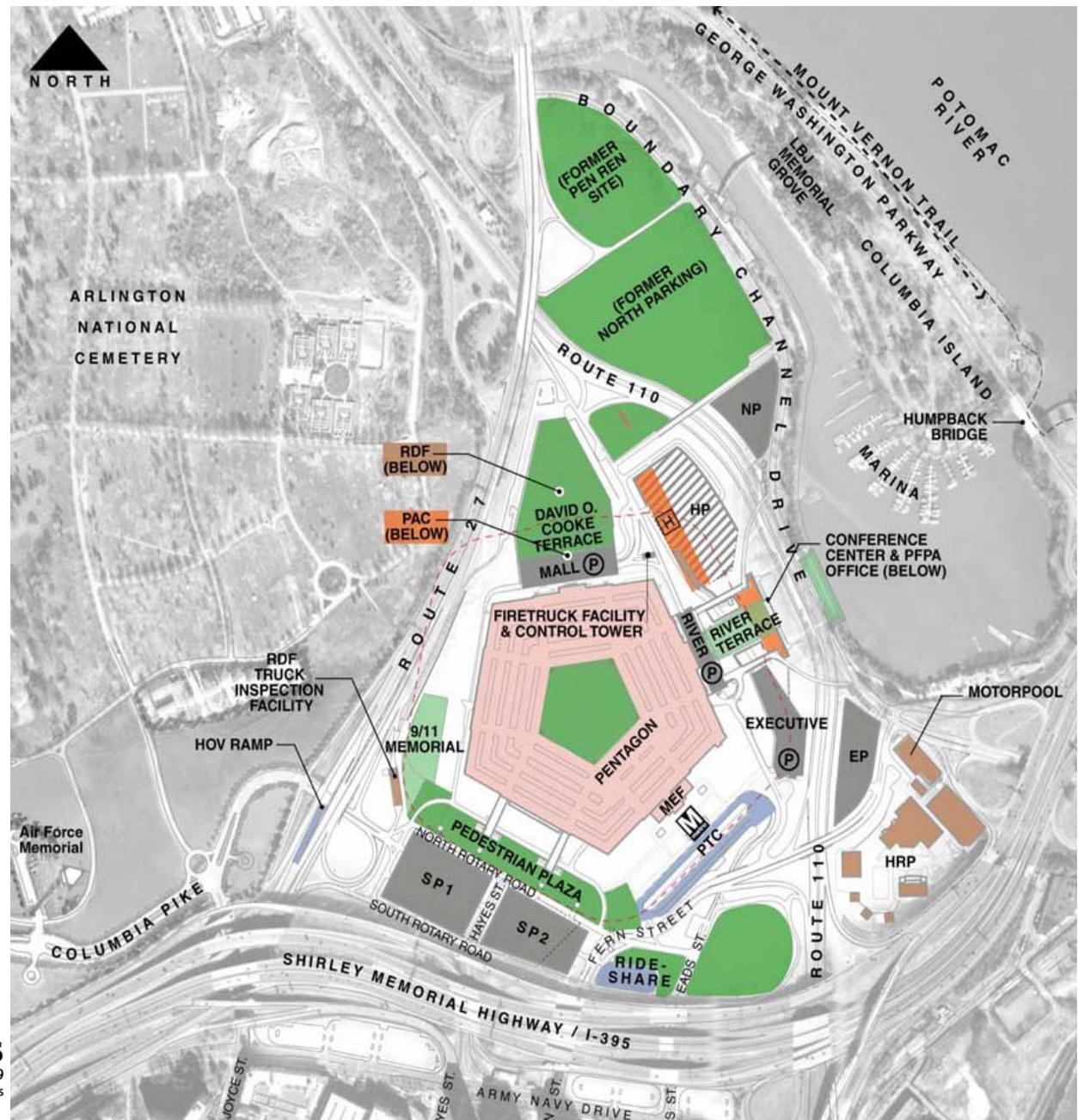
Holiday Safety Message

- Leading causes of home & workplace injuries
- People Solutions:
 - Remove hazards on walking & working surfaces
 - Choose appropriate footwear - Watch your step
 - Do not spill beverages or drop items
 - Practice emergency escape routes in escape masks
 - Use handrails on stairs & escalators
- Facility Solutions:
 - Comply with modern design codes & OSHA standards
 - Reduce walking hazards: inspect, maintain, repair, illuminate

Stairs & Emergency Egress



Pentagon Reservation Master Plan (2005)



Mark Center Site Plan (2009)



Ergonomic Challenge & Responses

Pentagon Insights, History, Organizations

Awareness - Communications

Furniture Evaluations

Accessibility & Egress

Future

Comments? Questions?

Brian Higgins

Pentagon 2E1008, 703-697-5066

Brian.Higgins@whs.mil



Acronym Key

BRAC	Base Realignment & Closure
CHPPM	US Army Center for Health Promotion & Preventive Medicine
DFD	Defense Facilities Directorate, WHS
DoD	Department of Defense
EWG	DoD Ergonomics Working Group
GSA	General Services Administration
IH	Industrial Hygiene
IPT	Integrated Project Team
IT	Information Technology
KoP	Kit of Parts
PenRen	Pentagon Renovation & Construction Program Office, WHS
SECDEF	Secretary of Defense
USP	Universal Space Plan
WHS	Washington Headquarters Services, DoD
WMSD	Work-Related Musculoskeletal Disorder